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Introduction

The last quarter of the nineteenth century saw the spread of an international monetary system based on gold, linking the major countries of the world with fixed international exchange rates for their domestic currencies, a system more stable perhaps than anything seen since. The system evolved: it presented many institutional contrasts: yet all monetary authorities had a common policy aim - the preservation of specie payments or of convertibility of their currencies, to which all other aims were subordinated. Why the gold standard worked successfully in the sense of eliminating balance of payments imbalances without exchange-rate changes in a rapidly changing world economy has proved a challenging question for economists and economic historians. Myths, indeed, have grown up about gold and its discipline before 1914 such that in later years they have at times dominated and even perverted international economic policies. Even now gold refuses to lie down and accept its role as a barbarous relic. Besides describing and analysing the institutional and structural arrangements underlying the gilt facade, this chapter will seek to explain why and how the gold standard worked, especially for Britain,and will emphasize the the importance of the particular and peculiar economic relationships of this period in providing a favourable environment within which the gold standard could flourish.

I

By the middle of the nineteenth century most countries had sought to define their domestic currencies in terms of a metallic base of silver or gold, with silver or gold coins of the appropriate weight as the basic

money substance. In addition, they sought to provide that any bank-notes issued should be freely exchangeable at face value into gold or silver as a matter of domestic convertibility. At this stage, whether silver or gold had been chosen as the base was related to the past history, politics and preferences of the countries concerned. However, so long as the ratio between the price of silver and the price of gold remained steady, fixed international exchange-rates could prevail amongst all such countries whether they had adopted silver or gold, and indeed some countries could hold comfortably to a dual or bimetallic standard, so avoiding the explicit choice of gold or silver. In the second half of the nineteenth century the gold-silver ratio came under pressure to the detriment of silver as the sterling price of silver fell relatively to the (fixed) sterling price of gold, and more countries followed the British example of choosing gold as the metallic base. For Britain, and its associated monetary area in the Empire except for India, had been since 1821 the only major European country which had consistently linked its domestic currency to a gold metallic base.

Indeed, the evolution of the international monetary system in the last quarter of the nineteenth century can be seen in terms of the abandonment of silver by more and more countries as their metallic standard and the choice of gold as the basis of their domestic currency for a variety of motives, both economic and non-economic.(1) For example, the German Empire adopted gold in 1871 followed by the Netherlands in 1873 and Switzerland and Belgium in 1878, while France moved closely towards gold but still retained a form of bimetallism. The United States of America fixed the value of the dollar in terms of gold in 1879, while Russia and Japan had adhered to gold by 1897 as had the Austro-Hungarian Empire in a de facto way. The gold standard, as this form of international monetary system became known,

had spread world-wide by 1900. However, it was not consciously planned - as with the IMF at Bretton Woods in 1944 - but grew from this deliberate choice of metallic standards on the part of countries, and is best thought of as a particular system of international monetary arrangements and balance of payments adjustment.(2)

Once a country had chosen gold, then it became the over-riding policy of its monetary authority (central bank, or Treasury, or commercial banks) to maintain specie payments or convertibility of notes for gold in the face of demands for gold, whether for domestic or international purposes, bearing on its limited gold holdings. The monetary authority had to rely on its own efforts in the main to preserve convertibility with little willing cooperation from other monetary authorities. International monetary policy in the period 1870 to 1914 must thus be defined in terms of the sum of individual monetary authorities' efforts to maintain the fixity of the link between their domestic currency and gold.

Let us consider more analytically what was essentially involved in joining the international gold standard. To become a member of this international fixed exchange-rate system, a country had to undertake three basic measures:

(i) it had to define by law its national currency unit in terms of weight of gold.

(ii) if notes were used domestically in addition to gold coinage, then it had to see that they were freely convertible at face value into gold on demand.

(iii) it had to permit the free export and import of gold.

Measures (i) and (ii), besides providing for domestic convertibility, fixed the mint par rate of exchange of one national currency for another in terms of the ratio of weights of gold for each currency unit. For example one pound or one sovereign was defined as 113.0016 grains of fine gold, while one U.S. dollar was defined as 23.22 grains of fine gold.

Hence the mint-par rate of exchange was

$$£1 = \frac{113.0016}{23.22} \text{ US \$} = 4.8665 \text{ US \$}$$

From this came a system of international fixed exchange-rates with orderly cross rates. Measure (iii) was needed to ensure the maintenance of these fixed exchange rates between national currencies in the face of imbalances in international payments. For in the nineteenth century international exchanges of goods and services were financed mainly by the use of bills of exchange rather than by gold coin, and we might regard this financing as approximating to the mutual exchange of national currencies in foreign exchange markets.

To provide a crude example, which is phrased in such a way as to reflect the important feature that, as most British international transactions were conducted in sterling, foreign exchange business was small in London and the exchanges of sterling for other currencies took place in foreign exchange markets outside Britain: suppose that the United States spent less on imports from Britain than she received for her exports thence, so that America had a balance of payments surplus with Britain or that Britain had

a deficit with America.

American exporters, not wanting to keep the pounds received thus, would seek to sell them for dollars to American importers who required the sterling to pay for British goods. In the above circumstances the importers would be demanding less sterling than was being offered, or the American exporters would be demanding more dollars than the importers were offering. At the current sterling - dollar exchange rate there would be an excess demand for dollars - or an excess supply of pounds - so that the price of dollars in sterling would rise or the price of sterling would fall in terms of dollars and the exchange-rate would diverge from the mint par. Clearly it would become cheaper for an American merchant (or banker) with sterling, but wanting dollars, to use the sterling to buy gold in London and to ship it to American for conversion into the desired dollars at the American Treasury.

Yet gold was not immediately taken as soon as the exchange rate depreciated from the mint par because gold movements were not costless. Freightage and insurance costs had to be paid, while interest was lost during passage, and there was the inconvenience of the operation. Once the sterling exchange rate had depreciated sufficiently to cover these costs, it became cheaper to ship gold : this position was known as the gold export point for sterling at which the outflow of gold stabilised the exchange rate. In the circumstances above the British gold export point was the American gold import point, or the limit to the appreciation of dollars in terms of pounds, and vice versa. For the pound-dollar exchange rate The Economist cited the British gold export point as £1 = $ 4.827 for the period 1877-1914, while the gold import point was £1 = $ 4.890. It does seem that these are average figures and their stability over time seems somewhat suspicious

for costs of freight and insurance varied and individual bankers could evaluate differently the costs and advantages of shipping gold. Indeed, Morgenstern quotes estimates of the gold export point as high as $ 4.857 and of the gold import point as low as $ 4.872.(3) The free international movement of gold was thus crucial in keeping the exchange rate fluctuations of national currencies within narrow bounds about the mint par as was the profit-seeking behaviour of merchants and bankers who shipped gold regardless of any other considerations.

An additional view of the gold-point mechanism relying on arbitrage in gold may be suggested. Suppose the pound depreciates from the mint par against some other currency : it will then become profitable for bankers to buy gold for sterling in London, ship it to the foreign monetary centre where it can be exchanged at the appropriate mint par for foreign currency. This foreign currency may then be converted into pounds at the prevailing market rate and afford sufficient extra pounds to cover the costs of the transactions. (For example, £10,000 would purchase sufficient gold at mint par to convert into US $ 48,665. This could be converted at the gold export point of $ 4.827 to yield £10,082 - a gross gain of £82 before settling transaction costs.) Such transactions would increase the demand for pounds in foreign exchange markets and prevent any further decline in the sterling exchange rate. Arbitrage in gold, which was cheap to transport and generally acceptable, would limit the degree to which a currency could diverge from its mint par in international currency markets.(4)

Monetary authorities could thus be confronted with both internal and external demands for gold, the former being associated with the needs of home trade and even with loss of confidence in bank notes or bank deposits

as compared with gold coins. The latter demands were linked directly to balance of payments deficits which could be seasonal, cyclical, or random. Hence the monetary authorities needed to deploy some of their assets into non-remunerative gold holdings, ample to meet such demands immediately without question and thus to maintain convertibility of their national currencies. Such reserves might be replenished from the internal reflux of gold and from the import of gold whether from other monetary authorities or from the mines. Indeed, the size of gold reserves held would be influenced by the speed at which gold losses could be reversed and the ease with which they could be replenished and the individual variability of foreign currency receipts and payments, while of importance would be the institutional position of the country and its monetary authority's attitude to the holding of idle, unremunerative reserves of gold.

Yet it was not enough that the above measures should be adopted and that the monetary authorities should hold gold reserves and hope for the best. It was necessary for there to be mechanisms and devices and for discretionary policies to be available to monetary authorities by which gold losses could be choked off before reserves were exhausted. Certainly they must have existed and operated effectively, for balance of payments imbalances and gold movements occurred frequently but most gold standard members were successful in preserving convertibility in this period, as such imbalances and movements were reversed. Later we shall suggest what they might have been and how they operated, but first we must consider the pattern of international monetary arrangements as they evolved in the fifty years before 1914.

II

Although the new members who joined the gold standard in this period put into force the essentials of the three measures earlier mentioned, they did not adopt any standard legal or institutional arrangements. Much variety and diversity were to be found in institutional practice and in legal provisions: Britain, Germany, and the United States had a full gold standard with gold coin circulating, while France, amongst others, retained a 'limping' gold standard under which the Bank of France had a choice of converting notes into gold or into full legal-tender (but depreciated) silver coins. Other countries, notably Russia, Japan, and much of the British Empire embraced a gold exchange standard, under which they held much of their international reserves in the form of foreign currency, itself convertible into gold, in balances of pounds, French francs, and marks. In some countries the principal form of internal money was provided by gold coin, in others bank notes were preferred, while Britain led the way in the wide use of cheques. The regulation of the domestic money supply varied from country to country: in some the note issue was rigidly linked to gold reserves held, in others more discretion was permitted to the monetary authorities, while in the former case the effectiveness of such a link was weakened, as in Britain, by the existence of a banking system with no minimum legal cash-deposit ratio, thus giving greater elasticity to the money supply (defined as notes, coin, and bank deposits).

As various countries were at different stages in their economic development and in their degrees of industrialisation, likewise some were more developed than others in their domestic and international financial arrangements. Some possessed effective central banks working within developed

capital and money markets with international business and contacts; others had weak or ineffective central banks. Some, again, had no central bank, but were served by commercial banking systems which might be independent of, or dependent on, foreign monetary centres. Despite this confused picture of monetary institutions, nevertheless all had the same policy objective, the maintenance of the convertibility of their currency into gold, even though the responsibility for this could lie with a central bank, a Treasury or an official conversion office, a domestically based commercial banking system or a foreign-based banking system, each with their attendant political problems. This diversity should warn us against accepting too easily some of the facile stereotypes which have been applied to gold standard provisions regardless of individual circumstances.

Different sizes of economy, different stages of development, elements of political and economic dominance and dependence within and without Empire help to explain the emergence of dominant and dependent relations, or a centre-periphery pattern, in international monetary arrangements, confused though they seem. Indeed as we look further into the substance of the system a more coherent picture results if the international monetary and payments system is regarded as a form of solar system with London at the centre, although this analogy should not be pressed too far since Paris and Berlin were providing other (minor) suns as they developed their international banking. Nevertheless, London and the pound sterling were dominant within the system.

In the first place the various multilateral settlement patterns in the network of trade pivoted on London[5] where the various international banks couldmake the requisite residual settlements in the world's only truly international financial centre. The Bill on London served as the world

currency, such was its convenience and usefulness in settlements, and so great was the confidence of holders of sterling that gold would always be freely available on demand in London : indeed, sterling was better than gold since interest could be earned. London possessed the world's main short-term and long-term capital markets together with the world gold market and produce markets while the role of sterling was further enhanced by the steady development of British overseas banking. The spread of Anglo-Imperial and Anglo-foreign banks not only encouraged the use of sterling internationally but also facilitated the Bank of England's task in meeting strain on its reserve. For these banks, which held sizeable balances in London as their cash reserves (and the foreign exchange reserves of territories which they served), were usually prepared to see them rise in settlement of a British payments deficit with their territories rather than take gold, particularly if it was made worth their while with higher short-term interest rates in London. Furthermore, this transfer of ownership of London balances meant that the London money market would not suffer any loss of resources. London thus had a privileged position in that a rise in sterling balances provided an alternative to a gold loss in the face of a balance of payments deficit.

London, indeed, before 1914 was not greatly concerned with foreign exchange dealings, since the British export and import trade was essentially conducted in sterling - cash against documents. British merchants and traders made and received payment in sterling and did not concern themselves much with foreign exchanges - that was for the foreigner. This was natural enough when London was the world's clearing centre and sterling was the international currency for settlements. Hence, while British merchants did not worry about the exchanges, foreigners were very much concerned with keeping their

rates on London steady in their foreign exchange markets and by their dealings the various sterling exchange rates were kept steady. In this way they helped to make the gold standard approximate to a sterling standard, or rather a bill on London standard. (6)

From this brief survey there emerges the special position of sterling and London which had developed under the gold standard, not only because of the size of international transactions financed in sterling but also through the international institutional dominance of London and the supreme confidence in sterling which the Bank of England had won by always supplying gold on demand. It is important to recognise that by 1900 the international gold standard was very much a sterling standard based on London, when considering its actual operations. Yet the early twentieth century sees some crumbling of the role of sterling, particularly in respect of the rise of the international business of Paris and Berlin.

Official reserves of gold in the world are estimated to have grown from some £205 million in 1880 through £535 million in 1903 to £1010 million in 1913, the bulk of this fivefold increase being concentrated in the last decade before 1914. (7) Gold discoveries and their exploitation, particularly in South Africa, underlie this rate of expansion. In the same period Bloomfield has estimated that official holdings of foreign exchange for 18 countries grew from £13 million in 1880 to £185 million in 1913 (8), thereby forming a growing proportion of world international reserve assets, but remaining a minor part. This impression is confirmed by Lindert's estimates for 1913 which are presented in table I. Official holdings of silver are also included, although nearly half were held by the American Treasury and their size overstated their relative importance and use. It is clear that gold remained the major international reserve asset, and it is

Table I

Official Gold, Silver and Foreign Exchange Reserves 1913, £ million.

(35 countries)

	(1) Gold	(2) Silver	(3) Foreign Exchange	(4) Total
U.K. : Bank of England	34	0	0	34
France : Bank of France	139	25	1	165
Germany : Reichsbank	57	14	10	81
Other Europe	361	63	126	550
N. & S. America	363	108	13	484
Africa, Asia, Australia	41	23	83	147
Total	995	233	233	1461

Source : Lindert, P. H., Key Currencies and Gold 1900-13, pp 10-12.

Note : Converted into pounds at 1913 parities.

Table II

Official Holdings of Foreign Exchange 1913, £ million

Where held	(1) Total	(2) European Holdings	(3) Rest of World Holdings
U.K.	89	16	73
France	57	54	3
Germany	31	24	7
Other	13	9	4
Unspecified	43	34	9
Total	233	137	96

Source : Lindert, P.H., Key Currencies and Gold 1900-13, pp. 10-12, 19.

interesting to note that the Bank of England, which was very much at the centre, held a mere 3.4 percent of the total official holdings of gold.

Of the official holdings of foreign exchange in 1913 nearly 60 percent was held by three countries, Russia with £63 million, Japan with £48 million and India with £28 million. Furthermore, while the greatest reported single holding of foreign exchange reserves was in the United Kingdom (38 per cent), this holding was matched by the combined holdings in France and Germmy. Indeed, European countries clearly preferred to hold their official foreign exchange reserves in francs and marks rather than in sterling,while the position was reversed for the non-European countries, who strongly preferred London. It is more difficult to obtain as complete coverage for private holdings of foreign exchange but Lindert's estimates indicated a figure of some £120 million for 1913 with a similar relative division between Britain, France and Germany.(9) Again, it should be noted that official holdings of foreign exchange grew from £51 million in 1899 to £233 million in 1913 at an annual rate of 10.8 per cent, while official holdings of gold grew at an annual rate of 6.3 per cent between 1903 and 1913.(10) This build-up in balances (threequarters of which were reported as being in pounds, or marks, or francs) would also indicate a collective excess of payments over receipts in the British, French and Germany balances of payments after allowing for all other transactions including gold movements.

Although the compilers of these statistical estimates properly urge caution, nevertheless they do provide a broad picture of the rise of the gold exchange standard, the growth of rival centres to London, and the extent to which the Bank of England chose to keep its gold reserves so low, both relatively and absolutely. Not only do they indicate some modest

crumbling of the pure gold standard (quite apart from the issue of its sterling underlay) after 1900 but also of the relative British position within it, a decline which had parallels in other spheres of British economic activity.

III

Within this framework how did monetary authorities cope with balance of payments deficits and their associated gold losses? How were they reversed? Let us consider the economic implications of an external gold loss or a fall in foreign exchange holdings, before we discuss the policy-induced reactions of monetary authorities.

When a country experienced a balance of payments deficit and an associated gold loss, might there be equilibrating forces set in motion by the disturbing factors causing the gold loss? Comsider the case where a country's export proceeds fall because of a loss of foreign markets or a fall in export prices. Foreign currency receipts fall relatively to foreign currency payments and there is an immediate loss of gold. However, the fall in export values, the disturbing factor, will reduce incomes and output in a multiplier process and hence will reduce import purchases so that the immediate balance of payments deficit is narrowed as the process works itself out (assuming other categories of autonomous spending remain unchanged initially). Similar equilibrating forces would operate when the disturbing factor was a rise in lending abroad at the expense of home spending, or when from a given income there was a switch from spending on home goods to spending on imports, or when there was a fall in the proceeds of foreign borrowing which were being used to finance home (investment) spending.

In all cases contractionary income movements would cause import payments to fall and the deficit to narrow.

Not all disturbing forces would have such consequences. Suppose gold was being lost because a domestically financed boom had increased imports sharply, or because lending abroad had risen by the use of idle deposits, or because there was a switch in non-resident balances from one monetary centre to another, as holders adjusted their portfolios to a more preferred choice of assets. (Here, in the case of a once-and-for-all transaction the gold flow would cease as holders completed the desired readjustment of their stocks of assets, but would persist so long as asset-holders continued to unwind their position to which there was a clear limit eventually set.) In all these circumstances there would be no direct effect on incomes and imports as earlier outlined.

The importance of these factors would depend on how frequently deficits occurred for reasons which had equilibrating tendencies as outlined above. Secondly the strength of such effects would depend very much on the nature and structure of the economy, being more powerful in an economy with a low marginal propensity to save and a high marginal propensity to import (for example, developing economies such as Australia, Argentina, (South Africa) and less where the marginal propensity to save was higher and the marginal propensity to import lower (for example, France, United States).

Consider where the marginal propensity to save is 0.1 and the marginal propensity to import is 0.4 and governmental transactions are assumed away. The multiplier would then be 2. A fall in exports of 100

would immediately worsen the balance of payments by 100, but then incomes would fall by 200 and imports by 80 so that the ultimate worsening is limited to 20. Reverse the propensity values. The unchanged multiplier still produces the same fall in incomes of 200, but imports only fall by 20 so that the ultimate balance of payments worsening merely declines to 80.

Again, it might be expected that these equilibrating effects would operate more speedily than, say, money supply effects since the disturbing factor affected spending and incomes directly. Experience bears this out. Likewise these effects would exert deflationary pressure on prices unless they were very sticky and this could further promote adjustment. All these effects would apply equally in the specified cases with a gold gain as the balance of payments moved into surplus. Where applicable, the disturbing factor would serve to reduce the surplus imbalance by expansionary income movements.

It is important to take explicit account of repercussion effects of one country's actions on the rest of the world and back to itself, but at the same time to recall that the strength of these effects would be directly related to the sizes of the countries and of their involvement in trade. Suppose a large country, which previously was not losing gold, is stimulated to boom conditions as a result of internal factors (for example, Britain in the first half of the nineteenth century). Activity rises, its imports rise and the balance of payments deteriorates so that gold is lost. The rest of the world's exports thus rise, and their incomes and imports, including purchases from the large country. Some limited balance of payments relief thus would be provided, as well as a further stimulus to its boom. These repercussion effects could prove particularly

important for countries with strong bilateral trading links where they took a large proportion of their traded goods from each other. They also illustrate the potential role of the gold standard in transmitting boom and slump internationally.

The second adjustment force is provided by monetary factors. The loss of gold or the fall in, say, London balances would cause a reduction in the cash base of the country's monetary system and a reduction in its money supply which would tend to be magnified where fractional reserve banking prevailed - unless offsetting tactics were pursued. Deflationary effects would follow as the fall in the stock of money brought a rise in interest rates and hence checks to spending, and more directly in so far as economic units sought to restore their cash balances by cutting their spending. The consequent decline in incomes and output would reduce import purchases and increase the availability of goods for exports, thereby bringing a fall in foreign currency payments relatively to foreign currency receipts. This improvement in the balance of payments might be reinforced insofar as the prices of exportables and import-competing goods were reduced (assuming favourable price elasticities of demand), while this might also alleviate the growing unemployment associated with the former effects. As long as the deficit persisted, the money supply would continue to fall and to induce the corrective deflationary effects until the imbalance was eliminated.

If we now recall that one country's deficit is someone-else's surplus, we can introduce actions by the gold gainers into the adjustment process. Other countries would move into balance of payments' surplus and

import gold, and would experience a rise in the money supply, expansionary effects on spending, incomes and output. Imports would rise, the supply of exportables would be checked, while the price-level might rise, thereby causing foreign currency payments to rise relatively to foreign currency receipts and lessening the surplus imbalance. Such actions would assist the deficit country to reduce its imbalance more easily as the surplus country tended to buy more of the former's goods.

This monetary analysis would indicate a two-way process of adjustment which would come about automatically and might thus provide the answers to our initial questions. However, doubts must be expressed about this analysis on its own : economic experience has indicated that the above monetary processes tend to be slow-moving with time-lags of up to 12 months or more, so that gold reserves could easily have been exhausted before the sluggish adjustment had been completed. Monetary authorities appear to have behaved with more discretion and gold losses were reversed more quickly than the above monetary processes would allow. Hence, although the above analysis provides one possible strand of explanation, we must lay much emphasis on the earlier automatic income adjustment mechanisms, but recall that the monetary effects would always work in the same direction as the income effects for the economy in question.

Despite the possibilities of eventual adjustment to gold losses from the operation of these various automatic effects, monetary authorities reacted to declines in their gold and foreign exchange holdings with various policy-induced measures to protect their ability to maintain specie payments. These measures could be classified into interest-rate policies, money-supply policies, and gold and other devices.

When confronted with a serious decline in its reserves, a central bank might increase its rate of rediscount with the intention of increasing the interest-rate structure in its financial markets - in other words the increase in its rediscount rate had to be 'effective' - and it might have to undertake money supply policies to achieve this. Secondly, it might react to a gold loss by reducing the money supply (by open market operations) to deflate the economy and vice versa in the case of a gold gain in accordance with the well-known interpretation of the 'Rules of the Game' doctrine of later years (gold in, inflate the stock of money; gold out, deflate it), although it must be said that there is little evidence of this behaviour on the part of central banks.(11) Indeed, this interpretation has been persuasively challenged by Michaely and will be discussed later.(12) Thirdly, it could seek to discourage the export of gold by placing obstacles, legal and otherwise, in the path of those seeking gold, or it could enhance its ability to acquire gold by raising its buying price of bar gold or foreign gold coins. Equally it could raise its selling price of such gold. Finally as a separate device those central banks which held foreign exchange could protect their gold holdings by supporting the foreign exchange market thus above the gold export point. How many of these policies were used, and by whom, depended on particular circumstances and this will be discussed later.

In those economies with no central bank, commercial banks could react in similar ways by raising their lending and borrowing interest rates, by increasing their desired cash-deposit ratios, and by reducing their willingness to lend. Such institutions had less discretion than central banks and, indeed, were more wholehearted followers of the 'Rules of the Game', as popularly interpreted.

How might the interest-rate and money-supply policies help to reduce balance of payments deficits and gold losses? As the interest-rate structure rose and particularly the market rate of discount, alterations in international capital movements could be expected. Funds employed abroad could be repatriated to now more profitable home use; fresh foreign funds could be attracted, while higher rates could help to retain existing non-resident balances; those seeking short- or long-term loans for use abroad might defer their transactions or even seek loans in another cheaper monetary centre. These quick effects may be interpreted as stock adjustments by the various holders of portfolios of financial assets to a given change in interest-rate differentials amongst various monetary centres. In these circumstances a given change in differentials would produce a limited effect which would cease when the most preferred holding had been achieved. To produce a continuing net inflow of funds further widenings of the interest-rate differentials would be required to induce further stock adjustments.

These quick effects, whose operation would clearly be confined to developed monetary centres, would afford valuable, but temporary, help to monetary authorities seeking to reverse gold losses, for there would be limits to their continuance over time. They would depend for their efficacy on perfect confidence felt by profit-seeking bankers in the stability of mint-par rates of exchange, and on the comparative lack of reaction of other monetary authorities when one sought to establish an interest-rate differential in its favour to reverse its gold losses.

The longer-run effects of higher interest rates and reduced money supply would bear on spending plans in the economy : investment activity might fall, while consumers might seek to replenish their cash balances by

reducing consumption expenditure out of a given income. These deflationary effects would reduce incomes, output and import purchases, thereby reinforcing the adjusting forces already noted but only after a substantial lag, and could further promote adjustment if they brought a fall in the price-level.

In so far as gold-gaining monetary authorities pursued opposite discretionary policies to gold-losers - lower interest rates and an increased stock of money - they would tend to check their gold-gaining tendencies and ease the size of the adjustment problems for the gold-losers. This point is made with clarity in The Report of the Committee on Finance and Industry - the Macmillan Report - Command 3897 of 1931 :

'The Nineteenth century philosophy of the gold standard was based on the assumptions that (a) an increase or decrease of gold in the vaults of Central Banks would imply respectively a 'cheap' or a 'dear' money policy, and (b) that a 'cheap' or a 'dear' money policy would affect the entire price structure and the level of money incomes in the country concerned.' (para. 43).

and as a result of following such policies when gaining or losing gold,

'Gold standard countries were indeed supposed to meet each other halfway, each altering its conditions sufficiently to bring about the desired equilibrium.' (para.185).

This Report was indeed sceptical whether things had actually worked like this (paragraph 295) as indeed we shall be.

Our analysis has concerned itself with external drains of gold, but monetary authorities who were responsible for a gold coin circulation faced also the possibility of an internal drain on its reserves as rising activity brought an increased domestic transactions demand for gold coin, or because of a panic demand for liquidity. The above policy measures would help to restore gold reserves after such an internal drain by attracting gold from abroad, by making it more costly to take gold internally, and by checking home activity to produce an internal reflux. Such countries in a period of steady growth would need to ensure favourable balances of payments to produce net imports of gold to meet internal coinage demands : for this the output of new-mined gold and gold discoveries were essential. Nevertheless, Triffin's estimates indicate that over 90 per cent of the increasing total domestic money supply in the major countries of the world between 1885 and 1913 was accounted for by increases in credit money (currency plus bank deposits).(13) Financial innovations formed a vital element in meeting growing domestic monetary demands - pyramiding on a small, but growing gold base.

From these features other views of international gold movements can arise. As Barrett Whale said 'Our theory must also take account of the possibility that gold movements, instead of being the determinants of the supply of money, may themselves be determined by monetary requirements.'(14) This was the precursor of an alternative analytical approach to the gold standard, which relying on the recently developed monetary theory of the balance of payments, regards gold movements and central bank operations in a very different light. Gold movements are not viewed as disturbing factors which provoke (in the manner suggested above) with lags and difficulty income and price adjustments, but as reflecting domestic monetary

requirements. If the demand for money rises in an economy and cannot be satisfied from domestic sources of monetary expansion, then this excess demand for money will be met by the import of gold which thus equilibrates the demand and supply of money. Likewise, an excess supply of money is eliminated by the export of gold. (15)

It is fundamental to this view that the world commodity markets especially, and also the capital markets, are unified, with the world's economy determining prices and interest rates prevailing in each economy. Individual countries do not have individual control over their prices and interest rates, for through arbitrage between commodity and capital markets they have to accept ruling world prices and interest rates so that domestic deflation, say, cannot influence their prices and interest rates relatively to prices and rates prevailing in other countries. Under such a system central banks lack power, the rules of the game lose their importance, gold flows cannot transmit price changes and the 'gritty' adjustment mechanisms are no required. Rather arbitrage servesto ensure impressive parallelism in price behaviour in the world, and smooth responses without heavy strain.

How, then, could gold flow into an economy which was experiencing an excess demand for money? How could the exchanges become favourable and reach the gold import point? Suppose that there is a rise in real output (brought about by factors other than a rise in the money supply) which creates an increased demand to hold money balances, unsatisfied by domestic monetary expansion. This rise in real income may be expected to worsen the current account balance of payments so that the capital account must improve sufficiently to outweigh the current account deficit and to produce the requisite net surplus to permit the import of gold. This capital inflow could be achieved insofar as the excess demand for money brings a rise in

domestic interest rates which would attract the requisite inflow - the more perfect are the international capital markets, the less of a rise in interest rates will be needed.

In this account one does not ask what repercussions will follow from international gold movements : they are responding to excess demand for money positions (gold imports) or to excess supply positions (gold exports) to produce equilibrium. In this way McCloskey and Zecher explain the conjuncture (for Britain and America) of boom and gold imports, slump and gold exports, and the smoothness of gold standard operations (regardless of central bankers) with no need for painful relative price and wage adjustments which have no place in this perfectly arbitraged world. Gold enters because it is wanted : gold leaves because it is redundant.

However, this simple and attractive approach must be questioned. In the first place, were markets for goods so unified in reality? Certainly, the great commodity markets of the world ensured common behaviour for primary product prices - allowing for transport costs and tariffs - but there was surely less unity for tradable manufactures where differentiated products and monopolistic competition lessened the power of arbitrage, and even less unity for non-tradable goods and services. Indeed, the marked cyclical parallelism of prices in this period might reflect booms or slumps in activity occurring roughly together in the major countries of the world, rather than the power of arbitrage.

Secondly, were the various capital markets of the world so unified? It does seem that they were less closely connected than for commodities and that relationships of dominance and dependence prevailed. It would be better to regard world capital markets as in various stages of development, with Britain almost in a market leader position to which others would accommodate.

Discussion later in this chapter will attempt to substantiate London's drawing power. Indeed, gritty capital markets would not permit the capital flows envisaged in this view. Nevertheless, certain securities were quoted on the world's main stock exchanges so that arbitrage in these would happen.

Again, could all countries acquire their desired gold imports in a world characterised by cyclical parallelism, even with new-mined gold production? Evidence to be presented later will suggest that at boom times the British and American appetite for gold was satisfied by the reluctant willingness of France and Germany to forego their normal import purchases on the London gold market. Barrett Whale, after noting the possibility that gold movements may be determined by monetary requirements and instancing the inflows of gold to Britain and America in booms and outflows in slumps, states in this respect 'Further evidence .... confirms the view that it was the monetary requirements determined by a given price level which provided the underlying cause of the international gold movements.' However he goes on to say 'Presumably the countries which acted as the counter-parties to Britain and America in these movements were in a position to allow a considerable fluctuation in their reserves.'(16)

Any simple application of this equilibrium type of analysis must be treated with caution. Our earlier economic analysis is surely more useful for explaining how situations of disequilibrium were corrected in the short run when the scope for arbitrage was limited, while in the longer run the monetary analysis may have perhaps more value in explaining common trends in prices and interest rates and in suggesting an underlying equilibrium for economies, although it does ignore the specific institutional positions to which we shall attach importance. It also has value in suggesting that countries and their central banks had less control

over their individual price levels than classical theories had supposed, and in indicating how the flow of new-mined gold might be distributed according to need.

To decide how much of our earlier general analysis is applicable to particular countries, it is necessary to examine their financial, commercial and political structures in these gold standard years. While this enquiry might lay low any hopes of a general explanation such as the "rules of the game" model, nevertheless it might well indicate why the gold standard worked so well in some countries and so poorly in others.

Certain key points may be distinguished. Given imperfections in world capital markets and different credit ratings, it was easier for a lending economy such as Britain, France and Germany to stop a gold loss by lending less abroad than for a borrowing economy such as Australia, or Argentina to achieve the same by borrowing more. Whether an economy was a lender or a borrower would have implications for the operation of the 'quick' effects of short-term international capital movements.

Secondly, whether an economy was a primary producer or industrialised had a bearing on the adjustment process. Eor in primary producers such as Canada, Australia, Chile, New Zealand, Argentina and South Africa the prices of their exportable products were determined in world commodity markets and the prices of their imports were determined by their major suppliers so that much of their price levels lay outside their control and was insensitive to domestic monetary policies. On the other hand in industrialised countries such as Germany or Britain prices of their manufactured products were determined on a 'cost-plus' basis and clearly monetary policies could have more influence on such price-makers.

Different balance of payments patterns resulted if a country's economic activity was influenced mainly by variations in export sales as in Britain, Argentina, Canada, and other major primary producing 'export' economies, or by variations in home investment as in the United States. For in the former export-induced booms brought balance of payments current account surpluses and monetary ease, other things equal, as gold flowed in and exaggerated the boom: in the latter home-induced booms would be accompanied by current account deficits, gold outflows, and monetary stringency so that the boom was checked: and vice versa in slumps. Gold standard adjustments in the 'export' economy case meant exaggerating booms and slumps (assuming no capital movement changes), while it meant mitigating booms and slumps for the 'investment' economy.

The stage of development of a country's financial system had important influences on adjustment reactions. In countries with central banks (particularly Britain, France and Germany) more discretion was available in reacting to gold gains and losses, whereas in countries with no central bank the commercial banks on occasion reacted more sharply. This was more noticeable in those economies with predominantly overseas-based banks, such as Australia, New Zealand, South Africa in the embryo sterling area, than in those countries where domestic banking facilities were provided in the main by home-based banks who, at least in Latin America, tended to look more to domestic conditions and were less committed to deflation for the sake of the exchange rate parity.

The nature of a country's social and political system and the priorities accorded to various economic aims shaped a country's reactions to crisisconditions. In countries where rentier interests were dominant, there would be a greater attachment to the stability of the gold-standard and the enforcement of 'discipline', than in countries where debtors were

politically dominant and the attractions of a depreciating exchange rate were strong. Again, the political features of empire and the colonial systems imposed by Britain, France and Germany, made for greater priorities for maintaining specie payments.

This is not intended to be an exhaustive list but to suggest that a variety of patterns existed and that in some environments a fixed exchange rate system such as the gold standard worked better than in others. Indeed, it will be contended that the 'success' of the system in Britain before 1914 resulted from the conjuncture of some highly specific circumstances at a particular phase of world economic development rather than from the masochistic willingness to undergo the "discipline" of gold.

IV

This section is concerned with the actual behaviour patterns of monetary authorities - especially central banks - and will examine in some detail the position of the Bank of England. It will attempt to assess the strength of the various adjustment effects associated with such monetary policies and will suggest that we may have to look elsewhere for an explanation of the speedy, sustained adjustment which was such a feature of the gold standard before 1914.

The avowed objective of central banks was to maintain convertibility and the guide to their policy actions was provided by the state of their reserves relatively to their liabilities, although it has been suggested that policy reactions would not of necessity follow rigidly from changes in the reserve ratio but would involve the use of judgment in individual

situations. How far did events bear this out? In his careful examination of the relationship between central bank discount rates and reserve ratios from 1880 to 1913, Bloomfield found a good inverse correlation - discount rates rising as reserve ratios fell, and conversely - for Britain, Germany Austria-Hungary, Belgium, Holland and Russia, while the inverse correlation was less marked for France, and non-existent for Denmark, Finland, Norway, and Switzerland. (17)

On the other hand when the behaviour of annual average discount rates over time was compared for twelve European central banks (the eleven mentioned plus Sweden), they tended to rise and fall together, particularly for their larger movements, and the resultant cyclical pattern to have peaks and troughs much in line with the European trade cycle. (18) Morgenstern's investigation of the financial inter-relationships of London, Paris, Berlin, and New York confirms in detail this pattern and reveals that the three European short-term interest rates moved together in 60.6 per cent of all months between 1879 and 1914, while the addition of New York reduced the phase correspondence to 48.6 per cent with the British rate the most volatile and the French the most stable. (19) Indeed, the Bank of France preferred a stable discount rate and allowed its ample reserves to fluctuate, while it frequently allowed a gold premium to develop to discourage demands for gold. In contrast, the Bank of England chose to keep low reserves, to maintain a free gold market, and to employ sharp changes in Bank Rate to protect its reserves from strain. For example, it chose to meet the seasonal fluctuations in the British balance of payments - the 'autumnal drain' - by seasonal fluctuations in short-term interest rates right through the period, rather than by holding higher (non-remunerative) reserves.

This common cyclical pattern in discount rates is to be explained partly by other central banks' defensive reactions to the Bank of England's use of Bank Rate, for London occupied a dominant position, and, as the Macmillan Report says 'other countries had, therefore, in the main to adjust their conditions to hers' (para. 295), while for certain central banks, European cyclical parallelism in activity helped to cause reserve ratios to fall or rise together as the central banks experienced internal drains and refluxes, unless swamped by external gold movements. (Given the monetary arrangements and institutions of varying development and influence it does seem preferable to explain the cyclical pattern more in terms of defensive reactions and less in terms of arbitrage amongst various capital markets.) Certainly this pattern of high discount rates in booms and low rates in slumps should not be taken as evidence of a conscious anticyclical policy on the part of central banks, although on occasions they did temper their policies somewhat in the face of domestic hardship. That will be illustrated later in the dominant case of Britain and the Bank of England.

How did equilibrating short-term international capital movements come about when this marked parallelism of discount rates implied that any differential, which a central bank might obtain by increasing its rediscount rate, was speedily eroded by similar (defensive) actions by other central banks? The analysis underlying this question is assuming that there was no asymmetry in effects when the rise of 1 per cent in the rate of one central bank was offset by the rise of 1 per cent of another, whereas much of the literature on the gold standard has always stressed the drawing power of dominance of London. Despite the paucity of data, Lindert's careful statistical investigation of the influence of discount rates of pairs of countries on the bilateral exchange rate between them for the period 1899-1913 bears out the importance of these asymmetries in relation to the drawing power of central banks.(20)

His results indicate that the Bank of England possessed short-run command over most of the sterling exchanges even without changes in international interest rate differentials. London enjoyed supremacy among the three main centres as a result of confidence in sterling, more attractive and useful financial assets and perhaps a lively fear of what might happen if Bank rate had to rise yet more, with a clearer edge over Berlin than Paris, while Paris appeared to have greater influence over the franc-mark exchange rate, so that London gained when all discount rates went up by one percentage point and Paris gained from Berlin. How did Berlin react when losing funds to both London and Paris? Lindert's analysis shows that Berlin had drawing power over smaller European centres, so that her reserves were replenished from the more peripheral countries when a London-initiated squeeze occurred.

He also points out that in every case where there exists a significant inequality in influence over an exchange, the country with the greater leverage appears in the role of a bill lender and deposit debtor as compared with the other country. (21) In times of rising rates of discount foreign borrowers on bill finance could well liquidate these transactions rather than renew, while higher rates could reduce the demand for bill finance from abroad; on the other hand the deposits were held as reserve assets and would remain. Given this explanation, it does seem unnecessary to insist in the British case on the key importance of the alleged net short-term creditor position of London internationally, particularly when the available evidence casts doubt on this assertion. (22)

As Lindert says: 'It is thus on manipulation of short-term flows of capital that the impressive ability of major centers to adjust exchange rates and gold flows in the short-run seems to have rested.

Quantification of the influence of different countries' discount rates over exchange rates reveals that larger financial centers tended to have greater command over each exchange rate than each smaller center, the Bank of England controlling the sterling-mark exchanges more effectively than the Reichsbank, while the latter had greater power than peripheral continental countries over their mark rates. Through this hierarchy, the impact of monetary tightness in London was promptly shifted to ... peripheral countries....' (23)

Some have attributed the successful operation of the gold standard before 1914 to the fact that central banks behaved in accordance with the 'rules of the game', that as a central bank's international assets rose or fell, so it should increase or decrease its domestic assets (by open market operations) to reinforce the effects of international gold movements on the domestic monetary situation. Bloomfield's findings indicate that these items moved in opposite directions in 60 per cent of all observations (annual figures), so that doubt may be cast on this doctrine thus interpreted.(24) However this test must be approached with caution : not only could the changes which are based on annual information mask different movements within any year, but it should be questioned whether the above is the appropriate interpretation of'the rules of the game'. Michaely has persuasively argued that the 'rules of the game' require '... that the quantity of money decrease in the reserve-losing country and interest rates rise, and vice versa in the gold gaining country'. (25) With this interpretation the quantity of money could well fall without the central bank's undertaking any open-market sales and still fall even if the central bank attempted offsetting open-market purchases. In this light such admittedly crude tests have to be viewed.

On the other hand overseas banks, based on London and operating a gold exchange standard for their territories exhibited greater conformity to the former interpretation. For their external assets (resources in Britain) formed part of their cash reserves so that a fall in the former would dictate a fall in their domestic assets as a matter of commercial banking prudence, and vice versa.(26) Again commercial banks in countries with no central banks reacted in similar ways when international gold movements affected their cash position.(27) Central bankers had more discretion, while they might alter their views as to the desirable reserve ratio.

In addition to their use of discount rates, all central banks used other devices to protect their gold reserves.(28) Gold might be attracted by raising the buying price of bar gold or foreign gold coins, equivalent to lowering the gold import point, or a gold drain checked by raising the selling prices of bar gold or foreign gold coins, thereby lowering the gold export point. These measures reduced the profits of the central banks and some central banks deterred demands for gold by redeeming (legally) notes for silver rather than gold (for example, in France, Belgium and Switzerland), while obstacles were also placed in the way of gold-seekers. These ranged from having only one clerk paying out gold to the German doctrine that it was unpatriotic to seek profit by exporting gold, while heavy hints were dropped that the central bank might not accommodate in future the offenders. These devices and obstacles help to explain why exchange rates frequently exceeded the normal gold points and in the short run gold did not move. British bankers were somewhat contemptuous of these continental obstacles and took great pride in their free gold market, made possible by London's superior drawing power. In general, central bank reactions to each other especially in times of crisis, tended to be defensive rather than co-operative.

As Bloomfield says, '... inter-central bank cooperation before 1914 was definitely the exception rather than the rule' (29), yet some occasions arose when central banks helped each other in times of crisis. For example, the Bank of England borrowed 75 million francs in gold from the Bank of France in 1890, while the Bank of France on several occasions (notably, 1906, 1907, 1909, 1910) discounted British bills and made gold available to London. Certainly some of these actions were designed to prevent the London discount rate from having to rise more and thereby necessitating a defensive rise in the French rate.

Let us examine in more detail the operations of the key central bank, the Bank of England, and attempt to assess where the effects of changes in Bank Rate actually made themselves felt.

The Bank of England's paramount objective was the maintenance of convertibility, yet it reacted with discretion rather than automatically to strain on its reserve, being aware of the sometimes conflicting needs of external stability and internal activity. To protect its reserve it employed two main weapons, namely Bank Rate, and 'gold devices', and its Bank Rate policy was succinctly enunciated to the United States National Monetary Commission of 1910:

Q. 'When is the Bank Rate raised and when lowered?'

A. 'The Bank Rate is raised with the object of either preventing gold leaving the country or of attracting gold to the country, and lowered when it is completely out of touch with market rate and circumstances do not render it necessary to induce the import of gold.' (30)

This confident position, nevertheless had been built up hesitantly and tentatively from 1870 as the Bank and the London financial markets came to learn the business of central banking. Note that the second half should be interpreted as a joint condition. The Bank was mindful of earlier years when Bank Rate was out of touch with market rate but circumstances did render it necessary to import gold.

As Scammell and others have pointed out, (31) in 1870 the Bank was still of the opinion that Bank Rate should follow the London Market Rate of Discount, and that it should not initiate changes. However, improving international financial arrangements and information together with the growth of the gold standard brought pressure to bear on the Bank, which began hesitantly to use Bank Rate more positively to protect its reserve from the 1870s onwards. The next two decades saw the Bank struggling to make Bank Rate effective and to gain ascendancy over the market at a time when its own relative position and size were declining. Gradually the Bank was becoming more ready to take on the role of lender of last resort to the market and the market to accept and recognise this so that by the end of the century 'Bank Rate became a swiftly variable and effective means of adjusting the interest rate structure and of influencing capital movements and the balance of payments.' (32)

For an increase in Bank Rate had to be made 'effective', if it was to bring relief to the Bank's reserve by influencing gold movements. It had to bring a rise in the market rate of discount and other (short-term) interest rates to set in motion the quick adjusting forces analysed earlier. Since the demand and supply of funds in the market determined the market rate of discount, the Bank had to be ready to diminish the supply of funds by its primitive open market operations of directly borrowing from institutions or by selling (temporarily) its consols. Sometimes this action was not necessary when the market was short of funds relatively to demand, say when

the balance of payments was in deficit along with high home activity. Yet it must be recognised that it was only in the last years of the nineteenth century that the Bank had gained the requisite control over the market rate whenever the foreign balance required it.

Within this pattern of development it is easy to see the attraction to the Bank of 'gold devices' which were especially developed in the 1880s as an adjunct or even substitute for Bank Rate changes.(33) By increasing its buying price for foreign coin or bar gold or by offering interest-free loans to gold importers the Bank was able to influence international gold movements in London's favour and to replenish its reserve somewhat without having to place pressure on home activity and without having to incur the very real cost of trying to force market rate up. These gold devices were less used after 1907, when the power of Bank Rate was so successfully demonstrated in the November crisis.

Whenever the Bank's reserve was threatened, swift action was necessary, so low was the reserve relatively to British financial transactions (unremunerative gold-holdings were disliked by profit seeking British bankers), and an 'effective' rise in Bank Rate was the main method of protecting the reserve. Given the particular institutional position of London and its drawing power and confidence in sterling, a rise in the market rate and other short rates speedily influenced international capital movements, improved the exchanges, and induced the net import of gold into Britain which the Bank could tap.

Particular channels may be distinguished. Some of the British funds employed abroad were promptly repatriated to now more lucrative home uses as the overseas transactions they supported were unwound daily; overseas-owned sterling balances received an added inducement to stay in London, while

new overseas money was attracted to London, both with the interest-rate differential (where applicable), the drawing power of London, and with a zero exchange risk at the gold export point. Goodhart concludes indeed that in periods where British booms and high Bank Rate coincided British domestic funds moved towards domestic advances and bill finance shifted to the foreign funds attracted thus. (34) Some foreign bills were diverted for discounting to other (cheaper) markets, while on occasions high Bank Rate led to the postponement of long-term overseas issues on the London Stock Exchange.

These quick effects lifted the sterling exchanges from their gold export points so that the gold loss was staunched, and they enabled more of the regular influx of new-mined gold to the London bullion market to be acquired by the Bank rather than being passed on abroad. Indeed, if the exchanges rose to the gold import point, gold might even be attracted from other monetary authorities, although the European central banks were reluctant releasers. (35) The net import of gold into Britain did bear some positive relationship to Bank Rate changes and the trade cycle, (36) and when that is decomposed into net imports from geographical areas, it was only the European net imports which displayed a general and marked similarity with Bank Rate movements. (37) That,indeed, seemed more a matter of desisting from making their normal purchases of gold on the London bullion market when Bank Rate was high, for on average after 1890 net imports of gold from Europe were negative, as the London gold market played its part in allocating part of the flow of new-mined gold to Europe. Help also came at times from the United States and South America.

As a result of this Bank Rate policy and mechanisms, distinct patterns emerge for Bank Rate and short-term rates in London. Within any year Bank Rate tended to rise in the early autumn and to fall away in the

early spring, reflecting the distinct seasonal patterns in home trade and in the British balance of trade, which moved adversely in the autumn and provoked the 'autumnal drain'. The Bank of England chose to cope with this by the use of Bank Rate to avert strain on its scant reserve, rather than by holding more ample reserves to withstand this seasonal movement. From year to year a distinct cyclical pattern can be traced: annual average Bank Rate and market rate tended to be high in booms and low in slumps, thereby providing some mild anticyclical stabilisation by accident rather than design. One reason why the reserve was subjected to strain in booms was provided by the higher internal drain of gold to finance increased domestic transactions, while in slumps this drain lessened or even became a reflux.(38) As will be shown later, another reason lay in the tendency of the British 'basic' balance of payments to move into deficit in an upswing, and into surplus in a downswing, despite that the current account for Britain as an export economy tended to improve in booms and deteriorate in slumps. As noted earlier, other European central banks tended to match Bank Rate changes in a defensive way, as well as finding themselves facing similar internally caused strains at the same time because of the European tendency towards cyclical parallelism.

From their very nature these quick effects were temporary, for there were distinct limits to short-term capital movements and to the willingness of financiers to continue them. They provided a breathing space during which more fundamental adjustments must have taken place because after a period of strain the subsequent fall in Bank Rate did not provoke a renewed gold loss. Our theoretical analysis and the classical theory suggested that such adjustments could have been promoted by monetary effects. Here the automatic effects of the gold loss in reducing the money supply and in increasing interest rates would be reinforced by the Bank's Bank Rate policy and any action to reduce bankers' cash reserves so that this deflation would reduce

spending, output and imports, and perhaps prices would decline also to effect further adjustment.

Nevertheless, there is little evidence of any of these processes taking place in Britain in the period 1870 to 1914. Spending appears insensitive to Bank Rate changes; the domestic money supply accommodated itself to the needs of domestic activity, while the Bank did not pursue the 'rules of the game' in the manner later envisaged.

In more detail, Bloomfield's findings which first cast doubt on the adherence by central banks to the 'rules of the game' have already been noted, while Sayers has remarked, '... that a movement of Bank Rate would probably be accompanied by some change in the availability of bank credit, though the absence of traders' complaints suggests that the latter effect cannot have been marked.' (39) Lindert has commented, 'The main argument against emphasizing this adjustment mechanism is simply that it operated only with lags too great and too uncertain to account for the remarkable smoothness and rapidity with which exchange rates, international gold flows, and the gold reserves of central banks seem to have been altered.' (40)

Recent work by Goodhart (41) has demonstrated the lack of any close positive association between the cash base of the commercial banks, as represented by bankers' balances at the Bank of England, and the reserve position of the Bank, which adherence to the 'rules of the game' doctrine (old interpretation) would require. In other words the Bank did not reinforce the liquidity pressures on the banks during periods of domestic expansion when its own reserve was under strain. In periods of rising activity and increased demands for cash, the Bank allowed the proportion of reserves to liabilities to fall and earning assets to liabilities in its banking department to rise so that increased demands for cash could be met at the expense of a higher

Bank Rate. Commercial bankers increased their balances at the Bank of England to support their increased business at the expense of call money, thereby forcing the discount market to seek accommodation at the Bank, which granted the requisite accommodation at the now higher Bank Rate.

In this way. can be explained the marked statistical associations of rising activity, rising bankers' balances and Bank Rate but falling reserve and proportion of reserve to liabilities at the Bank, which would negate 'rules of the game' activity on the part of the Bank. Goodhart concludes that 'these results suggest that domestic credit expansion, and the money supply, generally varied in such a way as to accommodate changes in the level of activity. Movements of income and of the money supply were quite loosely associated, but this association was owing to variations in the money supply being adapted to the fluctuations in money incomes.' (42)

While it is not possible to show a stable relationship between bankers' balances and their deposits because of lack of suitable and accurate information about deposits, nevertheless individual banks appear to have maintained their chosen cash-ratios quite steadily, although these did vary widely between banks. It can be reasonably supposed that increases in banks' reserves would be accompanied by rises in deposits and advances. Indeed, deposits and a nces do exhibit a strong cyclical pattern,(43) while the ratio of advances and discounts to deposits is associated positively with Bank Rate fluctuations and variations in activity, particularly before 1893.(44) In booms then bankers met increased demands for accommodation by becoming less liquid, while in slumps they became more liquid as demand fell away.

Although the money sypply effects had this accommodating character in Britain, we must consider whether the associated interest rate changes affected spending in the ways economic analysis (and the rules of the

game) might suggest to promote longer-term adjustments by influencing spending, output, and import purchases, and prices. It is useful here to distinguish between the higher costs of borrowing resulting from higher interest rates and the effects on confidence and profit expectations from higher rates. The so-called 'liquidity effects' of higher rates whereby financiers were unwilling to sell securities (now depreciated in price) at a loss to provide extra loans to finance extra spending are ignored here as are the 'crisis' effects where people and banks so desired liquidity after a rise in rates that a dearth of loanable funds resulted, as happened in the first half of the nineteenth century.

It is very doubtful whether high short-time rates in Britain had directly any significant cost effects on investment decisions since they were rarely high enough for long enough : rather one would expect higher long-term rates to bring significant cost effects. On the other hand, in so far as Bank Rate had become regarded as an index of economic prospects - a rise in Bank Rate signifying possible (international) difficulties and indicating caution - then a sharp rise in Bank Rate could lead to a reappraisal of profit forecasts and a postponing or abandoning of a project, thus setting in motion corrective forces.

Certainly Bank Rate affected (sometimes after a struggle) the short-term interest rate structure in London (bill rates, deposit and advance rates) and thus altered the cost of short-term borrowing, but the short-period connection between changes in Bank Rate and in the long-term rate of interest as represented by the actual yield on Consols was quite insignificant, although the rising trend of Bank Rate after the 1890s was accompanied by a rising yield on Consols. (45) However, we have suggested that it was the long rates which would have the more significant cost effects, but they were insensitive immediately to Bank Rate changes.

In his statistical work on the British economy Tinbergen concluded: 'We have already observed that the influence of interest rates on the course of investment activity - which is the chief influence interest rates exert, according to our results - is only moderate. A rise in interest rates depresses investment activity, but only to a modest extent.' (46) Supporting evidence is provided by Pesmazoglu's study of British home investment fluctuations which states 'But it seems that variations ... in the long-term rate of interest did not have an important influence on fluctuations in British home investment between 1870 and 1913.' (47)

The Economist conducted a survey late in 1907 into interest rate effects on investment activity at a time when short rates had been high for a year but the American crisis of 1907 had broken. (48) It emerges from the replies that Bank Rate was but one factor influencing businessmen and in this case its cost effects were less important than declining American purchases and shocks to confidence. Nevertheless, respondents strongly believed that middlemen would be squeezed and expected prices of raw materials to fall in this gloomy atmosphere.

In short, the influences of Bank Rate and associated rates alone on home activity and investment decisions were weak, but when a rise in rates was associated with an international crisis, which might coincide with a boom in Britain as in 1890 or 1907, then the combined effects were more powerful, and it did seem that merchants were more severely affected than manufacturers. (49)

It has been suggested that the use of Bank Rate shifted the burden of readjustment onto other countries (in particular the primary producers). (50) On the one hand higher Bank Rate forced suppliers of imports to Britain to liquidate their stocks at lower prices, thereby providing better terms of trade for Britain and bringing relief to the British balance of payments

at the expense of the primary producers. However, the monthly and annual movements of British import prices and the terms of trade do not support this suggestion.(51) On the other hand, there does seem more support for the view that higher Bank Rate and difficult monetary conditions in London could on occasions postpone new overseas issues, and thus improve the British balance of payments at the expense of diminishing supplies of sterling for the borrowers, who would also be adversely affected if the higher Bank Rate attracted short-term funds from their monetary systems. The primary producers, it was argued, would thus face deflationary pressures and adjustment burdens thrust on them from Britain, the centre country. Yet the costs were shared. For as their activity declined, these primary producers returned the burdens onto British export industries in terms of lower purchases and growing unemployment there, although the City of London remained unscathed.(52)

In summary, then, the major influence of Bank Rate lay in promoting equilibrating (short-term) international capital flows into London, while the longer-run influence on domestic activity must be considered as weak on their own. Rules of the game behaviour by the Bank of England appears non-existent and the money supply accommodated itself to the needs of domestic trade. The longer-run forces, which enabled specie payments to be maintained by the Bank, must be sought elsewhere than in the monetary mechanism, which provided relief while other forces eliminated more persistent imbalances. A caution must be issued : these monetary sector conclusions refer to Britain. It would be dangerous to think that they were typical and that behaviour elsewhere was similar without more detailed work, some of which remains to be done.

V

The monetary arrangements of the gold standard survived in this period only because they were not subjected to persistent strain. British arrangements, in particular, have been examined and this revealed that fundamental adjustment forces had to be sought elsewhere, while the behaviour patterns of other central banks did not accord well with the rules of the game mechanism. However, there were particular features of the developing international economic environment which made for stability or prevented excessive imbalances from developing and swamping the monetary arrangements.

One major source of assistance was provided by the tendency of the four main trading countries of the world - Britain, France, Germany and the United States, collectively accounting for roughly one half of world trade - to display similar cyclical fluctuations in economic activity. All four were in the same phase of their reference cycles in 53.5 per cent of all months between 1879 and 1914, while the three European countries were in the same phase in 83.1 per cent of all months.(53) The interlinking of these countries with others by means of trade and capital flows, together with contagious changes in business confidence, ensured that broadly similar changes in activity took place in most other countries.(54) This cyclical parallelism tended to ease the problems of balance of payments adjustment. As one country experienced rising incomes and imports and a worsening balance of payments, the parallel expansion of incomes and import purchases elsewhere brought it rising exports and an easing of its balance of payments difficulties.

Again, the cyclical parallelism in the movement of prices, diminished the scope for expenditure - switching effects which might

have occurred if one country was booming or slumping on its own and which would have exaggerated its imbalances. This also would imply that if a country had succeeded in reducing its general price-level, as in the classical model of the Cunliffe Report, to stop a loss of gold by improving its balance of trade, it would have been confronted in practice by similarly falling prices in its main markets and of its main rivals. Scope for adjustment by (relative) price changes was limited.

Noteworthy also besides the cyclical parallelism in prices in major countries were the similar secular or trend movements in prices in these countries, which became particularly marked after 1880, so that major changes in relative prices of various countries did not occur over time to provoke payments imbalances. (55) Clearly the common input of raw material and food prices, determined on world commodity markets, provided one important ingredient, but differential movements in productivity, money wage-rates, or in profit margins could have caused price trends to move out of alignment. Perhaps, then gold standard mechanisms helped to keep them in line?

The monetary theorist'sstress on arbitrage between unified commodity markets is certainly relevant and important here, but other forces can be invoked. Suppose that a country's prices moved out of line from others in an upward trend: falling export sales and sales of import-competing goods could be expected together with tighter monetary policies induced by the worsening balance of payments, all of which would lower incomes, output and employment. In an environment of weak trade unions, competitive firms, and a relative absence of price-fixing, the growing unemployment would apply a corrective by restraining the growth in money wage-rates until prices were realigned more competitively with other countries. (56) This case is consonant with cyclical parallelism in that the country would

suffer more severe slumps and weaker booms until realigned.

A second source of stability was provided by the links between Britain and the borrowing primary producers on the periphery of the gold standard, in that they prevented large imbalances from developing. British loans to overseas countries tended to stimulate, both directly and indirectly, purchases of British exports and their debt-service payments (both interest and dividends) to Britain. Increased lending by Britain thus did not increase their foreign exchange reserves - indeed, frequently the loans until used were held as London balances - nor diminish British reserves appreciably for any length of time. With the completion of the projects financed in this way, production of exportables rose for which free trade Britain provided a growing market. The primary producers' exports rose so that they could meet their foreign debt service obligations and make dividend remittances to British lenders easily and purchase extra goods from Britain, without balance of payments strain. Such trade flows contributed to the economic growth of both partners and provided a basis for stability, while it should be noted that the settlement patterns underlying these trade flows had a multilateral character.

Such is the long-run picture which contributed to mutual growth and stability, but short-run difficulties and crises did occur. The flow of lending abroad at times exceeded the British current account surplus and had to be checked by Bank Rate, with ensuing harmful repercussions on the borrowers; frequently, borrowers had to make debt-service payments immediately while it took time (up to five years) for their export earnings to expand, and in the meantime the flow of loans had declined. In difficult times borrowers seeking to avert balance of payments problems might well find access to short-term credit in London very limited or even impossible so that these imbalances were eliminated by the (automatic) mechanism of falling

incomes and imports, with consequent repercussions on British export sales. Indeed, one element in the British trade cycle is to be found here, and it is important not to underrate these short-run problems.

In those not infrequent cases of imbalance where the factors causing the initial gold gain or loss brought automatic equilibrating income movements, the forces acted speedily and without governmental offsets to affect the balance of payments, indeed being reinforcedby monetary institutions' actions in certain cases, particularly in those countries without central banks. The actions here of gold-gaining countries in reducing their surpluses thus (and through the slower-working money supply effects) were particularly helpful to the gold losers, since one country's surplus imbalance was the counterpart to others' deficits and adjustment was thereby eased for deficit countries. Severe imbalances were thus less likely to persist. Furthermore, under the conditions of economic growth and development in this period, adjustment for deficit countries implied rather a temporary check to their growth rates than an absolute decline in incomes.

The growth in international economic transactions was fortunately matched by a corresponding growth in gold reserves in the hands of monetary authorities, which came from the various and spectacular gold discoveries. Erratic though they were, they served to increase the cash basis of the expanding gold standard and to ensure that the growth in world payments and trade was never permanently checked by liquidity problems and rising interest rates. This is alloting a permissive role to gold discoveries. Their influence on the behaviour of prices before 1914 is debatable, while factors such as innovation, population growth, the extension of areas of supply, and the growth of money substitutes must be reckoned with. Gold discoveries also helped to ensure for deficit countries that adjustment was

not so much a matter of competing for an existing stock of gold from other monetary authorities, but rather trying to acquire a larger share of the currently new-mined gold. The growth in international reserve assets was further helped by the willingness of some to hold increased currency balances in London, Paris, and Berlin, especially after 1900. This also enabled Britain, France, and Germany to amass more monetary gold, although otherwise their balance of payments positions would not have permitted this. Adjustments were immediately eased for these centres, although the increased balances would become a potential source of strain.

Within this framework in the fifty years before 1914, Britain received a steady net import of gold, without having her interest rate structure permanently higher than elsehwere; indeed the long rate on average was lower than in other monetary centres. Her balance of payments was not protected by any import restrictions, the London financial and gold markets were far freer than elsewhere, while unemployment did not seem to be greater than in other countries. From this it must be concluded that Britain enjoyed over the period a favourable balance of payments, which enabled her to claim a share of the growing output of gold without having to impose severer deflationary forces or restrictions than elsewhere. How was this achieved, since doubt has earlier been cast on the efficacy of the monetary forces as operated in Britain? (57)

In the first place many of the occasions, when Britain experienced balance of payments imbalances and gold tended to move (until Bank Rate took charge), promoted automatic equilibrating forces which brought partial relief. In particular for a deficit imbalance may be specified:

(i) an autonomous fall in export sales, other things equal.

(ii) an increase in lending abroad at the expense of spending on home goods.

(iii) an increase in import purchases at the expense of spending on home goods.

(iv) an increase in cereal import purchases, necessitated by a bad home harvest, this bringing an immediate fall in domestic output as well as a switch from home goods to imports.

In all these cases incomes fell and so did import purchases to lessen the deficit imbalance, and vice versa for a surplus imbalance. The size of such relief may be instanced by estimating roughly the size of the British multiplier from the likely values of the marginal propensities. With a marginal propensity to save of 0.15, to import of 0.30, and a marginal tax leak of 0.10, all with reference to national income at factor cost, the multiplier is 1.8. Hence a fall in export values of 100 brought a fall in national income of 180, and a fall in imports of 54. This relief was increased on those occasions when home investment spending declined along with exports. These relationships have been cast crudely in current price terms rather than in real terms. Money value terms are important for the balance of payments although this approach compounds price and income effects together. Perhaps no great harm is done in the absence of spectacular changes in prices and where cyclical parallelism limited the scope for substitution effects.

However, where the balance of payments moved into deficit because of short-term or long-term lending abroad from idle balances, then no such relief was present, although the gold loss would cease where the international capital movement was an unrepeated portfolio adjustment by asset-holders to reach a more preferred composition of assets. If it was desired to replenish gold reserves or if the international capital flow persisted, then we must look to Bank Rate effects alone in reversing these flows.

While these cases were not infrequent, there do seem to be fewer occasions when a domestic investment boom increased imports sharply and provoked a deficit with no relieving mechanism except cyclical parallelism.

The longer-run position of the British economy and its balance of payments noted earlier becomes remarkable when it is recalled that British overseas lending at times exceeded 8 per cent of her national income during the 18-20 year long swings in investment abroad which could have formed a serious disruptive force. For it was not a case of Britain lending abroad an existing and otherwise uncommitted current account surplus and of avoiding accumulating too much gold. It was rather that the act of lending abroad (a main vehicle being overseas new issues on the London Stock Exchange) tended to create after a lag of a year or so an increased current account surplus needed to bring about the transfer of this lending without permanent loss of gold.(58) Of central importance in these economic processes were the sensitivity of British exports to British lending abroad, and the long-swing alternation of home and overseas investment. For the use made of the funds by the developing borrowers of the funds - to buy directly extra imports from Britain, or to finance increased domestic spending which increased import purchases - served to increase British exports directly and indirectly. The expansionary effects of such increased exports did not communicate themselves fully to British incomes and imports because the trend of home investment was falling at the same time as the trend of overseas investment was rising. Hence, export values rose relatively to import values, and, with the help of increased interest and dividend remittances from abroad as a result of extra lending, created a current account improvement sufficient to cover the overseas lending transfer without loss of gold. It must be stressed that the argument has been cast in terms of trends and in the long run, whereas changes in overseas lending did give rise to balance of payments problems in short-run or cyclical terms.(59)

Why these opposite trend patterns should have developed is a complex matter which remains somewhat unsettled. (60) At times, the pull of overseas ventures attracted men and finance away from home enterprises, causing home investment to decline. On other occasions, the drying up of profitable opportunities at home increased the relative attractiveness of overseas ventures, whose promoters then met with a more favourable reception in London, and men and finance were pushed abroad. Gradually,however, matters reversed themselves as the more profitable projects abroad were undertaken and at home the number of attractive possibilities grew. Underlying, and related to, these movements in relative profitability and attractiveness, were the inverse courses of the building cycles in North America and in Britain. While the behaviour of the terms of trade can be incorporated into the above framework, allowance must be made for random factors. Nevertheless, the consequences of this inverse pattern are highly important for long-run stability of the British balance of payments in that they explain along with the sensitivity of British exports to overseas investment why such large waves of overseas lending did not disrupt British adherence to the gold standard and why the long swings in home investment did not bring periods of heavy unemployment or of inflationary pressure.

Given that the British balance of payments exhibited this long-run stability, how did the economy cope with the short-run fluctuations in such variables as exports, imports, overseas lending, home investment, all of which impinged on the balance of payments to produce imbalances and gold movements? Movements in these variables have been set out in Figure I in terms of absolute deviations from nine-year moving averages.

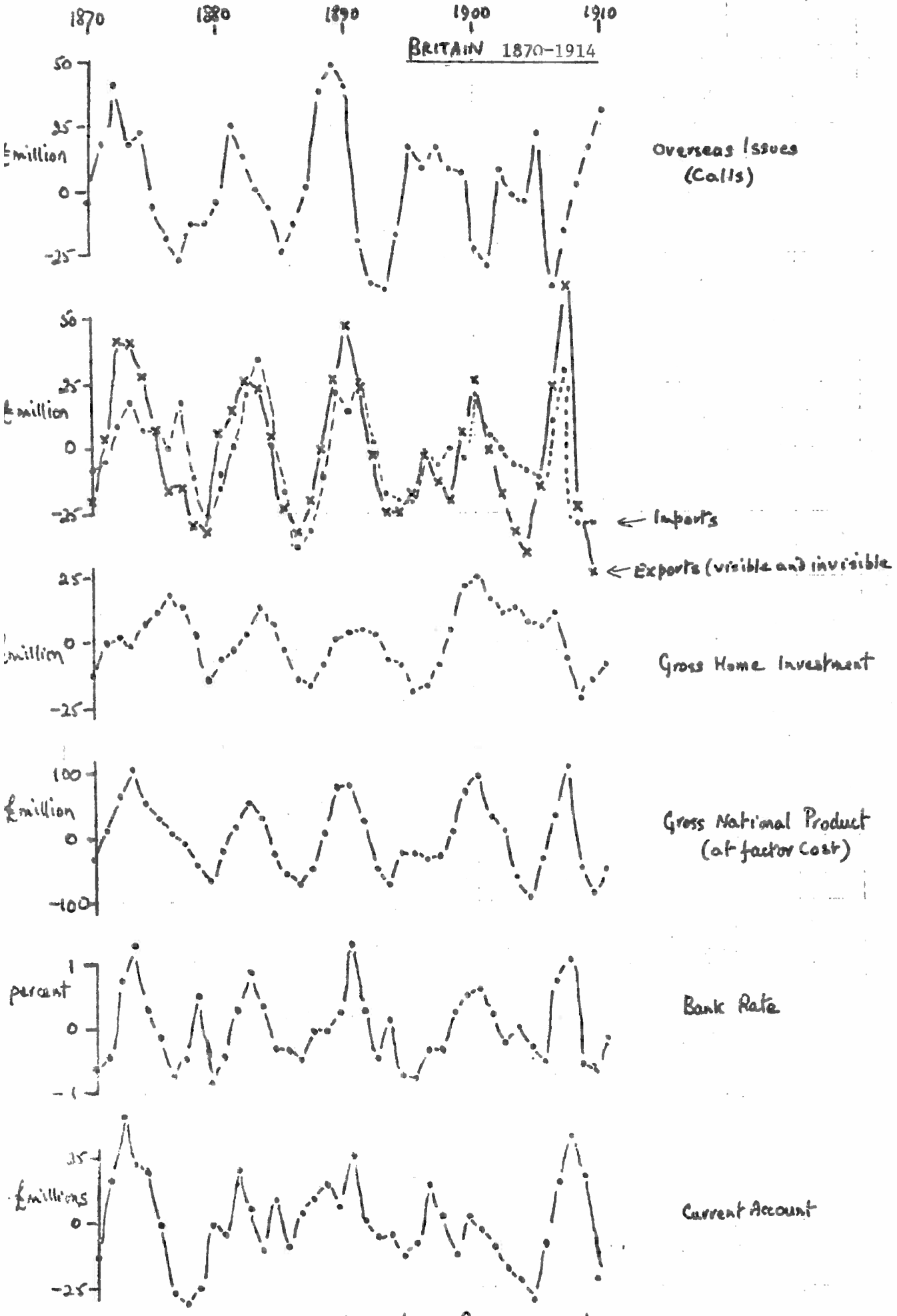
1870
1880
1890
1900
1910
BRITAIN 1870-1914
50
25
£million
0
-25
Overseas Issues
(Calls)
50
25
£million
0
-25
← Imports
← Exports (visible and invisible
25
£million
0
-25
Gross Home Investment
100
£million
0
-100
Gross National Product
(at factor cost)
1
percent
0
-1
Bank Rate
25
£millions
0
-25
Current Account
Absolute Deviations from 9-year moving averages

FIGURE 1

Deviations in exports (visible and invisible, including net income from abroad), national income, and imports were closely and positively associated, thereby providing evidence of the working of the automatic adjusting mechanisms previously specified, as well as of the immediate causes of the British trade cycle. As British imports rose, so this stimulated activity in the rest of the world and led to yet further increased export sales, although damping factors were strong. This mechanism ensured thus that imbalances between exports and imports were speedily reduced, while the current account balance of payments tended to improve relatively to trend in booms and worsen in slumps as a product of this process. It was, indeed, important that it behaved thus, for overseas lending (as measured by deviations in overseas new issues) rose prior to exports and incomes in their upswings, and fell away before them in their downswings, the lead being of the order of one or two years. Hence the balance of payments strain in upswings through extra lending abroad was somewhat offset by the subsequent current account improvement, while in the downswing the worsening current account could be tolerated because overseas lending had fallen away.

Fluctuations in home investment, of smaller amplitude than those in exports, were less closely associated with fluctuations in exports and incomes. This association between investment and exports was more noticeable in the period 1879-1902 in which the influence of variations in exports on incomes and imports were reinforced by like variations in investment so that fluctuations in the current account balance of payments were damped down and the transfer of overseas lending in upswings was made more difficult: on the other hand, before 1879 and after 1902 investment deviations tended to be negatively related to exports so that variations in income and imports were less than otherwise and current account fluctuations were widened, thereby making the transfer of overseas lending easier in upswings.

Bank Rate deviations were positively associated with deviations in exports, incomes, and the current account balance of payments. In upswings strain was thrust on the Bank's reserve from home demands for gold (as noted earlier) and from the external drain brought about by the tendency for overseas lending expansion to exceed the current account improvement so that Bank Rate was moved up to bring relief by short-term capital flows and perhaps by influencing the pace of overseas issues, which tended to fall after successive annual rises in Bank Rate.(61) In slumps the reserve position was eased by the internal reflux and by a more comfortable external position as overseas lending declined more rapidly than the current account position.

The British terms of trade deviations (export prices divided by import prices) exhibited varied cyclical responses, improving in most booms and in few slumps, and worsening in few booms and in most slumps. This behaviour was a product of deviations in export and import prices moving up together in booms and down in slumps, as did retail prices and money wage rates, and so all were positively associated with fluctuations in Bank Rate. In general, the behaviour of these prices does not offer support for the classical price-specie flow mechanism of adjustment.(62)

Particular circumstances and institutions underlay Britain's success in operating the gold standard for herself, yet within this success there were to be discerned, after 1900, growing signs of difficulties to come as Britain's economic and financial position was crumbling relatively to other countries. Indeed, the overall economic mechanisms presented above may mislead somewhat unless it is recalled that they operated within a changing institutional and economic environment.

The Bank of England had evolved its policies and weapons after 1870 and had gradually gained control over London's financial markets by 1900, so that its power and position were more secure then than in 1870, despite a much larger gold standard world. However, rivalry of alternative supply and a relative decline in technology amongst other things had brought difficulties for British exporters who reacted by seeking new markets for old products. Undoubtedly they were helped in this search by British overseas lending to the newer, developing primary producers and the latter's subsequent development, by commercial ties and by the economic and political power exerted by Britain in these markets to facilitate sales of (less competitive) goods. It is noteworthy that British goods claimed a larger share of total imports into such markets as Australia, South Africa, New Zealand, India, than into Argentina, Brazil, Chile, where Germany and the United States had penetrated more. While the sensitivity of British export sales to British overseas lending assisted very much the maintenance of convertibility by the Bank of England, nevertheless the process did help to preserve in profitability an old-fashioned industrial structure and thus to delay the necessary adjustments if Britain was to remedy her technical backwardness.

Again, the dominance of London as the world financial centre and the very great confidence in sterling, the key currency, encouraged the build-up of sterling balances by non-residents in London, more especially after 1900. The counterpart of this build-up of balances was a British balance of payments deficit after allowing for the net import of gold so that these features permitted Britain to postpone, or even avoid, some of the adjustment discipline which others faced. In this way the relative decline of the British export share, the rise in imports, and the desire to lend abroad could be accommodated, when otherwise keener adjustment, in

the form of lower growth than actually occurred, would have been entailed. (63) Lindert even states ' ... Britain's position just before World War one in fact provides the classic example of the "deficit without tears"...' (64)

The above analysis of the operations of the gold standard in Britain, the main central country, has laid stress on the particular favourable circumstances facilitating the Bank of England's maintenance of convertibility. Besides the institutional and financial arrangements centring on London, the sterling system and the confidence in sterling as the world currency, cyclical parallelism, the long-term alternation of British home and overseas investment and the sensitivity of British exports to this overseas lending played important parts in lessening or averting potential imbalances in the British international accounts. Furthermore, automatic adjusting mechanisms consequent upon factors causing gold movements had a notable role in speedily lessening imbalances so that all in all the monetary mechanism associated with Bank Rate had to cope with relatively slight long-run difficulties. This, indeed, was as well since its weakness in affecting spending has been demonstrated as has the Bank's lack of adherence to the rules of the game doctrine for influencing the money supply. On the other hand, Bank Rate, when made effective, contributed vitally in the short run by promoting swift international capital movement reactions to staunch gold losses from the Bank's reserve. While Britain thus avoided persistent deficits unmatched by a willing build-up of London balances, equally large surplus imbalances were avoided and the pound was never a scarce currency for the rest of the world so that, when in deficit, other countries found balance of payments adjustment easier. Yet, in the early twentieth century, as has been indicated briefly, seedsof future difficulties for Britain were being sown by certain elements which had contributed to her successful maintenance of specie payments.

VI

The previous section has concentrated on the behaviour of the Bank of England and on Britain as the central country under the gold standard, and the balance needs redressing by more detailed examination of other countries' experiences in addition to the brief remarks earlier. First, French and German experiences will be examined to be followed by a discussion of two 'periphery' countries, Canada and Argentina.

Both France and Germany possessed central banks and were building up international monetary business particularly with other European countries with long-term overseas lending and the discounting of bills and with the growth of non-resident owned balances in Paris and Berlin. The Bank of France and the Reichsbank were each committed to maintaining their gold standard parities and employed Bank Rate policies and gold devices like the Bank of England but used in addition more 'questionable' devices to deflect pressures on their gold reserves. Table III , which presents evidence of the range and frequency of Bank Rate changes for the three major central banks, indicates that those two used their Bank Rates less frequently to protect their reserves than the Bank of England, even though they were victims of London's drawing power (see above pp.), some of which strain they could pass on to others.

Table III

Changes in Bank Rates

	1871-1890			1880-1913		
	Low %	High %	Number of Changes	Low %	High %	Number of Changes
Bank of England	2	9	176	2	7	194
Bank of France	2	7	28	2	4	30
Reichsbank	3	6	72	3	7½	116

Sources: 1871-1890, Bankers Magazine, 1891, vol.51, p.971.
1880-1913, H.D.White, The French International Accounts 1880-1914, Harvard, 1933, p.189.

The Bank of France had a strong preference for stability of interest rates, which it believed was to the benefit of home trade, and was able to maintain such stability partly by keeping large gold reserves so that it did not have to react to a gold loss as precipitately as the Bank of England. Secondly, the Bank of France which had the legal option of redeeming notes with legal tender silver (though depreciated in terms of gold), used a gold premium policy to deter demands for gold by charging up to 1 per cent more if gold was requested. Hence it could protect its reserves by partially suspending free payments in gold rather than by manipulating its rediscount rate. Such a policy was used regularly, and indeed as late as November 1912, and quite sharply at that. (65)

In Germany, since the Reichsbank's reserves were not high enough to enable it to behave as the Bank of France, it reinforced its Bank Rate policy, which was modelled on the Bank of England pattern, by

unseen pressure on 'difficult' bankers who sought gold (for export) at inconvenient times, and by occasional and covert use of a gold premium policy (for example, in November 1912). Indeed, while British bankers could be profit-seekers on all occasions, German bankers were compelled at times to be 'patriots' and not seek gold for export. Furthermore, as an additional measure, after 1900 the Reichsbank built up its holdings of foreign bills which it used to support the mark exchange-rates at difficult times.

Passing '... to other countries of less financial strength, we find the dependence of their Central Banks on holdings of foreign bills and on foreign credits, their willingness to permit a premium on gold, and the inadequacy of their bank rates taken by themselves, to be increasingly marked.' (66) There seems little reason to disturb this verdict of Keynes.

Table IV

Annual Changes in International and Domestic Assets 1880-1913

	(1) Similar +	(2) Opposite -	(3) No Change 0
Bank of England	16	17	1
Bank of France	9	25	0
Reichsbank	10	22	2

Source: A.I.Bloomfield, Monetary Policy under the International Gold Standard, 1880-1914, New York, 1958, p.

Table IV indicates that the Reichsbank and the Bank of France appear to have ignored the so-called rules of the game even more than the Bank of England, when these rules are interpreted as implying that the central bank should change its domestic assets in the same way as its

FRANCE 1880-1914

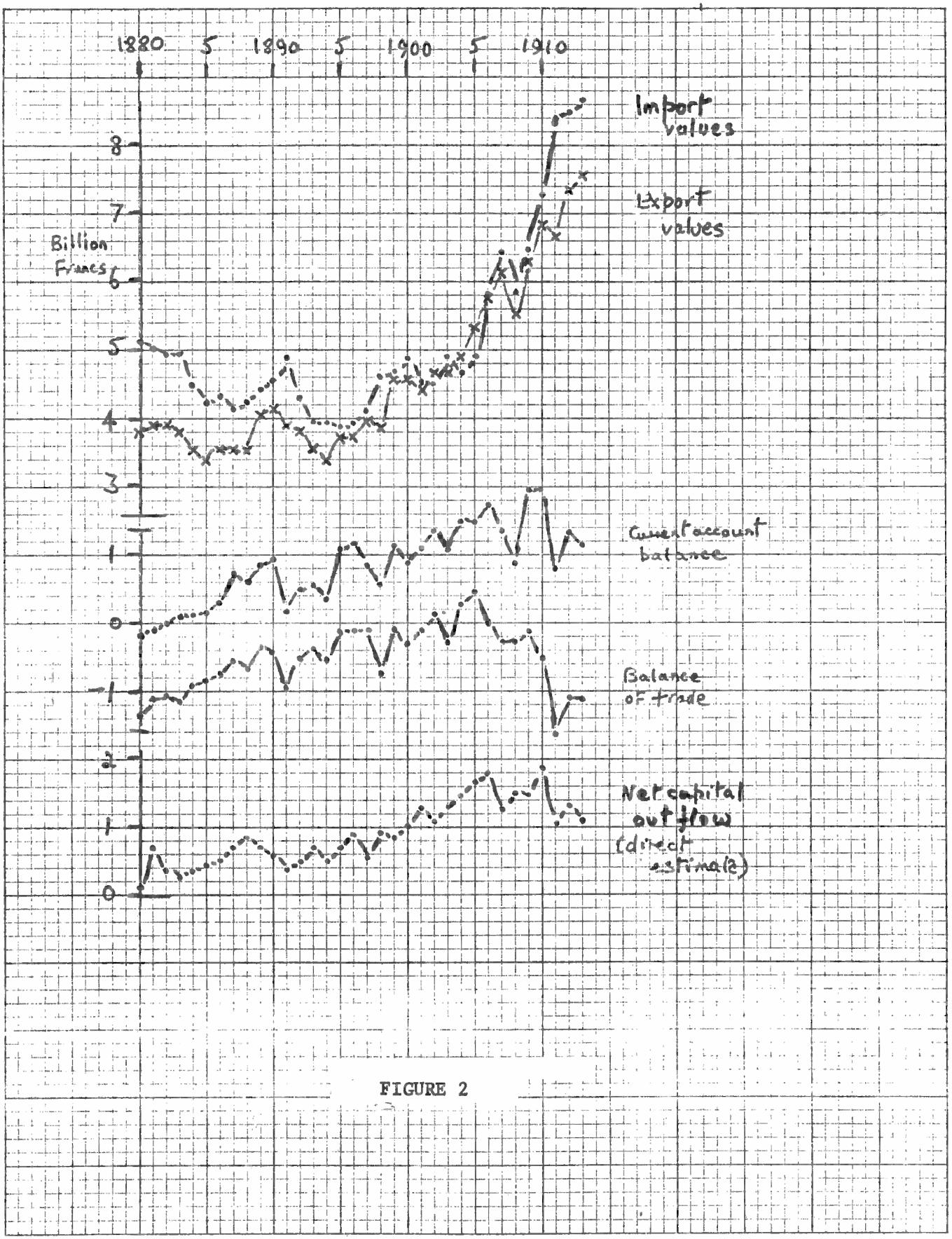

FIGURE 2

GERMANY 1880-1914

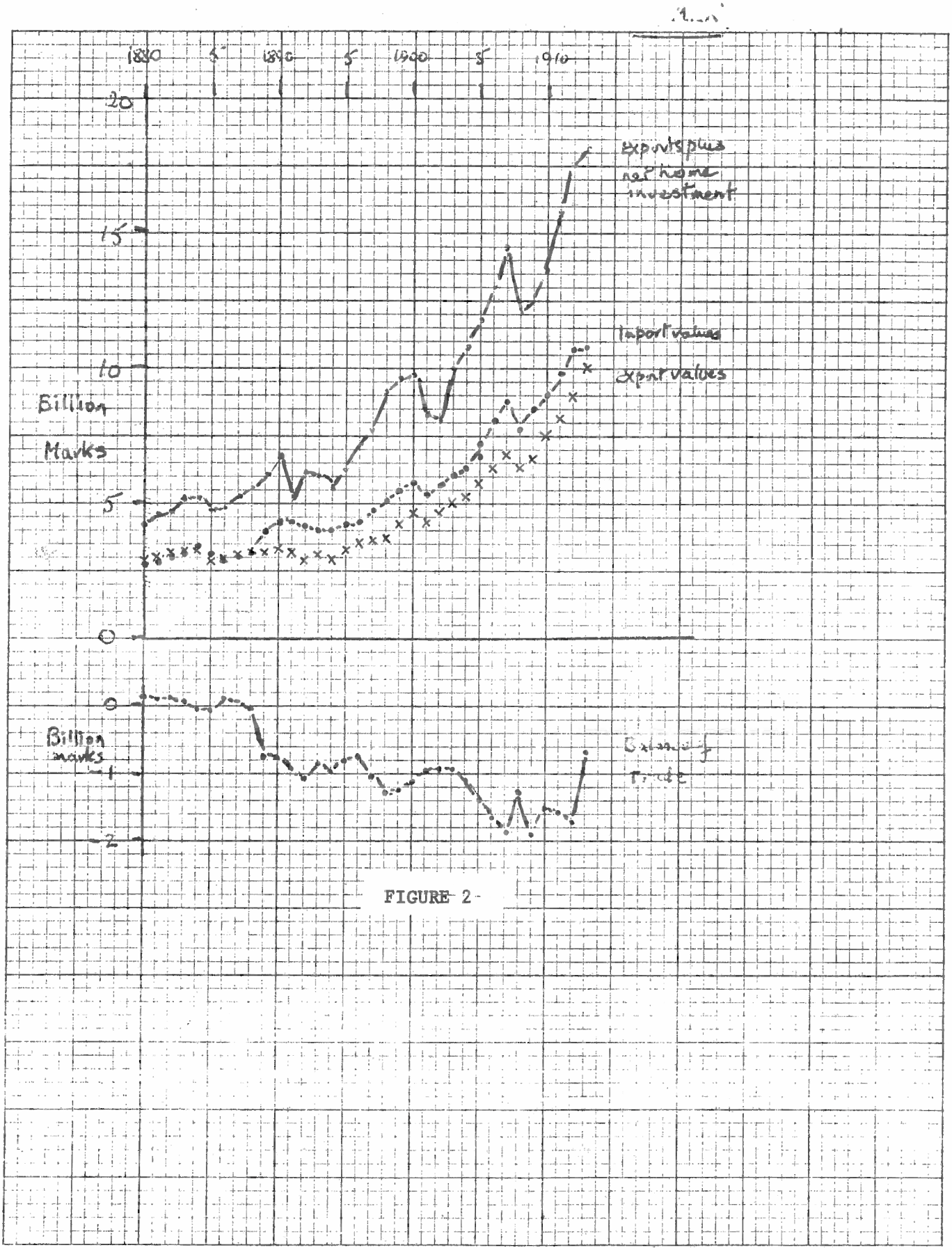

FIGURE 2

international assets have changed to reinforce the effects of gold movements on the domestic money supply. Indeed, it would seem that in both France and Germany international gold movements did not at least in the short run affect the domestic money supply - rather the domestic money reaction to gold movements was very much a (muted) short-term interest-rate reaction. As White has put it for France: 'Fluctuations in these (sc. specie) reserves exerted only a slight influence on the volume of credit or note circulation. There was no trace of the gold-reserve-discount-rate - volume-of-credit sequence held by the neo-classical theory to be the necessary chain connecting disequilibrium in the balance of payments with sectional price changes.' (67)

International transactions are less well and less reliably documented for France and Germany than for Britain, but reference to figures 2 and 3 indicates the parallel movements of merchandise export and import values for each country. This would suggest that some of the automatic effects noted earlier were operative together with the forces of cyclical parallelism. It is interesting to note for France that export values behave relatively to imports in such a way that the balance of trade and hence the balance of payments on current account move in the long run to offset the outflow of French foreign lending (from direct estimates), and thus to prevent balance of payments strain. Given the character of French foreign lending and export composition, it does seem less likely that these movements were achieved by lending stimulating French exports directly as happened in the British case. Rather it would seem that rising French exports stimulated rises in incomes savings and imports and an improving current account balance of payments: some portion of the increased French savings were then lent abroad and thereby lessened the net import of gold into France which would otherwise have followed the current account improvement.

FRANCE AND GERMANY 1880-1914

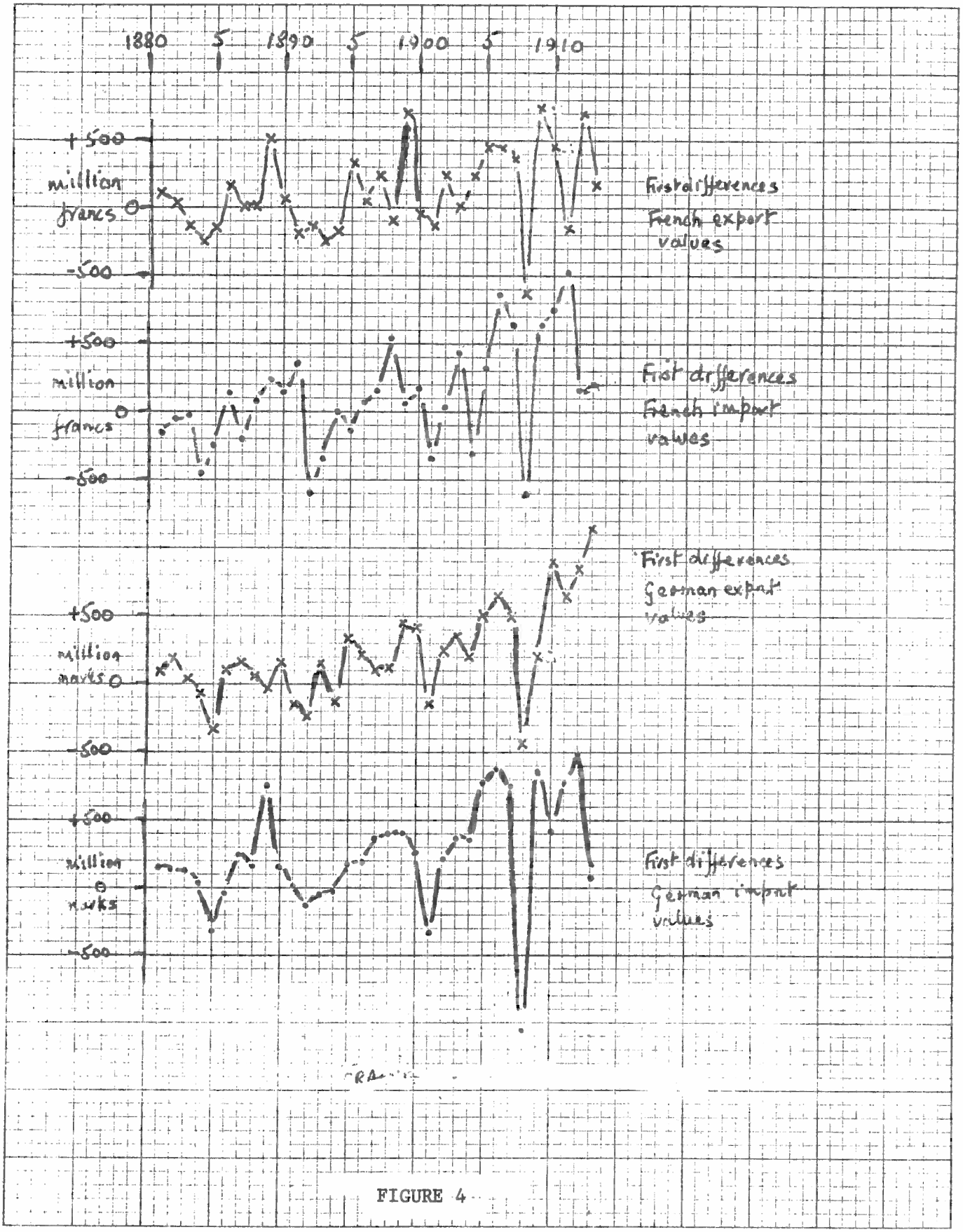

FIGURE 4

Less can be said about German activities since annual estimates of German foreign investment are unavailable. The course of import purchases follows closely the path of, and fluctuations in, export sales, and likewise when estimates of net home investment are added to export values. The German balance of trade shows a tendency to deteriorate over time, and exhibits an opposite long-run trend as compared with the French, while neither show the pronounced 18-20 year swings which are such a feature of the British balance of trade and current account behaviour.

In Figure 4 are presented first differences of merchandise export and import values so that we can see in more detail whether they are closely related together in each of the French and German cases, and thus lend more support for the 'automatic' adjustment forces discussed earlier. The degree of agreement is certainly less close than in the British case, but there are periods of reasonable agreement, particularly in the 1880s and after 1900. The French import value fluctuations from year to year are distorted by abnormal imports in the bad harvest years of 1891, 1894, 1898, 1903, and 1911,[68] while German incomes and imports were strongly influenced by the fluctuating behaviour of German home investment, which did not always match the behaviour of exports, notably in the 1890s. Although more detailed work needs to be done on these cases, it does seem reasonable to suggest that imbalances from fluctuations in exports on some occasions were narrowed by similar fluctuations in imports, while in the long-term parallel movements in exports and imports prevented the emergence of serious balance of payments problems for France and Germany.

The working of the gold standard for a periphery country may be illustrated by the experiences of Canada in the period 1900-13 when the Canadian economy grew rapidly with a marked expansion in capital formation, output of primary products and a large immigration of labour and capital funds. This episode has been the subject of much interest - in particular the important studies by Viner and Cairncross.(69) The account here draws on the statistical material presented in Cairncross and, although using it for somewhat different purposes, is in broad agreement with his analysis.

At this stage Canada did not possess a central bank, no gold coins circulated, and the note issue comprised Dominion notes and the issues of the Chartered banks. The former were issued to a certain limit ($9 million in 1870 and raised to reach $50 million by 1914), backed 25 per cent gold and 75 per cent government bonds, above which limit 100 per cent gold backing was required. The chartered banks were permitted to issue notes of $5 denomination or more but no legal reserve ratio was required, save that 40 per cent of a bank's reserves must be held in Dominion notes. Thus the latter were linked to gold holdings while the banks were permitted some elasticity in their issuing policy, although the expansion of 1900-13 brought further modifications to ease strain.(70)

The Canadian banks conducted their transactions in foreign exchange and in monetary gold almost entirely by way of New York, where they held large reserves either at call or on deposit while smaller reserves were held in London. These reserves they used to meet balance of payments imbalances, to steady the price of foreign exchange, and in times of need

CANADA 1900-13

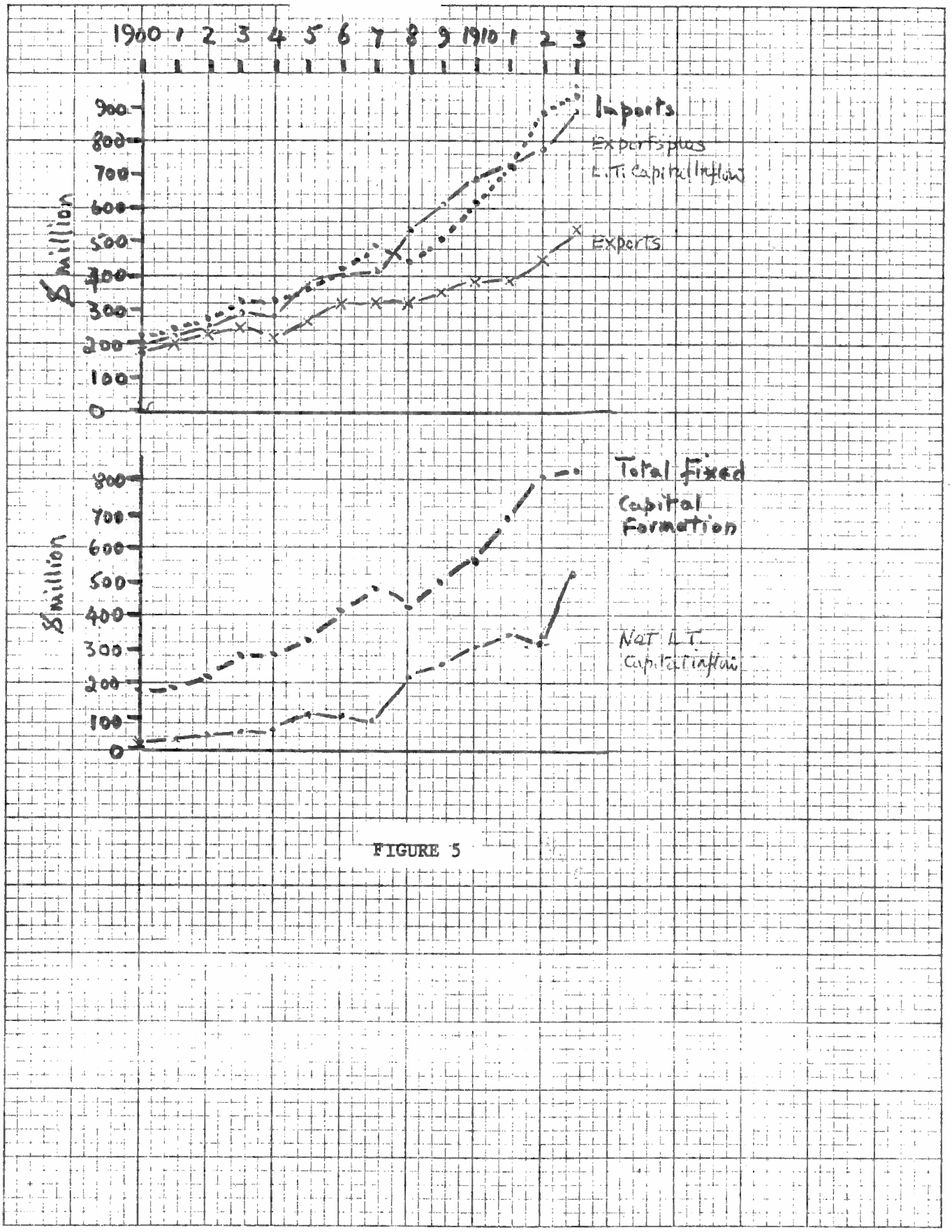

FIGURE 5

to supplement domestic cash reserves so that the cash ratio might be maintained at what seemed the lowest safe point. Indeed, these 'outside' or 'secondary' reserves (as distinct from cash reserves) 'took the place of gold as the residual item in the balance of payments' (71) and fluctuated in the same way as gold reserves of 'gold' countries, If extra notes were required domestically, some of the 'outside' reserves would be converted into gold, transmitted to Canada as monetary gold and the demand for extra currency thus was met.

Viner claims that the total demand liabilities of Canadian banks were determined by financial conditions in Canada, and that the banks maintained their cash ratios by deliberately adjusting their cash reserves to total demand liabilities and not vice versa. (72) However, it would appear that the banks followed loan policies which kept the ratio of their secondary reserves to demand liabilities within limits, although these were wide but subject to an apparent working minimum of some 10 per cent. (73) Only if secondary reserves were at a dangerously low level, would banks have to restore cash ratios by limiting credit. Once again, the chartered banks possessed some discretion in their policies.

In figure 5 are presented the behaviour over the period of export and import values (visibles and invisibles) as well as total home capital formation and the net long-term capital inflow. It is noteworthy how closely imports matched the behaviour of exports plus net long-term capital inflow, with the imbalance in the basic balance kept within bounds despite the large and variable capital inflow and the sharply expanding investment activity as a whole. The basic balance clearly exhibited sharp deficits in 1907 and 1912-3 while it was in considerable surplus in 1908-1910. These movements are reflected in the banks' secondary reserve changes and in the increase in their net foreign assets

CANADA Fluctuations 1900-13

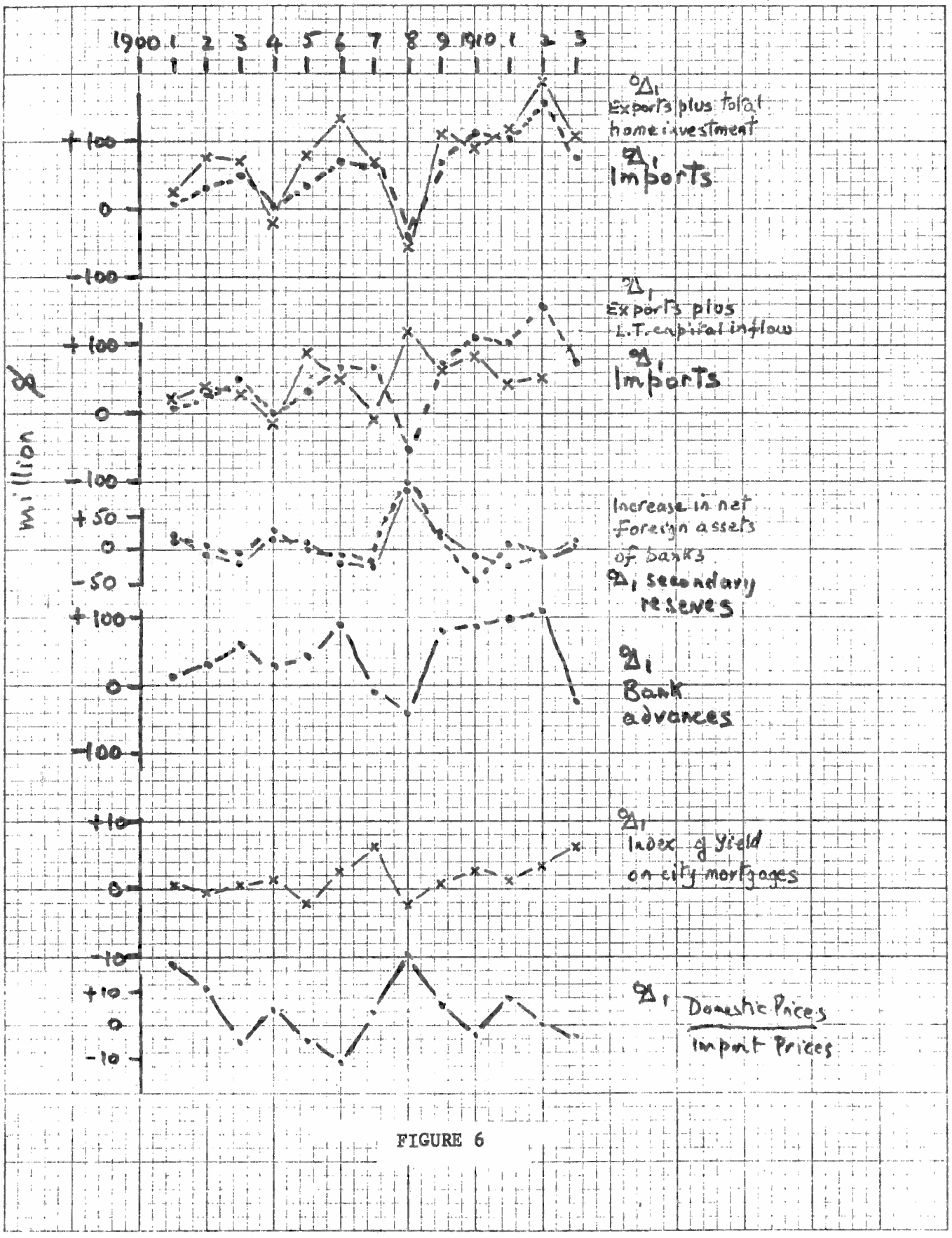

FIGURE 6

(the latter depicted in figure 6).

Clearly rising exports and long-term capital inflow (when eventually used by the borrowers for spending on investment projects) increased economic activity, incomes, and import purchases, and thus narrowed the surplus imbalance which might otherwise have been expected - as our earlier analytical section had suggested. These effects were reinforced by the increase in the domestically financed portion of total investment, so much so that the basic balance of payments moved sharply into deficit in 1907 and in 1912-3 when banks' foreign assets were reduced : nevertheless persistent deficits were avoided, while likewise surpluses remained modest.

The adjustment processes are shown in more detail in figure 6 , where first differences of the main variables are presented. The very close association between changes in exports plus total home investment (injections into the flow of spending) and imports is noteworthy evidence of the working of the income-flow mechanism. However, the association between changes in exports plus net long-term capital inflow (changes in foreign currency receipts) and changes in import values is less close, and there does seem some evidence of imports lagging behind in the period 1904-1911, as might be expected if there were delays in spending the proceeds of foreign borrowing. Where such changes are markedly at variance - for example 1905-8 - the discrepancies are mirrored in the behaviour of changes in the net foreign assets of banks which formed a major component of the banking system's secondary reserves.

It is difficult to discern clearly whether the monetary authorities reacted to such inflows or outflows by increasing or decreasing credit (and thus promoting further adjustment) although Cairncross claims that 'changes in bank advances responded to the changes in secondary reserves at a rather earlier date.' (74) While there does seem some pattern of changes in advances lagging behind secondary reserves from 1902 to 1910, nevertheless changes in advances match very closely the behaviour of exports plus investment changes, thus suggesting that advances accommodated themselves to the needs of trade. This agrees well with Viner's claims noted earlier. However, changes in mortgage yields display an inverse pattern with changes in net foreign assets and in secondary reserves, particularly for 1905 to 1912, so that such interest rates tended to rise with a balance of payments deficit, and to fall with a surplus.

For Canada, then, at this period of rapid development the income-flow adjustment mechanisms seem well borne out, although the analysis has been in terms of values and has compounded real income and price effects, while the monetary mechanisms and monetary policy reactions of the banking system seem less clear cut, but not negligible. The behaviour of domestic prices relatively to import prices did not seem to promote adjustment on their own account : as domestic prices rose relatively to import prices (or as import prices fell relatively to domestic prices), a rise in import values might be expected, but the reverse occurred, for the first differences of these two variables seem inversely related. Perhaps, it should be concluded that any possible price effects were swamped by other forces operating simultaneously.

Argentina provides another example of a primary producer, which experienced rapid economic growth in the early twentieth century under the stimulus of an upsurge in foreign investment activity (bringing overseas-owned capital assets there to some £650 million in 1913). However, as distinct from Canada, Argentina had a chequered monetary history in the nineteenth century of attempts to institute the gold standard, periods of depreciation and flexible exchange rates and later efforts to stabilize the exchange rate. (75) Secondly, one major element in the Argentine national governments' decisions to forsake or embrace gold was provided by the tendency for exchange-rate depreciation to shift the domestic distribution of income in favour of the primary-producing, exporting and landowning groups, who were in fact the ruling oligarchy, and for exchange-rate appreciation to shift the income distribution against them. (76) Hence in bad times of balance of payments deficit, gold was readily abandoned (for example, in 1876 or 1885) and difficulties were eased for the oligarchy at the expense of wage-earners and the urban middle-class, while in good times of rising exports, balance of payments surplus and exchange-rate appreciation, the gold standard was rapidly rejoined (for example, in 1900) to prevent further income-distribution deterioration for the exporter and landowner.

The gold standard arrangements adopted in 1900 accepted the degree of depreciation since 1884 and stabilised the exchange rates at 5 gold pesos to the pound and 227.27 paper pesos to 100 gold pesos. The issue of notes, over and above the existing issue and circulation, was tied pro rata to the deposit of gold in the Conversion Bureau or Caja de Conversion, which received gold and emitted notes or redeemed notes for gold at the above official rate. Banking facilities were provided by both overseas-based and domestic banks, with the Bank of the Nation dominating in size and,

although not formally a central bank, undertaking some of a central bank's functions. (77) Notes formed the main medium of exchange, with cheques being used sparingly. Under these arrangements the note issue, and with the addition of bank deposits, the money supply, were strongly influenced by the import and export of gold. (78) while the bulk of the new inflow of gold in 1900-1913 - some 88 per cent - found its way into the holdings of the Caja as counterpart to the issue of notes.

A very distinct pattern emerged of a gold inflow, a rise in notes issued and in bank deposits together with some tendency for the cash-deposit ratio of banks to fall, while gold exports brought declines to, or checks in the growth of, notes issued, bank deposits and some tendency for the cash-deposit ratio to rise (for example in 1913-4). (79) Operations, indeed, were very much like the rules of the game, but the Bank of the Nation pursued some offsetting tactics with its stabilisation fund of some £6 million in gold and foreign currency, which it used to lessen the 'excessive' effects on the money supply of a gold export, and which it replenished by mitigating the expansionary effects of a gold import. (80) Nevertheless, the main conclusion holds that under these monetary arrangements international gold movements reflecting balance of payments imbalances affected the domestic money and credit supply directly and with some reinforcing on occasions.

The principal causes of imbalances in the Argentine balance of payments lay in changes in foreign currency receipts, stemming from the variability of merchandise export values of primary products together with the uneven inflow of foreign investment funds. Net imports of gold into Argentina were positively related to such annual changes in foreign currency receipts. (81) The automatic equilibrating mechanisms noted earlier can, indeed, be demonstrated.

A rise in foreign currency receipts as a result of a rise in export values brought a rise in domestic incomes and import purchases, thereby narrowing the initial surplus imbalance, while an increase in the inflow of foreign investment funds had a two-fold effect.(82) Some portion of the increased borrowings was spent directly on investment good imports, such as locomotives, carriages, wagons, rails, while the remaining portion was used to finance increased (investment) spending so that incomes and import values rose and lessened the surplus. In similar fashion the impact deficit of a fall in foreign currency receipts was lessened.(83) The residual gold movement, after the initial imbalance had been thus reduced, affected the Argentine note issue, deposits and advances so that monetary forces stimulated further the booming incomes and imports after the rise in exports and consequent gold imports, and, in the case of falling foreign currency receipts and consequent gold exports, aggravated the slumping incomes and imports. Thus further adjustment was promoted.

Given the monetary institutions and history of Argentina, little help could be expected from short-term international capital movements to offset gold losses, while changes in import values had to take the main force of adjustment since the income paid abroad included a large inflexible core of fixed interest payments. Furthermore, the scope for relative price adjustments stemming from gold movements was limited since the prices of exportables and imports, comprising a large section of the price-level, were determined in world commodity markets or by suppliers quite outside Argentina's control. The Argentine terms of trade were thus insensitive to domestic monetary policy, which did have some effect on the prices of non-traded goods such as land and real estate, but here the elasticity of substitution between non-traded goods and traded goods did seem low.

Hence, in Argentina the monetary 'rules of the game' effects promoted further reduction of imbalances in the balance of payments after the automatic income effects at the cost of exaggerating the fluctuations in domestic activity brought about by the initial changes in foreign currency receipts. Adjustment aggravated such export-induced booms and slumps and this finding is of wider interest than Argentina for potential application to (borrowing) export economies on a gold standard or a sterling-exchange standard - for example, Australia, New Zealand, South Africa, Chile and colonial dependencies. Clearly such gold standard arrangements were very acceptable in good times of surplus, but in bad times of deficit they enhanced the temptation for Argentine governments to leave the gold standard and thus to avoid the 'discipline' of credit contraction.

In such difficult circumstances "... these economic difficulties which might have sufficed in themselves to render adherence to the gold standard impossible in a severe crisis, were supplemented by political and social factors which in the last resort in Argentina could prove decisive. The domestic convertibility of notes for gold, which was the prime object for Britain and certain other economies and from which the international gold standard sprang, was not such a point of honour. Other primary producers, such as Australia and New Zealand, maintained exchange-rate stability, which is to be explained by different administrative and political systems with different social structures and by their banking systems being based on London. However, in Argentina before 1914, the landed and export-producing oligarchy, aided by the particular economic and political structure, willingly abandoned or adopted the gold standard whenever it was to their benefit and profit" (84)

VII

The above account of the international financial system and policy has described the varied and evolving patterns of institutional arrangements in the pre-1914 gold standard under which all participant monetary authorities were pursuing individually a common objective - the maintenance of convertibility of their currencies. It has indicated the dangers of uncritically applying to gold standard behaviour stereotypes such as the rules of the game. Equally, although much of the system did amount to a sterling standard, centred on London with great confidence in sterling and with the concentration of financial markets and settlement patterns as well as London's 'drawing power', nevertheless there were other small, but growing monetary centres in Paris and Berlin with distinct European interests.

For these three monetary centres together with New York, where interest rates tended to move up and down together, short-term international capital movements were very important in the quick adjustment to imbalances and gold movements, but more generally central banks did not seem to operate in accordance with the rules of the game to provide more permanent adjustment. Traditional emphasis here seems misplaced. Certainly, detailed study of the British monetary arrangements and the Bank of England's activities as the pivotal bank of the gold standard bear out these contentions with the powerful quick Bank Rate mechanism contrasting with the weaker longer-term influences.

The brief discussion of French and German monetary arrangements, while showing some similar features, nevertheless makes it clear that the monetary findings in the British case should not be transferred uncritically to other countries, and the Canadian and Argentine experiences reinforce this view. Central banks had more scope for discretionary actions than commercial

banks, and used it, while it is evident that some commercial banks in certain territories without central banks pursued 'rules of the game' policies more vigorously in response to gold and foreign exchange movements which affected their cash-reserve positions.

Various features have been stressed in this centre-periphery system as making for stability and as averting persistent large imbalances - cyclical parallelism, similar longer-run price trends in industrial countries, links between Britain and the primary producers, gold discoveries which ensured growing supplies of monetary gold to avoid any liquidity difficulties. It was suggested that factors, which provoked gold losses or gains, frequently activated automatic income-adjusting mechanisms to reduce imbalances speedily, while monetary influences from gold movements to promote adjustment worked more slowly and uncertainly, but that under each of these mechanisms reactions were taking place in both gold gainers and gold losers to reduce imbalances in a mutually helpful way.

The monetary theory of the balance of payments which has been developed recently, may well be valuable in explaining why there should be such similar price movements in the long-run. However, the analysis presented in this chapter seems more appropriate for handling the (short-run) disequilibrium situations which occurred so frequently under the gold standard.

For one country in surplus implies another in deficit and the above reactions might be expected to narrow such imbalances in a symmetric way. However, in the centre-periphery system, outlined above, with a strong underlying sterling standard based on London, it is not surprising to find asymmetric reactions with unequal distribution of adjustment costs and burdens. It has indeed been claimed that Britain, in its pivotal role,

was able to exploit its particular position and to thrust the burden of readjustment onto other shoulders, when losing gold, by reducing the supply of sterling to the rest of the world and thus to remain unscathed. This surely exaggerates an undoubted asymmetry.

It is true that, if Britain lost gold, the use of Bank Rate via London's drawing power shifted the immediate burden onto others, particularly France and Germany, as short-term capital flowed into London; that London's unique position and leverage favoured 'quick' effects; that long-term capital flows to primary producers might well be checked, although there seems little evidence that the use of Bank Rate alone caused British import prices of primary products to fall: that periphery countries were denied the second line of defence (from European central banks) available to Britain, even though Europe, and especially Britain, acted as lender of last resort to the United States. Nevertheless, the ensuing cuts in foreign currency receipts accruing to periphery countries brought reductions in their spending, incomes, and imports and in particular would react on British exports to return some of burden of adjustment as slump and unemployment for British industry, if not for the City of London. Furthermore, it should not be forgotten that certain major upper turning points in the British trade cycle were associated with crises and difficulties abroad - consider 1873, 1890, 1907 - although it should be mentioned that fluctuations in British overseas lending had a role in some of these difficulties. Britain was, indeed, favourably placed for adjustment at the centre, but was not unscathed from repercussions.

In conclusion, particular circumstances were highly important in providing a favourable environment within which various (automatic) mechanisms could operate to narrow imbalances and the gold standard could flourish.

It is not surprising to find that with vastly changed circumstances and a far less favourable environment after 1918 it no longer flourished.

FOOTNOTES

(1) For an interesting and revealing discussion, see M. de Cecco, Money and Empire, Blackwell, 1975, ch.3.

(2) Compare, for example, W.M.Scammell, 'The Working of the Gold Standard', Yorkshire Bulletin of Economic and Social Research, Vol.17, No.1. (May 1965), pp.32 and 34

(3) O.Morgenstern, International Financial Transactions and Business Cycles, Princeton University Press, 1959, p.177.

(4) See D.N.McCloskey and J.R.Zecher, 'How the Gold Standard Worked 1880-1913' in J.A.Frenkel and H.G.Johnson (eds.), The Monetary Approach to the Balance of Payments, London, 1976, pp.365-6.

(5) S.B.Saul, Studies in British Overseas Trade 1870-1914, Liverpool, 1960, chs. III and IV.

(6) See in particular W.A.Brown, Jr., The International Gold Standard Reinterpreted, 1914-34, New York, 1940, pp.637-41, and P.Einzig, The History of Foreign Exchange, London, 1962, pp.182-3

(7) P.H.Lindert, Key Currencies and Gold 1900-13, Princeton Studies in International Finance No.24, 1969, p.25, who points out the roughness of the estimates, which are in U.S. dollars at 1913 parities and have been converted into pounds at the 1913 mint par.

(8) A.I.Bloomfield, Short-Term Capital Movements under the pre-1914 Gold Standard, Princeton Studies in International Finance No.11,1963, pp.96-7.

(9) P.H.Lindert, Key Currencies and Gold 1900-13, pp.18-9.

(10) Ibid., p.22

(11) A.I.Bloomfield, Monetary Policy under the International Gold Standard 1880-1914, New York 1959, pp.47-51.

(12) Michael Michaely, Balance of Payments Adjustment Policies, New York, 1968, pp.11-8.

(13) R.Triffin, The Evolution of the International Monetary System, Princeton Studies in International Finance No.12, 1964, pp.51-63.

(14) P.Barrett Whale, 'The Working of the Pre-War Gold Standard', Economica, N.S., Vol. IV, February, 1937, pp.25-6.

(15) See D.N.McCloskey and J.R.Zecher, 'How the Gold Standard Worked 1880-1913', in J.A.Frenkel and H.G.Johnson (eds.), The Monetary Approach to the Balance of Payments, pp. 357-385. For a more cautiously worded view see P.Barrett Whale, ibid., pp.18-32. There are distinct Ricardian overtones here.

(16) P.Barrett Whale, 'The Working of the Pre-War Gold Standard', pp.25-7

(17) A.I.Bloomfield, Monetary Policy under the International Gold Standard 1880-1914, pp.30-5

(18) A.I.Bloomfield, ibid., pp. 35-7.

(19) O.Morgenstern, International Financial Transactions and Business Cycles, p.118.

(20) P.H.Lindert, Key Currencies and Gold 1900-13. pp.48-57, and especially figure 3 (p.51).

(21) P.H.Lindert, ibid., p.56.

(22) A.I.Bloomfield, Monetary Policy under the International Gold Standard, 1880-1914 p.42, and Short-Term Capital Movements under the Pre-1914 Gold Standard, pp.73-4.

(23) P.H.Lindert, Key Currencies and Gold 1900-1913, p.57.

(24) A.I.Bloomfield, Monetary Policy under the International Gold Standard, 1880-1914 pp.48-50.

(25) Michael Michaely, Balance of Payments Adjustment Policies, p.18.

(26) C.G.F.Simkin, The Instability of a Dependent Economy, Oxford,1951, for a discussion of the New Zealand Case.

(27) A.G.Ford, The Gold Standard 1880-1914: Britain and Argentina, Oxford, 1962, pp.106-7, for the Argentine Case.

(28) For a fuller discussion, see R.S.Sayers, Bank of England Operations 1890-1914, London, 1936 and A.I.Bloomfield, Monetary Policy under the International Gold Standard, 1880-1914, pp.52-7.

(29) A.I.Bloomfield, ibid., p.56.

(30) U.S.National Monetary Commission of 1910, Interviews, pp.26-7.

(31) W.M.Scammell, 'The Working of the Gold Standard', Yorkshire Bulletin of Economic and Social Research, Vol.17, No. 1, (May 1965), pp.36-41. see also E.V.Morgan, The Theory and Practice of Central Banking 1797-1913. reprinted Cass, 1965, pp.173-99.

(32) W.M.Scammell, ibid., p.40.

(33) See R.S.Sayers, Bank of England Operations 1890-1914, pp.71-101.

(34) C.A.E.Goodhart, The Business of Banking 1891-1914, London, 1972, p.218.

(35) A.G.Ford, The Gold Standard 1880-1914, Britain and Argentina, pp. 23, 33-4.

(36) A.G.Ford, ibid., pp. 34-5, and especially, W.E.Beach, British International Gold Movements and Banking Policy, 1881-1913. Cambridge Mass., 1935 Ch.II.

(37) A.G.Ford, ibid., pp.39-40.

(38) A.G.Ford, ibid., pp.34-5 and W.E.Beach,ibid., where these marked cyclical relationships are demonstrated.

(39) R.S.Sayers, Central Banking after Bagehot, Oxford, 1957, p.64.

(40) P.H.Lindert, Key Currencies and Gold 1900-13, pp. 43-4. See also A.G.Ford, The Gold Standard 1880-1914 : Britain and Argentina, Ch.III.

(41) C.A.E.Goodhart, The Business of Banking 1891-1914, pp.195-220

(43) A.G.Ford, ibid, p.42.

(44) A.G.Ford, 'British Economic Fluctuations, 1870-1914', The Manchester School Vol. XXXVII, No.2., (June 1969).

(45) R.Hawtrey, A Century of Bank Rate, London, 1938, ch.V.

(46) J.Tinbergen, Business Cycles in the United Kingdom 1870-1914, Amsterdam, 1951, p.133 'The elasticity of investment activity with respect to short-term rates was estimated to be - 0.08 and with respect to long-term rates to be - 0.50 (p.96).'

(47) J.S.Pesmazoglu, 'A Note on the Cyclical Fluctuations of British Home Investment 1870-1913', Oxford Economic Papers, New Series, Vol.3, No.1. (Feb.1951), p.61.

(48) The Economist, 23 and 30 November, 1907, 'Inquiry into the effects of Dear Money on Home Trade'. For a discussion see A.G.Ford, The Gold Standard 1880-1914 : Britain and Argentina, pp.44-6.

(49) A.G.Ford, ibid,, p.46.

(50) R.Triffin, 'National Central Banking and the International Monetary System', Review of Economic Studies, Vol. XIV, (1946-7) p.61, and P.B.Kenen British Monetary Policy and the Balance of Payments 1951-7, Cambridge Mass., 1960, pp.61-2.

(51) P.H.Lindert, Key Currencies and Gold 1900-13, pp.44-6.

(52) A.G.Ford, 'Bank Rate, The British Balance of Payments, and the Burdens of Adjustment, 1870-1914', Oxford Economic Papers, New Series, Vol.16, No.1. (Feb. 1964), pp.24-39.

(53) O.Morgenstern, International Financial Transactions and Business Cycles, p.43

(54) See also W.Ashworth, A Short History of the International Economy since 1850, third edition, London, 1975, pp.219

(55) See E.H.Phelps Brown (with Margaret H.Browne), A Century of Pay, London, 1968, pp.110-5, where cost of living indices and G.N.P. deflators are compared for Britain, Germany, Sweden, France, United States. Also, A.C.Pigou, Industrial Fluctuations, second edition, London, 1929, p.12.

(56) Note the historial references and calculations in A.W. Phillips, 'The relation between unemployment and the rate of change of money wage rates in the United Kingdom, 1861-1957', Economica, New series, Vol. XXV No.100, (November, 1958).

(57) For a full discussion, see A.G.Ford, The Gold Standard 1880-1914: Britain and Argentina, Ch. IV.

(58) See A.G.Ford, ibid., pp.62-7, and 'The Transfer of British Foreign Lending 1870-1913', Economic History Review, Second series, Vol. XI, No.2. (1958).

(59) See A.G.Ford, 'Overseas Lending and Internal Fluctuations 1870-1914', Yorkshire Bulletin of Economic and Social Research, vol.17, No.1. (May 1965).

(60) P.L.Cottrell, British Overseas Investment in the Nineteenth Century, London, 1975, provides a useful survey.

(61) Compare J.S.Pesmazaoglu, 'Some International Aspects of British Cyclical Fluctuations, 1870-1913', Review of Economic Studies, XVI, (1949-50) pp.113-43.

(62) See A.G.Ford, The Gold Standard 1880-1914; Britain and Argentina, pp.76-8.

(63) P.H.Lindert, Key Currencies and Gold 1900-13, pp.74-5. See also M. de Cecco, Money and Empire for a more impressionistic treatment.

(64) P.H.Lindert, ibid., p.75.

(65) See, for example, J.M.Keynes, Indian Currency and Finance, Macmillan,1913, p.20. The Economist and other British financial journals of the period make frequent and 'superior' references to this French 'practice'.

(66) J.M.Keynes, ibid., p.23.

(67) H.D.White, The French International Accounts 1880-1914, Cambridge, Mass, 1933, p.303.

(68) H.D.White, ibid., p.139.

(69) J.Viner, Canada's Balance of International Indebtedness 1900-13, Cambridge, Mass, 1924, and A.K.Cairncross, Home and Foreign Investment 1870-1913, Cambridge, 1953, pp.37-64.

(70) See J.W.O'Brien, Canadian Money and Banking, New York, 1965, pp.176-80.

(71) A.K.Cairncross, Home and Foreign Investment 1870-1913, p.50.

(72) J.Viner, Canada's Balance of International Indebtedness 1900-13, pp.176-7

(73) A.K.Cairncross, ibid., pp.51-3, 55, and his figure 7.

(74) A.K.Cairncross, ibid., p.52.

(75) Argentina has been the subject of a detailed case study in A.G.Ford, The Gold Standard 1880-1914 : Britain and Argentina, and this treatment draws heavily on that work. It has not been thought necessary to present similar statistical treatment to that offered in the Canadian case. The subsequent page references in this section can be taken up by the interested reader.

(76) A.G.Ford, ibid., pp.90-2.

(77) A.G.Ford, ibid., pp.95-6, 102.

(78) A.G.Ford, ibid., pp.106-7.

(79) A.G.Ford, ibid., pp.101, 106-7.

(80) A.G.Ford, ibid., p.104.

(81) A.G.Ford, ibid., pp.164-5.

(82) A.G.Ford, ibid., pp.157-8

(83) See. A.G.Ford, ibid., pp.165-7 for an empirical justification of these mechanisms in Argentina.

(84) A.G.Ford, ibid., p.169.

Sources of series in Figures

Figure 1: (i) Overseas Issues (calls): M.Simon, 'The Pattern of New British Portfolio Investment, 1865-1914', in A.R.Hall (ed.) The Export of Capital 1870-1914, London, 1968.

(ii) Exports and Imports of Goods and Services: A.H.Imlah, Economic Elements in the Pax Britannica, Cambridge Mass., 1958.

(iii) Gross National Product and Gross Domestic Fixed Capital Formation (at current prices): C.H.Feinstein, National Income, Expenditure and Output of the United Kingdom 1855-1965, Cambridge, 1972.

(iv) Average Bank Rate : B.R.Mitchell with Phyllis Deane, Abstract of British Historical Statistics, Cambridge, 1962.

Figure 2: (i) French Exports and Imports, Balance of Trade and Balance of Payments current account: R.Cameron, France and the Economic Development of Europe, 1800-1914, Princeton, 1961.

(ii) Net capital outflow (direct estimates) H.D.White, The French International Accounts 1880-1914, Cambridge Mass., 1933.

Figure 3: (i) German Exports, Imports, Balance of Trade, Home Investment: B.R.Mitchell, The Fontana Economic History of Europe, Statistical Appendix, 1700-1914, London 1971.

Figure 4: as for Figures 2 and 3.

Figure 5: (i) Canadian Exports, Imports, Long-term Capital inflow, total fixed capital formation, A.K.Cairncross, Home and Foreign Investment 1870-1913, Cambridge, 1953.

Figure 6: as for Figure 5 (including extra series).