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THE OPERATION OF THE GOLD STANDARD IN THE CORE AND THE PERIPHERY BEFORE THE FIRST WORLD WAR

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ABSTRACT

Developing countries show a predilection for fixed exchange rates even though this prevents monetary autonomy in the presence of capital flows. This paper examines the operation of the gold standard (GS) during the period 1870-1914, its heyday. It discusses the theory of balance of payments adjustment under the GS. Theory postulates automatic and symmetric adjustment by deficit and surplus countries. The paper then analyses the experience with adjustment. It analyses whether central banks followed "the rules of the game". It finds not only significant differences between adjustment in the core countries and in the countries in the periphery, but significant differences among the core countries also. We find that countries in the periphery accumulated large reserves to cope with balance of payments deficits just as they today, even though at that time the core countries adopted fixed exchange rates and today they adopt floating exchange rates.

Keywords: Gold Standard, Balance of Payments Adjustment, Core and Periphery under Gold Standard, India and the Gold Standard.

JEL Classification: F33, N10, N20

Section I: Introduction

Developing countries face a choice about the exchange rate regime they choose, a fixed exchange rate or a floating one. Many developing countries have faced balance of payments (BOP) Crises in recent years.[1] The costs of tackling these crises are very high both in the short run and in the longer run. Experts have advocated irrevocably fixed or floating rates as ways to avoid such crises.

Developing countries seem to be buffeted by the actions of the developed countries, particularly the US. At the G20 meeting in Korea developing countries complained about the monetary expansion in the US, the quantity easing policy adopted by the Federal Reserve. In 2015 they were concerned about the repercussions of the US raising its interest rates as the mere expectation that the Federal Reserve may increase the rate of interest had important effects on the money supply and stock markets of developing countries.[2] So the question arises whether developing countries can avoid crises by their own actions or that there is no way for them to insulate themselves from disturbances originating in the developed countries.

Developing countries in general have preferred a fixed exchange rate system (Bordo and Flandreu, 2001).[3] Their own exchange rates

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1. There was among others the Mexican crisis in 1994, the ASEAN crisis in 1997, and then the Brazilian, Russian and Argentinian crises at the end of the previous century and the beginning of this century.

2. The effects of US monetary policy on other G7 countries is well researched. But the effect of US monetary policy on developing countries is a relatively neglected area as the effects depend on the nature of the economy (Agarwal and Essid, 2015).

3. The title of a paper by Calvo and Reinhart is “Fear of Floating”, 2002.

remain fixed for considerable periods of time. Countries may claim to be floating but in practice keep their exchange rate fixed to that of a particular country or a basket of currencies (Calvo and Reinhart, 2002). Is a fixed exchange rate in the interest of developing countries? This needs to be examined because a fixed exchange rate system robs them of monetary policy autonomy.[4] Their concerns about the repercussions of US monetary policy on their economies point to their lack of monetary autonomy. This paper attempts to analyse what the choice of a fixed exchange rate may entail, particularly considering the experience with the gold standard (GS) which was a fixed exchange rate system. It does this by discussing the operation of the G.S. in theory and its actual working in both the core and the periphery countries. It reaches the conclusion that periphery countries were at a disadvantage in the operation of the GS and this beyond the problems faced by India which was a colony of the UK. The problems faced by the periphery were structural stemming from the operation of the GS.

We examine, in Section II, the nature of the GS and its transition to a gold exchange standard (GES). In Section III we discuss the theory of the balance of payments (BOP) adjustment processes under the GS. Next, in Section IV we analyse the practical experiences with the working of the GS. In section V we examine the reasons adduced for the success of the GS. In Section VI we discuss the behaviour of the Bank of England and the Bank of France under the GS and how far their behavior conformed to the so- called " rules of the game" that central banks were supposed to follow. In particular, in the case of the Bank of England we discuss the role played by India in its successful operation under the

4. This is the famous trilemma that a country cannot have a fixed exchange rate, free capital flows and monetary policy autonomy.

GS.[5] In Section VII adjustment policies of countries in the periphery are analysed. We use this experience to explore whether the working of the gold standard (GS) justifies the preference of developing countries for fixed rates. We compare the experience of developing countries under the GS when the core countries followed a fixed exchange rate system with their more recent experience when the core countries have adopted floating exchange rates. We conclude in Section VIII with some observations about the problems that developing countries face.

The world has had mainly two types of international monetary standards one based on fixed exchange rates as in the gold standard (GS) which flourished in roughly the half century before the First World War (WWI) or the Bretton Woods System (BWS) which operated from the end of the Second World War (SWII) till its collapse in1973[6] and a flexible exchange rate system. The repercussions of US monetary policy operate through both real and monetary channels. An expansionary monetary policy in the US raises incomes and import demand in the US. This increases exports of partner countries and helps their growth.[7] The better export performance apart from raising growth rates in the partner country may have a number of other consequences. Better export performance might lead to a surplus in the balance of payments. In a fixed exchange rate system this could in turn lead to an increase in the

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5. India was a colony of the UK. It has been noted, as mentioned below, that British policies for India were very exploitative. But this is not the main subject of our discussion. We will limit our discussion to the operation of monetary policy in India and its relation to the operation of the gold standard, in particular how this policy enabled the Bank of England to play a critical role in the management of the international gold standard.

6. The system really started functioning after 1958 when most European countries made their currencies convertible on the current account, namely citizens could freely get foreign exchange to buy imports. They still could not freely get foreign exchange to buy foreign assets, namely for most countries their currency remained inconvertible on the capital account.

7. Whether the increased demand will lead to higher output or inflation depends on the extent of slack in the economy of the developing country.

money supply and lower interest rates and higher inflation.[8] In a flexible exchange rate system it would lead to an appreciation of the exchange rate with possible effects on exports of a partner country. The monetary channel would operate in the following manner. Increased money supply in the US would lead to lower interest rates leading to a capital outflow that would lead to a lower money supply and a reduction of demand in a fixed exchange rate system. So a partner country would face lower interest rates with repercussions on money supply and inflation. In a flexible exchange rate system it would lead to an appreciation of the exchange rate which would adversely affect exports.[9]

Section II: The Gold Standard and its Transition to the Gold Exchange Standard

The gold standard (GS) is often seen as the appropriate model for an exchange rate system and it is a fixed exchange rate system.[10] We examine the effect of the operation of the GS in the period, 1870-1914, its heyday, and see how its working affected countries, particularly developing countries. The working of the GS in theory did not differentiate between the systemically important or key countries also called the core countries and others called the periphery countries. But we will note below significant differences in the working of the GS in the periphery countries. The core countries are usually considered to be the UK, France, Germany and the US[11]. The countries in the periphery were much more heterogeneous. Much of the literature concentrates on other European countries and countries in Latin America.

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8. In a fixed exchange rate system this inflationary pressure cannot be tackled by raising the interest rate as this could lead to capital inflows further raising the money supply, the working of the policy trilemma.

9. For further discussion of these effects see Kenen (2000).

10. It is believed to have provided stability and growth.

11. The US is problematic because for a part of the period it was a debtor country rather than a creditor country. It was also often held to be a destabilising force rather than stabilising.

The gold standard in its pure form required that gold be the only internal money and also used externally for payments to or receipts from abroad and in particular to finance imbalances. When a country had a balance of payments deficit gold would be paid out and the money supply would shrink; meanwhile the country having a surplus would gain gold and so an increase in the money supply. The money supply could not be manipulated by authorities for political reasons.

But this inelasticity in the supply of money also had a disadvantage. The supply of gold depended on chance discoveries and there was no way in which the supply of international money could be varied to meet the requirements of international transactions.[12] The discovery of gold supplies would therefore determine the state of the world economy. For instance, inadequate increase in the supply of gold resulted in a downward pressure on prices during the period 1873-96 (Bloomfield, 1959), and perhaps contributed to the low levels of economic activity leading to this period being called the "Great Depression"; this was before the depression of the 1930s. Later, gold discoveries in South Africa and Australia eased the liquidity crunch and the competition for gold it engendered and a recovery in the world economy (Bloomfield, 1959).

Production of gold was limited so the total stock of gold did not keep pace with the need for gold particularly as more countries adopted the gold standard. Therefore, countries found ways to economise on the use of gold both internally and externally.

Internally paper currency or metallic coins whose value was more than the value of the metal contained in the coin were used. Consequently

12. But as we shall see below countries held other so-called key currencies and this provided some elasticity to the supply of international money.

the amount of gold used for domestic circulation was very limited.[13] Even in the case of England gold coins were a very small part of the total money supply, only 16 percent in 1913. The bulk of the money consisted of banknotes. Also cheques were used extensively for payments. Gold coinage was more substantial in France where use of cheques was very limited. However, limits were put on the amount of such fiat currency that could be issued so that there would not be overissue.[14] This was either in the form of a proportional reserve of gold or there was a fiduciary limit below which the currency did not require cover but above it the currency required cover.

Substitution of paper currency for gold for internal circulation did not change the mode of adjustment. A deficit would require the payment of gold abroad. People would have to hand in their currency to get the gold for foreign payments and the money supply would decrease in the deficit country. Concomitantly the money supply would increase in the surplus country.

A further argument against domestic gold circulation was that this could not be mobilized for foreign payments when there was a crisis. In reality, in such a condition the public would be very loath to part with its gold. The trend was therefore for gold to be concentrated in the vaults of the central bank (Keynes, 1971a).

It was observed that gold flows between countries were very limited so these did not cause changes in money supplies. Countries also economized on the use of gold internationally. Countries, particularly in the periphery, did not hold gold but held important currencies such as sterling or French francs which could be converted

13. Keynes (1971a) notes on page 22 that Ricardo had considered the most perfect state was to have domestic currency of cheap material and gold be used only for international transactions. Keynes also notes that Marshall had also recommended such a policy.

14. It was believed that the system had to mimic the operation of the GS.

into gold.[15] Payments when a country had a deficit were usually made by transfer of foreign currencies rather than shipments of gold.[16] This system of using key currencies was called the gold exchange standard (GES). Thus these key currencies were used by a number of countries as international money and their supply could be varied so that countries did not have to depend only on the vagaries of god supplies to vary the money supply. Variations in the supply of these key currencies were an integral part of the adjustment process under the GS.

Section III: Adjustment under the Gold Standard: The Theory

Under the pure GS an imbalance in the balance of payments (BOP) would lead to gold flows across borders and this would affect the money supply. Gold would flow into the country with a surplus and increase its money supply .The country with a deficit would lose gold and its money supply would decrease. Under the GES also, imbalances in the BOP would lead to changes in the money supply as it would under the GS. Whether gold flowed out or foreign reserves the foreign assets of the central bank would decrease and so would the base money so long as the central bank did not sterilize the foreign exchange flows. This decrease in base money would lead to a fall in the money supply. There was no essential difference in the process of adjustment between the GS and the GES.

There were, however, differences in the analysis of how the changes in the money supplies would affect the two economies and, in particular, the BOP. In the simplest version of the adjustment process the increase in the money supply would increase prices and the decrease in the

15. Keynes (1971a) notes that out of a total reserve of 30.9 million pounds the Indian Government kept only 10.3 million in gold. Furthermore, even countries such as the US, Russia Germany among others held foreign exchange reserves.

16. Keynes (1971a) discusses how most countries were on the GES and not the GS. Keynes (1971b, p 61-64) contains a detailed memorandum recommending the gold exchange standard for China.

money supply would decrease prices. So prices would increase in the surplus country and decrease in the deficit country. The change in prices would make the exports of the deficit country more competitive and those of the surplus country less competitive. Consequently, exports of the deficit country would increase and imports decrease while the reverse would happen in the surplus country. Both countries would therefore move towards balance in their BOP.[17] The basic equilibrating mechanism was, therefore, changes in the terms of trade (Cecco, 1974, p 16). [18]

But other analysts raised doubts about whether such a mechanism operated. These doubts were both at the empirical level and at the theoretical level. At the theoretical level it was argued that under the GS exchange rates were fixed so that there would be no depreciation or appreciation and so there would be no changes in exports and imports (Hawtrey,1927, p 40). Furthermore, for small countries prices would be fixed internationally and would not be determined by the money supply and would not change and so relative price changes could not be the mechanism of adjustment. Since neither the exchange rate would change nor prices, the real exchange rate would remain constant. Consequently adjustment would not be brought about by changes in exports and imports as was hypothesized.

However, there were considerable movements in the nominal and real exchange rates in the countries of the periphery where we shall see below that the GS operated very differently from that in the core countries (Catao and Solomou, 2003). The periphery countries were countries usually on inconvertible paper currencies or on silver standard regimes. The changes in their real exchange rates occurred either because they went off their fixed exchange rate or because of changes in the

17. The only equilibrating mechanism in Smith and Ricardo is through absolute price changes (Cecco, 1974 p 6).The equilibrating medium is gold or be convertible into gold (Cecco, 1974).

18. This mechanism first studied by Hume is described in many articles and books. See, for instance, Scammel (1985), Triffin (1985).

international relative price of gold and silver. The value of silver declined in the decade before the First World War. This meant that the silver standard countries experienced a large devaluation which increased exports and resulted in more manageable BOP positions.[19] Some of these countries accumulated considerable amounts of gold and foreign exchange reserves and a few even moved to adopting the GS. But earlier when the price of silver had increased the resulting appreciation of the currencies had created problems for these countries.

Later the proper adjustment mechanism was shown to be the effect of money supply changes on the level of economic activity. This, in turn, could operate through two channels. Firstly, changes in the money supply would change the rate of interest and so the level of economic activity (Hawtrey, 1927).[20] The decrease in the money supply in the deficit country would raise its rate of interest leading to reduced economic activity. The increase in the money supply in the surplus country would reduce its rate of interest resulting in higher economic activity. Alternatively, the changes in the money supply would directly affect the level of economic activity through the real balance effect (Samuelson, 1980). In either case, changes in the money supply would affect the level of economic activity in a country. Lower economic activity in the deficit country would reduce its imports and higher economic activity in the surplus country would raise its imports. So the proposed adjustment mechanism was that changes in the money supply would affect the level of economic activity and demand for imports.

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19. The improved BOP position of the periphery countries during the period 1900-14 seemed to have resulted in a convergence of interest rates with interest rates on bonds of other countries falling to that on British consols.

20. A high bank rate deters traders from buying goods and so brings about a shrinkage in demand. It has another effect it attracts foreign money. But this latter effect is transitory and precarious. Cunliffe Committee stressed the effect of interest rate changes on the level of demand and how this would affect the terms of trade. So the adjustment mechanism was still prices rather than the direct effect of money supplies on demand.

Furthermore, the changes in interest rates would lead to capital flows from the surplus country to the deficit country. The capital inflows into the deficit country would offset partly the current account deficit. So the adjustment process consisted in the short run of partly financing the current account deficit by capital inflows and partly adjustment through changes in the level of economic activity.

The above automatic mechanism was supposed to be supported by the actions of the central banks, following the so-called "rules of the game". The effects of the BOP on the money supplies were not to be counterbalanced by sterilization by the central banks. In addition, the central bank of the deficit country was supposed to follow a contractionary monetary policy shrinking the quantity of domestic assets on its balance sheet thereby further reducing the money supply beyond the direct effect from the BOP. The central bank of the surplus country was expected to follow an expansionary monetary policy and expand domestic credit. Such actions by the central banks would hasten the process of adjustment.

The actions of the central banks implied that the level of foreign assets and the level of domestic assets on the balance sheets of the central banks would move in the same direction. On the other hand, the rate of interest would move in the opposite direction to the change in the money supply declining in the surplus country and rising in the deficit country, so that the rate of interest would be negatively related to the cover ratio, namely the share of foreign assets in the balance sheet of the central bank.

The adjustment mechanism under the GS was generally considered approvingly by economists and policy makers and that is why strenuous efforts were made by countries to return to the GS after the First World War (WWI).[21] The adjustment mechanism as theorised was automatic

21. A return to the GS, it was believed, would restore confidence. This could either mean that economic actors would believe that the policies would engender stability or that the restoration would bring about stabilizing speculation.

avoiding conflicts among countries as to how the burden of adjustment should be shared[22] and was symmetric in that it affected both deficit and surplus countries.

All the different adjustment mechanisms began with the effect of a BOP imbalance on the money supply. The effect of a BOP imbalance on the money supply is the same under the GES as under the GS and so the above discussion would apply to the GES as well. In fact, the advice to the central bank not to engage in sterilisation applies even more strongly to the GES as to the pure GS.

We shall consider below whether the central banks actually followed these "rules of the game".

Section IV: Adjustment in Practice

There is, however, as noted above, considerable debate about how the process of adjustment actually worked in practice. In one version the changes in the money supply would change prices which would change imports and exports. Further analysis showed that prices did not move as required by theory. For instance, the lack of a relation between domestic prices or interest rates and the money supply or gold movements in Portugal (Reis, 2000) is a typical finding.

Furthermore, the theory of adjustment, as noted above, required a number of indicators to move in opposite directions in the surplus and deficit countries. But this did not always happen. For instance, movement of prices tended to be synchronized across the major countries (Triffin, 1985) rather than moving in opposite directions as posited in the theory. Economic indicators in the deficit and surplus countries often did not behave very differently as there was de facto harmonization of monetary policies since central banks did not want to lose gold (Triffin, 1985). An

22. Almost all attempts at coordinating policies have been bedeviled by such conflicts.

increase in the rate of interest by one central bank would lead to higher interest rates by other central banks as they would fear a capital outflow and a loss of gold. So it was not the case that surplus countries had lower interest rates and higher economic activity and deficit countries a higher interest rate and lower economic activity. The cycles in trade and in prices were synchronized among the major countries (Triffin, 1985).

Subsequent analysts placed greater emphasis on changes in income as the equilibrating mechanism. Both the Cunliffe Committee set up in 1919 in the UK to study the management of the foreign exchanges during the period of reconstruction after the war and the Macmillan Committee set up in 1931 also in the UK to examine policy choices stressed the effect of changes in money supply on incomes and investment rather than on prices through the quantity theory (Bloomfield, 1959). The Macmillan Committee Report said "before the war scarcely anyone considered that the price level could or ought to be the care or preoccupation, far less a main objective of policy, on the part of the Bank of England, or any other central bank." (Bloomfield, 1959).

The process of adjustment in another version, as noted above, was supposed to operate through interest rate changes which would follow changes in the money supply. As reserves fell (i.e. the BOP was in deficit) the central bank was supposed to raise the discount rate. There would thus be an inverse relation between the rate of interest and the share of foreign reserves in a central bank's assets. Furthermore, when the BOP was in deficit the central bank was supposed to follow a monetary policy that would reduce the quantity of domestic assets on its balance sheet when the quantity of foreign assets fell. So the movement in the quantity of foreign and domestic assets on the balance sheet of the central bank would be in the same direction.

We now examine whether the central banks did follow the policy rules. Empirical analysis of their behavior has shown that central banks followed systematic rules though these did not always conform to the

hypothesized rules. Central banks of core countries behaved differently than those in the periphery countries and there were differences even among the central banks of the core countries.

Broadly speaking, central banks in countries with low gold reserves or that were losing gold did raise their discount rate and so the structure of interest rates; however, there was no case of the opposite, namely the discount rate being lowered by the central bank of a surplus country (Bloomfield, 1959). A League of Nations study quoted in Bloomfield found that during the period 1929-38 changes in discount rates and gold reserves were in the right direction in about 30 percent of the cases, but in the wrong direction in 60 percent of the cases. When Bloomfield conducted a similar exercise for the period 1880-1913 he found a similar result, correct changes in about 30 percent of the cases and changes in the wrong direction in 60 percent of the cases.

The effect of changes in the bank rate on gold flows was also not uniform across countries. An increase in the bank rate was much more effective in attracting gold flows to England than other countries. Perhaps, as a consequence, the UK was much more likely to change the rate. The rate was changed on an average nine times a year (Reis, 2007, Morys, 2012). On the other hand, the bank rate was changed on an average only 0.8 times a year in France and about 3.6 times in Germany or Italy. In other West European countries it was changed less than twice a year. The size of the gold shock also varied among European countries. The UK was hit by the largest gold shocks about 2.4 % of its gold stock whereas the average shock in Germany was 0.4 % and the shocks were even smaller for France averaging 0.13%. But it must be remembered that the shocks are relative to the gold reserves and the UK had much smaller gold reserves than the other countries. The periphery countries were hit by much larger shocks.

The effectiveness of a change in the rate in attracting gold also varied among the countries. By increasing its rate by 100 basis points

Bank of England (BE) was able to attract gold flows of about 8% of its gold stock. However, France attracted only about 4% of its stock and Germany an even smaller amount, 3.6%.

In brief, even among the core countries changes in the discount rate were more of a rarity than the norm. Thus changes in the discount rate could not be an important adjustment mechanism.

Furthermore, we see below that central banks used other instruments than changes in the discount rate to manage their gold stock.

The process of adjustment was more complicated than hypothesized. Further analysis of central bank behaviour would bear this out. Furthermore, the automatic adjustment in the BOP, however, was at the cost of not according importance to the level of domestic economic activity (Morys, 2007). BOP adjustment in the short run was achieved at the expense of reducing the level of economic activity and resulted in higher rates of unemployment. This was not such a problem in the pre World War I period as governments were not expected to manage the economy, and in particular had no responsibility to maintain full employment or price stability.

Section V: The Reasons for the Success of the GS

The GS was considered to be a success and countries were keen to adopt the GS. Whereas in 1850 only England was on gold, by the end of the century many European countries were on the GS. The plentiful supplies of gold after the discoveries in the 1850s encouraged countries to adopt the GS. They were further pushed in this direction by the scarcity of silver in the 1870s which raised doubts about the sustainability of bimetallism (Morys, 2012a, Meissner, 2002).[23]

23. Many countries not on the GS were on the silver standard or had adopted bimetallism with both gold and silver being accepted.

The success of the GS depended on the limited sterilization of changes in gold or foreign exchange reserves so that changes in the reserves fed into the domestic money supply and set in motion the adjustment process discussed above. Some analysts ascribe its durability on the ability of the core countries to neglect the "rules of the game" when it suited them, though obviously they could not do so too frequently (Morys, 2007). Some analysts have ascribed the success to the cooperation among central banks (Eichengreen, 2008) or that the core countries were better suited to adopt the GS because of more mature financial systems (Bordo and Flandreau, 2001). Still others, however, have stressed that the GS with its gold export and import points acted as a currency band and, because of credibility, approach to these gold points set off stabilising speculation (Krugman, 1991, Svensson, 1992). Research has shown that there was significant mean reversion of the exchange rate and this occurred rapidly (Hallwood Paul, R MacDonald and Ian Marsh, 2012).

But stabilising speculation did not always occur as core countries often violated the gold points (Morys, 2007). Overall stability of the system was bolstered by the strong complementarity of production structures in the core and periphery countries that resulted in generally buoyant exports from the periphery (Lewis, 1978, Rostow, 1980).[24] Low stickiness of prices and wages resulted in faster adjustment (Bayoumi and Eichengreen, 1992).

Some of these conditions applied to the core countries and not the periphery countries. Doubts have been raised about these even in the core countries. For instance, while prices show considerable variability this is not true for wages. Wages rarely fell in the US, the UK,

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24. The core, particularly, the UK, exported manufactures and imported primary products, while the periphery exported primary products and imported manufactures.

France and Germany, only about 4 or 5 instances in the 50 years before the First World War (Triffin, 1985). Even when they fell, they did so by only a few percentage points (Triffin, 1985).[25]

The autonomy afforded to monetary policy by variations of the exchange rate between the gold points (Morys, 2007) did not extend to the periphery countries (Obstfeld, Shambaugh and Taylor, 2004). The exchange rates of periphery countries were much more volatile and often breached the gold points. These countries often tried to stabilise their exchange rate relative to some core country. But they depended for stability and adjustment more on having larger reserves which were used to stabilize the exchange rate (Morys, 2012a, Bordo and Flandreau, 2001). The countries in the periphery usually had higher discount rates, though there were fewer rate changes (Morys, 2012b).

Later research has shown that not only were there fewer asymmetries between deficit and surplus countries, but the process of adjustment was not so automatic. Central banks had considerable freedom regarding the timing of their measures and this timing was governed by the state of the domestic economy (Scammell, 1985).There was also cooperation among central banks, particularly the Bank of England (BE) and the Bank of France (BF).[26] The latter was usually willing to lend to the BE when the latter's stock of gold holdings fell to very low

25. This is in contrast to the decline in wages during the 1920-22 recession by 37% in the UK and 22% in the US and Germany (Triffin, 1985).

26. During the Baring crisis BF lent three million pounds to BE and the Bank of Russia lent 1.5 million. For a discussion of the numerous occasions of lending among central banks see Eichengreen (2008). BE lent gold to BF in 1847. Bank of Sweden borrowed from the Danish bank in 1882. In 1893 a consortium of European banks with government encouragement helped the US Treasury to defend the GS. In 1906 the Reichsbank and German commercial banks obtained assistance from BE and BF. In 1906 and 1907 BE was assisted by BF and the Reichsbank. In turn the Russian State Bank sent gold to the Reichsbank.

levels.[27] This willingness on the part of the BF allowed the BE to operate with a very low stock of gold. England in 1913 had a total money supply of $5 billion. Total gold in the country was merely $800 million and only $150 million was with the Bank of England (Ahamed, 2009).

Although many countries attempted to get onto the GS in the years before the First World War very few were able to do so successfully because of the structure of their economies and their relations with the world economy (de Cecco, 1974). The process of adjustment was very different in the important countries, especially what were the key currency countries and the other countries which might be called the periphery. We now discuss how the concept of key currency evolved and the role it played in the working of the GS in the pre-World War I years.

Section VI: Behaviour of the Central Banks of England and France

In this section we discuss the working of the GS in the two major key currency countries, the UK and France. The BE and the BF are often considered to be the two extremes of the GS (Whale, 1937, Bloomfield, 1959, Gallarotti, 1995). As Jaime Reis writes, "At one extreme of the spectrum is the Bank of England with very low reserves and frequent changes in the rate to ensure that, despite gold drains, they were always sufficient. At the other end was the Banque de France, with very large reserves and a preference for an immobile discount rate" (Reis, 2007, p 720). Because of these differences the liquidity ratio (metallic reserves divided by notes in circulation) of these countries were very different with France having a much higher ratio. So how did the adjustment work in these two countries?

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27. Archival studies show that Rothschild often procured the gold from France where it was plentiful as gold coins circulated extensively within the country (Cecco, Palgrave 1987).

Section VIA: Working of the GS in England

Though gold coins circulated in the UK they were of much lesser importance than in France, as cheques were used much more extensively in the UK. Because of the relative unimportance of domestic gold the direct effect of the BOP situation on the domestic money supply was very limited. The working of the GS in the UK mainly depended on the effect of policy changes on the BOP. The UK ran a large deficit on merchandise trade. In addition it exported a large share of its GDP as both FDI and portfolio investments. These capital outflows and the deficit on merchandise trade were financed by the earnings on the foreign investments that it had made earlier. This structure governed the working of the GS in the UK. Also as we shall see below India played a crucial role in the successful operation of the GS for the UK.

When the BE faced a BOP deficit it would raise its interest rate which would lead to an increase in the entire structure of interest rates. Raising the interest rate had a number of effects all of which helped to eliminate the imbalance in the BOP. Discount rate changes had a more immediate and powerful impact in England than in other countries and also had immense influence on other countries (Bloomfield, 1959). The higher interest rate resulted in a smaller outflow of capital and thus reduced the deficit on the capital account.[28] The higher interest rate also reduced the level of inventories of raw materials etc. Since most raw materials and foodstuffs were imported reducing inventory holdings reduced the level of imports.[29] Furthermore, higher interest rates reduced the level of aggregate demand and so imports. So the adjustment occurred in both the current and the capital accounts.

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28. Keynes (1971a) stressed the difference between creditor and debtor countries in the efficacy of the use of changes in the discount rate.

29. See Hawtrey (1913, 1919 and 1928) for an analysis of the effect of interest rates on inventories. This effect was the basis of his analysis of business cycles.

The BE was the lynchpin of the pre-war GS because of its dominant position. Because London was the centre of the gold trade the BE had ready access to gold, particularly new supplies and so found it easier to purchase it. Also its discount rate had a significant effect on the gold trade. The BE also often borrowed gold from France, which had a lot of gold. Rothschild often acted as the intermediary in these transactions. BE also used other measures to attract gold when it believed that its reserves were too low. It would buy gold at a higher price or provide interest free loans to gold importers or buy the gold at the port thereby paying the cost of transporting it to London.

Furthermore, since sterling was a key currency England's deficit with many other countries meant just a transfer of deposits within the British banking system so that it did not affect the money supply and so the level of economic activity. Also, since the BE was the largest bank in England, its discount rate governed the British financial market and also the international financial market. Studies show that its discount rate affected the rates of the French and German banks (Morys, 2012).

Section VI A i): Role of India in the Operation of the GS in England

India played a critical structural role in the operation of the GS in England. India was on a GES that gradually evolved (Keynes, 1971a). Internal currency was silver or paper. The profits from the fiat money were held partly as gold and partly in silver ready to be coined if the demand rose. The gold reserve was held partly in England and partly in India. Apart from the gold reserve India held considerable quantities of sterling securities.[30] The system was partly the result of the recommendations of the Fowler Committee of 1899.[31] But the Committee had recommended moving to gold coinage and that was never

30. The details of the quantities involved are provided in Keynes 1971a. Also see Howard 1931.

31. See the analysis in Howard (1931).

implemented. The British treasury objected to India adopting the GS (Chandravarkar, 1983).

If India had been on the GS then the gold it earned because of its surpluses with the rest of the world would not have been at the disposal of the British authorities.[32] During the great depression from 1931-32 to 1939-40, gold worth Rs 3820 million was exported from India to England, or roughly 80 million pounds a year (Mukherjee, 2002). India ran a large trade surplus. For instance, the surplus in pre World War 1 years was from about a third to 10 percent of imports (Chaudhuri, 1983). Some of the surplus which was under the control of the secretary of state for India was lent out at very low rates of interest giving greater liquidity to the London money market and strengthening the ability of the BE to control the market (Mukherjee, 2002). Banerji (1982) notes on page 223 that Mallet and Reay (1882) in their report to the authorities of the working of the system had said that no independent government would have tolerated the costs of such a system, P 398. They had gone on to say that India could be compelled to have such a system because of her dependence on England.

The GES system was economical and preferred by many economists, it also had other implications. It allowed BE to operate the system with very low reserves of gold. That is why, for instance, the French had resisted the attempt during the Genoa Conference of 1922 to declare the GES as the preferred system and why the French Government under de Gaulle had wanted a return to gold. [33]

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32. Also India had to remit large amounts to England on account of home charges which has been considered by Indians a form of exploitation (Mukherjee, 2002, Sen 1992).

33. Because of the dollar standard prevalent then as in the earlier sterling system the key currency could finance deficits by just issuing its own currency and was under no compulsion to adjust whereas other countries had to adjust. De Gaulle had called this the “exorbitant privilege.”

Section VI B: Behaviour of the Bank of France

The behaviour of the BF varied not only from that of the BE but also significantly from the way central banks were supposed to behave. The BF rarely changed its discount rate. High gold reserves, a stable discount rate and an expansion of domestic credit in response to adverse international shocks, were the pillars of BF policy. BF could legally redeem its notes in either gold coins or 5 franc silver coin. If there was a strong demand for gold the BF would offer silver coins; this would result in a premium on gold. Changing the premium could be used to control the demand for gold.

The BF would also offset the effect of changes in reserves on the domestic money supply. When there was an outflow of reserves it would increase the quantity of domestic assets on its balance sheet so that the money base did not shrink and so the money supply remained constant. In this way the BF tried to neutralise the effect of changes in foreign exchange reserves from influencing the level of domestic activity in the country. The BF violated two of the principal "rules of the game". It did not alter the discount rate to meet gold inflows or outflows and it sterilised changes in its foreign exchange reserves.

Section VII: Adjustment in the Periphery

The process of adjustment worked very differently in the periphery countries and not so smoothly. The key currency countries were creditor countries and variations of the interest rate affected the investment flows from these countries and these in turn affected their exports and imports. However, in the periphery countries raising the interest rate would not attract capital flows.[34] Raising interest rates did not lead to stabilizing capital flows. Consequently, these countries relied more on their reserves

34. Capital flows in these countries were mainly to finance investment or to cover the deficit in the government budget. A higher interest rate on government borrowings would worsen the budget situation.

to meet any BOP problems. Their foreign exchange reserves were much larger than those of the key currency countries, particularly the UK.

Because of the inadequacy in the process of adjustment, as discussed below, these countries remained on the GS for only a very limited period. For instance, during the period 1880-1914, Brazil was on the GS only during 1906-14 (Fritsch and Franco, 1991), Chile during 1895-98 and Colombia 1980-85 (Acena, Reis and Rodriguez, 2000). This was also true of the peripheral European countries; Italy was on the GS during 1885-1893 (Fratianni and Spinelli, 1984)[35], Portugal 1880-91 (Reis, 2000)[36] and Spain 1980-83 (Martín-Aceña, Martínez-Ruiz and Nogues-Marco, 2011, 2000). [37]

It was difficult to maintain the GS for these countries because of the repercussions of the policies of the core countries, particularly England, and domestic interests. When the English economy was doing well it would demand raw materials. The exports from many of the periphery countries would rise both in quantity and in prices, and export earnings would increase. As incomes in these countries increased, imports would also increase. These countries depended on trade taxes and so revenues would increase and the budgetary position of these countries would improve. The better BOP and the budget positions would make these countries credit worthy and they would attract capital inflows, partly to increase the output of tradeables.

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35. Being on the GS was neither necessary nor sufficient for stability. For instance, during the years 1868-70 the fiscal deficit was kept under control and the exchange rate remained almost constant. Also between 1885 and 1893 Italy was on the GS with a fixed exchange rate and followed the appropriate fiscal policy. But whenever the government found it convenient it ran large fiscal deficits and the currency depreciated. For instance, Italy went off the GS in 1894.

36. Portugal abandoned the GS in 1891 when because of unrest in Brazil remittances declined. Also the Baring Crisis and a diplomatic spat with the UK weakened Portugal's ability to borrow in London.

37. For the periods when different countries were on the GS see Officer Gold Standard accessed at https://eh.net/encyclopedia/gold-standard/

When the BE raised its interest rate the level of economic activity in England would decline and so exports from countries in the periphery would decline. The higher interest rate in England would directly reduce capital flows to these countries. Furthermore, the reduced export earnings in these countries would reduce the incentive to invest. In addition, the reduced trade would lower government revenues and together with the lower export earnings damage the creditworthiness of these countries. The actions of the BE would lead to substantial cyclical swings in the economies of the periphery countries.

These cycles would generate pressures on the exchange rate. During the boom when the BOP was in surplus there would be pressure for appreciation and during the downswing there would be pressure for depreciation. The appreciation was beneficial to those, for instance, who were borrowers in foreign currency as the appreciation would reduce the domestic burden of servicing the debt. The pressure for appreciation would not necessarily hurt export interests as demand in the core countries was high and capital inflows were available to increase supplies. But during the downswing there would be severe pressure from export interests for depreciation. Investments made during the boom would often lead to increased output just at the moment when demand in the core countries had shrunk. Usually, anyway, it proved difficult to maintain the exchange rate during the downswing and the exchange rate would depreciate. If the country had gone on to the GS during the boom it came off it during the downswing.

The conflict between exporting interests and those who aspired for a stable system, the GS, is described in detail in an article by Fritsch and Franco, in Acena, Reis and Rodriguez, 2000.

During practically the entire period before the First World War, the value of the currency in Brazil was below what was considered desirable. Consequently, those who had faith in the GS wanted the money supply to be restricted so that the country could adopt the GS at the

appropriate rate. But such a deflationary policy was opposed by many who wanted an expansion of credit to support their production activities. Export interests in particular were against any policy that resulted in an appreciation of the exchange rate. Interestingly, however, in the late 1880s, the buoyant state of the balance of payments, particularly on the capital account, made possible what years of deflationist efforts had failed to do, an appreciation of the exchange rate to 27 pence per milreis without following a deflationary policy and with sufficient gold backing for a large money supply. But this compromise was short lived. The Republican revolution that occurred in November 1889, when South American securities were already facing difficulties in London by virtue of the early signs of the Baring Crisis resulted in a reversal of the capital flows. The new banks of issue which had considerable powers almost doubled high powered money in conditions of boom and strong stock exchange speculation. This resulted in a sharp nominal fall in the exchange rate and inflation. The resulting depreciation while a bonanza for coffee growers, new planting nearly tripled during the 1890s, resulted in a substantial deterioration in the public finances as the government sought to service its external debt. Ultimately, a stabilization programme based on contractionary monetary and fiscal policies accompanied by additional foreign funding was adopted. This resulted in a severe deflation, an unprecedented banking crisis and a recession around the turn of the century. The stabilization together with buoyant exports led by new rubber exports from the Amazon and earnings from coffee exports because of price increases resulted in Brazil returning to the international capital market to an unprecedented extent.[38] However, the exchange rate began to suffer renewed pressures for appreciation encouraging pro GS interest to demand adoption of the GS.

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38. The central government's external debt rose from £ 42 million in 1900 to £ 144 million in 1913, and direct investment rose from £ 105 million in 1902 to £ 295 million in 1913 (Fritsch and Franco, 2000).

The Brazilian case illustrates the difficulties of remaining on the GS. Fiscal problems often forced governments to run large deficits which increased the money supply and fuelled inflation that made the exchange rate uncompetitive. On the other hand an export boom led to private capital inflows also and an appreciation of the exchange rate with accompanying problems for the export sector.

The countries in the periphery could not use the discount rate to control capital flows and so stabilise the BOP. Whereas when the BE raised its interest rate gold would flow in this was not the case in the periphery. What mattered to foreign investors was the rate of interest in foreign currency. Most of the loans had gold clauses that required payment in gold. This could create an interesting problem as in the case of Italy. The coupon rate could be paid in Lira or in gold in Paris. The central bank gained by a depreciation as the burden of servicing the debt held by domestic investors would decrease. But these investors could always take the coupons to Paris for encashment in gold thereby raising the cost of servicing the debt. The bank had to carefully calibrate its policy of inflation to reduce the cost of servicing the debt held by domestic investors without forcing them to go to Paris that would have lead to large outflows of gold (Tattara, 1991).

External circumstances could force a country off the GS. Portugal had been the second European country after England to adopt the GS. It found it convenient as England was its major trading partner, English gold coins circulated in Portugal and remittances from Brazil usually resulted in a surplus (Duarte and Andrade, 2004, Reis, 2000). The GS lasted till 1891 despite the Bank of Portugal following an active monetary policy that resulted in frequent violations of the “rules of the game”. It used the discount rate as a policy instrument very sporadically (Reis, 2000). When it had a deficit it borrowed in London which it could do readily partly because of central bank cooperation (ibid). But the slave rebellion in Brazil in 1888 reduced remittances. Portugal also had

a diplomatic quarrel with Great Britain and then there was the Baring crisis. An attempt to float a loan in London actually lead to loss of confidence .The result was that Portugal was forced off the GS and was not able to get back on the GS.

In some cases what came to the fore was the conflict between the central bank's responsibility for the system as against its own interest to its share holders since most of these banks were private banks. For instance, the minutes of the meetings of the board of directors of the Bank of Spain show that the paying of large dividends to its shareholders prevailed over the public interest of maintaining a stable peseta (Acena et al 2011). This tension was beginning to become important for the BE also (Cecco, 1974). The actions of the Bank of Spain together with the inability of the government to manage its budget meant that Spain did not go onto the GS despite repeated statements to that effect.

In the longer run reduction of imbalances and resumption of the level of economic activity depended on revival of the world economy and the resumption of demand for their exports (Sachs, 1991, Eichengreen and Lindert, 1992). This occurred usually because of growth in the areas of recent settlement which resumed when capital flows resumed. The period before the First World War, particularly from 1900 onwards, was a period of rapid growth in the world economy and the countries in the periphery participated in this growth through expansion of their exports.

The choice before the periphery countries was between a floating exchange rate and a hard peg, maybe adherence to the GS. The disadvantage of floating was that foreign investors had no confidence in local currency denominated bonds. So countries in the periphery had to borrow in key currencies or with gold clauses. This meant that in the event of their leaving the GS or depreciating their currency the cost of debt servicing in local currency would increase. On the other hand maintaining a fixed exchange rate meant that these countries had to

maintain large reserves that could be drawn down when they ran BOP deficits. Even then they often could not maintain a fixed exchange rate.

A floating rate meant restricted access to foreign capital markets though it provided flexibility for managing the domestic economy. Maintaining a fixed rate meant devoting considerable resources to build up reserves to guard against deficits (Bordo and Flandreau, 2001). The same choice faces emerging market economies today. Adopting a flexible rate means that these countries are forced to borrow in foreign currencies, and a devaluation leads to debt servicing difficulties that might have even broader macroeconomic ramifications as during the Asian crisis.[39] Consequently, countries may say that they are allowing their currencies to float but do not really do so (Calvo and Reinhart 2002,). Fear of floating is pervasive even among developed countries, particularly the smaller ones. Lack of confidence leads to dollarization of liabilities today (Calvo and Reinhart, 2002).[40]

These countries find that the exchange rate provides a better anchor than the rate of interest. Furthermore, it is claimed there was an advantage to adopting the GS. It resulted in lower costs of borrowing (Bordo and Rockoff, 1996). But analysis also suggests that the benefits would only arise after a considerable time lag. Even five years after the adoption of the GS countries would pay a considerably higher interest rate and the market expected a devaluation of 20 percent.

What is interesting is that countries in the periphery face the same choice today as they did a century ago even though the overall international monetary system has changed. A century ago the key countries were on the GS, namely adopted fixed exchange rates. Today

39. Depreciation resulted in public debt crises in Portugal (1892) and Greece (1893) (Bordo, 2003).

40. This often means that a devaluation leads to a recession (Taylor and Krugman, 1977).

these countries have adopted a floating exchange rate. This seems to imply that the problems of developing countries arise not from the exchange rate system adopted by key countries but from their own economic structures .These have been identified as a lack of financial maturity (Bordo and Flandreu, 2001, Calvo and Reinhart, 2002). Also the division into the core and periphery countries today follows very much the division that had existed in the pre World War I period (Bordo and Flandreu, 2001). The monetary and fiscal conditions imposed on periphery countries facing a BOP problem were similar in the pre World War I period and currently. Currently, however, the conditions can be more onerous as these can encompass many additional areas of domestic policy; there is considerable international unanimity regarding the conditions imposed on debtor countries coordinated by the IMF.

Analyzing the problem facing periphery countries individually would lead to this conclusion that what matters is country policy and its financial maturity as the international financial architecture is taken as given. But these analysts do not study whether a different financial architecture would not lead to different results. For instance, during the period when the BWS operated and the IMF operated as a lender of last resort without onerous conditionalities countries in the periphery did not feel the need to hold large reserves for precautionary reasons. Alternatively, if the Keynes plan for freer availability of international credit and adjustment measures more symmetric between surplus and deficit countries and also more compulsory had been adopted peripheral countries which usually run deficits would not have been to adversely affected.

Section VIII: Conclusions

Adjustment under the GS was much more complicated than is often posited. It was not automatic or symmetric. Central banks even among the core countries played different roles depending on their position in the hierarchy. BE could depend on using its discount rate to

manage its BOP. Furthermore, the BE was helped by its control over monetary and exchange rate policy in India that enabled India to run large surpluses which were at the disposal of the BE. However, our analysis shows that periphery countries were at a structural disadvantage under the GS even though they were not colonies. The responses of the BE to its own cyclical fluctuations created problems of macro management in the periphery. In particular, the cycles affecting the British economy were transmitted to the economies in the periphery. These countries lacked the tools to ameliorate the cycles and very often they were in a typical policy dilemma where tackling one imbalance made the other worse.

The BF or the central bank in Germany could not adopt the same policies as the BE. Such a policy was even more impractical for central banks in the periphery. Variations in economic activity played a very important role in adjustment in the periphery. Recovery often had to wait for a revival in the world economy and this was exogenous to their own policy actions. They depended on large foreign exchange reserves to meet BOP deficits. Today their situation seems no different. They hold large reserves to meet BOP exigencies. The level of economic activity in developing countries depends on the world economy; the lower level of world economic activity since the 2008-9 financial crisis has severely impacted the economies of many developing countries.

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