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# Global Imbalances, the International Crisis and the Role of the Dollar

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# **Global Imbalances, the International Crisis and the Role of the Dollar**

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## **Abstract**

The paper investigates the links between international global imbalances and the recent international financial crisis. It also focuses on the asymmetries of the dollar standard exchange rate regime. Global imbalances preceded the crisis but were one of the ingredients that led to the financial crash of 2007-2008. The paper rejects the ‘saving glut’z explanation of the US trade deficit and shows that the key role of the dollar in the international monetary system allows the USA to exert seignorage in the international economy and created a circuit where Asian and oil-producing countries financed the US deficit. The inflow of foreign capitals increased the US domestic credit supply contributing to the development of the sub-prime bubble. The paper concludes that only the creation of a supranational monetary authority can eliminate the dangers of the asymmetric dollar standard regime.

JEL: F33, E21

## *1. Introduction*

When trading in the world market, countries usually export part of their domestic production in exchange for imported goods. Because of the monetary nature of the modern economy, importing gives rise to a demand for foreign currency that countries meet by selling goods or services abroad. However, international trade is not necessarily continuously balanced year by year since deficits and surpluses may be temporarily financed through the accumulation or disposal of foreign assets. Historical data show that periods in which countries run a trade deficit (or surplus) are quite normal, often followed by years in which a trade surplus (or deficit) takes over. Developing countries, for example, need investments in an amount that very often exceeds domestic savings so that inflows of foreign funds, associated with the import of capital goods and a trade deficit, occur. When economic growth is consolidated, the

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external deficit eventually turns into a surplus so that the country's trade is balanced in the medium term. In the language of modern international trade theory, what really matters is that a country satisfies an intertemporal budget constraint in which a current external deficit (or surplus) is matched by the present value of the sum of (expected) future trade surpluses (or deficits). However, if the sequence of deficits is too long and trade surpluses fail to appear, the market would interpret such a situation as a signal of increasing the likelihood of the country going bankrupt, and the subsequent loss of international credibility would rapidly produce both a currency and balance of payments crisis<sup>2</sup>.

At a more general level, when persistent economic and geographic disequilibria spread to several countries, in the world economy global imbalances arise and this is a serious issue. We define global imbalances as a situation in which one country, or a group of countries, systematically imports more goods and services than it exports while others persistently do the reverse. Trade deficits must be financed so that a chronic external deficit involves continuous financial flows from surplus (creditor) to deficit (debtor) countries whose foreign debt becomes larger and larger. Sooner or later, in the absence of current account rebalancing, indebted countries reach a critical point in which they violate their intertemporal budget constraints and become insolvent. Lasting global imbalances are therefore likely to result in a balance of payments and currency crisis with costly adjustment that may spread to the world economy when the originating country (or group of countries) is sufficiently large and important.

In recent years, in 2007 the burst of the subprime bubble was the US domestic event that in a few months led to the collapse of the US banking system in 2008 and gave rise to the most severe international economic crisis since the Great Depression in 1929. However, global imbalances dating back years and characterised by a growing American current account deficit financed by the huge inflow of foreign capital, mainly from Asian and oil producing countries preceded and accompanied the crisis<sup>3</sup>. Global

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<sup>2</sup> Historical data and an empirical analysis of current account deficits and the crisis can be found in Adalet and Eichengreen (2005), Edwards (2007), Milesi-Ferretti and Razin (1996, 1997), Reinhart and Rogoff (2009).

<sup>3</sup> There is a great deal of literature on global imbalances and includes contributions by: Astley (2009), Bernanke (2005), Blanchard and Giavazzi (2005), Blanchard and Milesi-Ferretti (2009), Bracke et al. (2010), Caballero and Krishnamurthy (2009) Clarida (2005a, 2005b), Edwards (2005), Engel and Rogers (2006), Feldstein (2008), Fiorentini and Montani (2010), Hong (2001), Kouparitsas (2005), Laibson and

imbalances not only contributed to the development of the US credit bubble but also favoured its subsequent worldwide spread (Dettman, 2011). Figure 1 shows annual current account, trade balance and financial account data for the USA in the period 1960-2010. The most striking fact is that, after 1982, the US trade balance has been constantly negative with a rapid and dramatic deterioration after 1992, reaching an unprecedented level in 2006. The current account balance closely follows the trade balance pattern, while the financial account shows the increasing inflows of foreign capital allowing the US economy to finance the trade deficit. Only after the crisis of 2007 did a partial rebalancing occur. The counterpart to the long running US trade deficit was mainly a surplus in Asian countries, including Japan and more recently China (Figure 2).

Parallel to the deterioration of the external trade position of the USA was the worsening US foreign asset position. An inevitable consequence of the persistent inflows of foreign capital to finance the trade deficit is the continuous accumulation of foreign debt. US Treasury data shows that, at the end of 2010 foreign debt was 14 457 million dollars and its ratio to GDP was 97%. At the present time, in absolute terms the USA is thus the biggest debtor in the world economy.

Another aspect of the huge trade deficits is that for many years the USA acted as the 'buyer of last resort' in the international trade arena, allowing emerging exporting countries such as China to grow at a very high rate. As a result, the slowdown of US domestic demand determined by the crisis caused a sharp negative shock spreading the American recession worldwide.

The above picture raises several questions: how could the USA sustain such a long period of continuous external deficits? What are the causes of long lasting global imbalances? Why were foreign investors so willing to finance the American economy, notwithstanding clear signs of rapid current account deterioration and foreign debt accumulation? Are global imbalances related to the worldwide financial crisis?

It is not simple to answer these questions because there are many possible causes for the rise and persistence of a trade deficit. Both micro and macroeconomic factors are relevant. On the microeconomic level, elements such as investments, commercial

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Mollerstrom (2011), Lee and Chinn (2002), Leightner (2010), Obstfeld (2005), Obstfeld and Rogoff (2005).

policies or technology transfer by firms<sup>4</sup> may be important because they interfere with the international competitiveness of countries through product and process innovation and the international re-allocation of production. Rapid industrial growth and the large trade surplus of China, for example, are not simply the result of an aggressive exchange rate policy toward the dollar as many US analysts and congressmen believe<sup>5</sup>, but largely depend on foreign direct investments (FDI) over the last fifteen years by many international companies which moved some or all of their production plants to Asian countries in order to exploit cheap Chinese labour<sup>6</sup>.

At the macro level, the status of domestic and foreign trade, fiscal and monetary policy, the degree of protectionism and patterns of international demand affect import and export flows. An excess of domestic demand (absorption) over domestic output creates trade deficits, but real exchange rate appreciation may depress exports and foster imports through changes in the conditions of international trade. Financial and money market equilibria affect nominal exchange rates that in turn are the main drivers of short-term real exchange rate movements. Agents' expectations and the actions taken by central bank may also have a significant impact on foreign exchange markets.

The shape and functioning of the international monetary system play a very significant role too. One source of global imbalances is the asymmetric nature of the international monetary system in which one national currency, the dollar, is the leading player. As explained later, it was due to this asymmetry that in the first decade of the new millennium emerging countries accumulated dollar reserves that were reinvested in the US financial market allowing the USA to ignore external balance of payments constraints, enabling the financing of the sub-prime bubble.

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<sup>4</sup> The behaviour of foreign companies may affect the time lag with which an exchange rate depreciation contributes to the re-balancing of current account disequilibria. If foreign companies seek to defend their international market share, they do not immediately upwardly adjust the foreign currency price of their products. They prefer to accept a temporary loss of profits. In this case, the pass-through of exchange rate depreciation on prices is slow and related international prices do not change very much. In this event therefore, depreciation does not improve the trade balance. According to Krugman and Baldwin (1987), differences in price policies of American and foreign companies explain the persistence of the US trade deficit after the dollar depreciation in the 1985-1986 period.

<sup>5</sup> Among academics, for example, Krugman forcefully maintains that the Chinese trade surplus depends on the policy of pegging an undervalued renminbi to the dollar.

<sup>6</sup> Yang and Lao (2007) showed the existence of a causal link between FDI in China and the development of the trade imbalance between China and the USA. It is also worth noting that Hong-Kong and Taiwan were particularly active in the field of DFI in mainland China (Branstetter and Foley, 2010: 5).

Trade deficits and imbalances in the world economy are complex phenomena that may be analysed from different point of view. Here, we focus on the macro and monetary aspects of global imbalances and their close link with asymmetries of the current dollar-based international monetary system. Our thesis is that profound international monetary reform including the creation of supra-national monetary institutions is necessary to create a more stable world economic environment if we want to prevent the recent pattern of global imbalances from appearing again in the future.

## *2. Trade account, current account and net foreign debt: accounting identities and useful analytical tools*

Before we develop a detailed analysis of global imbalances, we outline some accounting definitions and analytical tools used in the following discussion.

According to national accounting rules, current account  $CA$  is equal to the difference between national savings  $S$  and investments  $I$ .

$$(1) \quad CC = S - I = S_p + S_g - I$$

In the above equation, national savings  $S$  is also written as the sum of two components, private savings  $S_p$  and government or public sector savings  $S_g$ . The latter is also equal to the government budget, so that a budget deficit represents negative public savings and vice-versa. According to the equation (1), a trade deficit is always the result of domestic investments exceeding domestic savings. This approach outlines the possibility of twin deficits, namely the co-existence of both trade and government budget deficits but it says nothing about the sources of differences between savings and investments. A trade deficit that arises because of a change in household consumption and savings behaviour and/or a fiscal expansion that worsens government budget is obviously more problematic in the long run than an external deficit caused by an endogenous increase in investments associated with capital accumulation and higher long-term rates of growth. In the first case the trade deficit may prove unsustainable, not necessarily so in the latter case. One should therefore carefully investigate the economic forces behind the dynamics of savings and investments to draw the right conclusions about trade imbalances. As to global imbalances, the savings-investment approach was

the starting point of a famous explanation, put forward by FED Chairman Bernanke (2005), known as the ‘global savings glut hypothesis’ (GSG) discussed below in Section 3.

A different, probably more direct approach to considering trade deficits and surpluses is the absorption approach (Alexander. 1952) that views the external imbalances of a country as a mismatch between aggregate demand, including both domestic and foreign goods, and domestic output (or the supply of goods and services). Characterizing domestic aggregate demand or absorption as  $A$  and output as  $Y$ , the trade balance  $TB$  is given by  $TB = A - Y$ . When the domestic supply of goods and services falls short of private and public demand, a deficit emerges while an excess supply over absorption generates a surplus. From standard macroeconomics we know that absorption depends on consumer income, company investments, the real exchange rate and monetary and fiscal policies, so that we may write the following compact trade balance equation:

$$(2) \quad TB = TB(Y, I, R, \gamma, \mu)$$

In equation (2),  $I$  represents investment,  $R$  the real exchange rate, while  $\gamma$  and  $\mu$  are fiscal and monetary policy variables controlled by governments and central banks. Current account  $CA$  is closely related to the trade balance and is equal to the latter plus interest income accruing from net foreign assets  $iB$ ,  $i$  being the interest rate earned on the net stock of foreign assets  $B$  that domestic residents hold:

$$(2.3) \quad CC = TB + iB$$

The net stock of foreign assets  $B$  changes whenever trade is not balanced. At the end of any period, a surplus increases the claims on foreign assets by domestic residents, while a deficit is financed selling liabilities to foreign investors:

$$(4) \quad TB = \Delta B$$

$$(5) \quad B_t = B_{t-1} + \Delta B$$

According to equations (4) and (5), a trade deficit or surplus affects the net stock of financial assets and determines the dynamics of foreign debt of a country. Combining equations (3), (4) and (5) we may derive the well known intertemporal solvency condition referred to in the introduction (Osbtfeld and Rogoff, 1996: 66).

$$(6) \quad -B_t = \sum_{s=t}^{\infty} \left( \frac{1}{1+i} \right)^{s-t} TB_{s-t+1}$$

Equation (6) is an intertemporal constraint that relates the current stock of foreign liabilities to the discounted flow of future trade surpluses and is derived under the assumption that a country cannot accumulate boundless foreign debt. In other words a ‘no Ponzi scheme’ terminal condition, excluding the possibility that a country can infinitely finance continuous current account deficit borrowing from abroad, is imposed. Equation (6) implies that a net current negative foreign asset position ( $B < 0$ ) from the accumulation of past trade deficits, must sooner or later be matched by a sequence of trade surpluses. This is the only way to obtain the resources a country needs to refund foreign investor loans. A balance of payments crisis and economic disruption are the final outcome of violating (or the expected violation) of the intertemporal constraint. When foreign investors think a country is heading into insolvency, they stop financing the indebted country so that the rebalancing of the current account must be achieved through the reduction of domestic absorption through government spending cuts and monetary restrictions that ultimately result in a fall in income, lower consumption and a rise in unemployment<sup>7</sup>.

It is important to observe that when national currencies have the same weight in the international monetary system, equation (5) symmetrically holds for every country. In this case, each currency plays the same role in international transactions and the conclusion that excessive prolonged trade and current account deficits are not sustainable holds everywhere. The ultimate reason is that the purchase of foreign goods and services requires the holding of foreign exchange balances, so that every country

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<sup>7</sup> The events that occurred in the Asian crisis of the 1997-1998 are a good example of the dramatic economic and social costs of a sudden stop in foreign financing in countries that accumulated a large stock of foreign debt.



faces the same liquidity constraint and is bound by an intertemporal budget constraint of the same type (Obstfeld and Rogoff, 1996: 595-97).

However, as shown in Fiorentini (2002), when the international monetary system is asymmetric, based on one national ‘key currency’, as in the case of the current dollar standard, the issuer faces a less binding constraint and is therefore able to sustain longer sequences of trade deficits than other countries. Asymmetry occurs when the world monetary system is organised around a national currency serving as a worldwide unit of account, medium of exchange and store of value. The consequence of this asymmetry is that the country, whose money is the ‘key currency’, can exert ‘seignorage’ on real resources traded in the international market, attracting foreign capital and its intertemporal solvency condition is different from the rest of the world.

We can indicate the long-term implications of an asymmetric international monetary system using a simplified two country world economy model in which Home and Foreign country face liquidity constraints ‘a la Clower’ (Clower, 1967; Fiorentini, 2002; Obstfeld and Rogoff, 1998: 595). The benchmark case is the symmetric one in which no ‘key currency’ exists, so that each country is subject to the following liquidity constraints (foreign variables are indicated by an asterisk):

$$(7) \quad M_{t-1} \geq P_t C_t$$

$$(8) \quad M_{t-1}^* \geq P_t^* C_t^*$$

In each period  $t$ , the value of consumption of domestic goods cannot exceed the stock of domestic money carried over from the previous period. At the same time, the domestic consumption of imported foreign goods is bound by the stock of foreign money held by domestic residents who obtain it selling (exporting) goods and services to the other country.

Let us now assume that just one of the two currencies is used as a worldwide means of payment in international transactions. If Home country issues the international ‘key currency’, then it does not need to accumulate foreign currency reserves because it can purchase both domestic and foreign goods with its own money. On the contrary, Foreign country, whose money has no role in international markets, has to export goods and services to obtain the ‘key currency’ it needs to pay for imports from Home country.

As a consequence, the liquidity constraints are different. In fact, while Foreign country is still restrained by (7) and (8), Home country has to satisfy the following inequality:

$$(9) \quad M_{t-1}^H \geq P_t^H C_t^H + S_t P_t^F C_t^F$$

The meaning of (9) is that Home country has the privilege of purchasing both domestic and foreign goods using its own currency. It does not need to accumulate foreign currency by exporting domestic goods in order to import products from abroad. The existence of a ‘key currency’ has two main implications relevant for our discussion. The first is that global imbalances are a natural result of the asymmetric world monetary system because Home country inevitably develops a trade deficit counterbalanced by a stable surplus in the Foreign country. The second is that Home and Foreign countries intertemporal budget constraints are different. In Home country the constraint is<sup>8</sup>

$$(10) \quad -B_{t-1}^H = \sum_{s=t}^{\infty} P_s^H T B_s^H + \alpha$$

while in the Foreign country it is

$$(11) \quad -B_{t-1}^F = \sum_{s=t}^{\infty} \frac{P_s^H}{S_s} T B_s^F - \alpha$$

In the equations,  $\alpha$  is the terminal value of Foreign consumption of Home goods,  $S$  is the exchange rate and  $P^H$  is the price of Home country goods. According to equations (10) and (11), the same initial net foreign debt  $B_{t-1}^H = B_{t-1}^F$  requires that the discounted value of the sum of future trade surpluses of Home country is smaller than the sum of Foreign country. In other words, given the same initial condition, Home country may have a longer period of trade deficit than Foreign country before violating the intertemporal constraint. In conclusion, the country whose currency is used as the medium of exchange in world trade benefits from seignorage that in the long run takes

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<sup>8</sup> See Fiorentini (2002) for technical details.

the form of a less binding intertemporal constraint. Global imbalances are an endogenous product of international asymmetric monetary systems.

### *3. Explanations of global imbalances: the 'global savings glut' hypothesis*

We can now use the definitions and tools of the previous section to analyse global imbalances and their relationship with the dollar standard monetary system.

It is known that current account deficits occur whenever domestic investments exceed domestic savings. The data on current account and trade balance shown in Figure 1 therefore directly point to the existence of a stable negative savings-investments gap in the US economy.

The immediate question prompted by this data is why have savings been systematically below investments in the USA since 1982? Does it depend on internal factors or is it the result of international disequilibria to which the USA economy has passively adapted? Bernanke (2005) believes the latter explanation. This view, known as the Global Savings Glut hypothesis (GSG), states that the US current account deficit is the end result of an excess of world savings invested in the efficient American financial market, keeping long-term interest rates very low. Low interest rates in turn caused an expansion of both domestic credit demand and household consumption that depressed savings and gave rise to the current account deficit of recent years.

What can be said about the GSG hypothesis? Obviously, from an accounting point of view, at a worldwide level savings and investments must be balanced, and a savings glut cannot arise. However, a continuous upward trend in world savings after 1997 would be consistent with the GSG Hypothesis. IMF data on world saving and investments are shown in Figure 3. They indicate that the global savings/GDP rate has been quite stable over the last thirty years, moving in a narrow 20.4 - 24.1% range.

If we restrict the analysis to the 1997-2005 period, in which, according to Bernanke, the GSG was operative, it can be seen that world savings actually decreased until 2002 and increased only after 2003. Yet, the US trade deficit was already declining fast in 1997 so the GSG hypothesis is not entirely consistent with real global savings data. A disaggregated view of world savings is useful in assessing the GSG explanation of global imbalances because, by looking at the distribution of savings and investments in different countries, surplus and deficit areas can be readily identified. As Figure 4

shows, in the 1992-2009 period Asian and oil producing countries had an excess of savings over domestic investment while in industrialised countries only the USA was in deficit, Japan having a surplus and the EU area being roughly in equilibrium.

Looking at the US situation, a negative savings-investments gap already existed in the 1980s but was quite stable up to the end of the 1990s, oscillating slightly between -2% and -3%. This trend is the result of different savings and investments dynamics during the period. In Figure 5 three distinct phases are evident. In the 1980s, there was a general decrease of both investments and savings, so the latter drove the initial deterioration in the US trade balance. Both the private and public components contributed (Figure 6). The nineties shows quite a different picture. The rebalancing of the federal budget by the Clinton administration improved the gross savings rate, despite a continuous decrease in private savings. In relation to investments, a popular explanation of the jump from 17.59% in 1983 to 20.86% in 2000 is that huge investments in ITC were made, raising the GDP growth rate and making the USA an attractive place for foreign investors seeking high real returns (Blanchard and Milesi-Ferretti, 2009: 8). In this view, it was a rise in investments and not a fall in savings that drove the savings gap, after accounting for the positive Federal Budget contribution to national savings (Blanchard and Milesi-Ferretti, 2009: 8). At the beginning of the new millennium, however, the gap grew steadily both due to the deterioration of the Federal Budget under the Bush Administration and a steady increase in American household

The fact that in the last decade the lack of savings has been essentially an American problem seems to be consistent with Bernanke's explanation of the US current account deficit as a passive response to external dynamics. However, if he is right, we should see a strict time sequence between the trade surpluses of other countries and the decrease in the American savings rate after 1998. Since in the last ten years China has become the largest exporter country engaged in bilateral US trade, moving up from fifth to second position in total bilateral American trade (Table 1 and 2) we should observe a close relationship between the high Chinese net savings rate and the low American rate.

However, in the USA the savings rate actually started to decline *before* the surge in the Chinese current account surplus (Zhou Xiaochuan, 2009). In fact, in the 1990s, the US savings rate as a percent of GDP increased, peaking at 18.81% in 1998;

subsequently it steadily declined, mainly because of a reduction in the rate of household savings. On the other hand, it was only after 2001 that the Chinese current account surplus soared, from a mere 1% to about 10% of GDP in 2008. Domestic factors seem therefore to be as important as international phenomena in explaining the recent external imbalances of the US economy.

The composition of gross US savings comprising public and personal components shown in Figure 6 again provides a useful hint of what forces lie behind the deterioration of the US savings rate.

The graph shows that in the last three decades, from 1980 to 2010, the public sector negatively contributed to national savings in the 1980s and 2000s. On the other hand, private savings trended down well before the recent surge of the global imbalance debate focused on the GSG hypothesis. Annual data on the US personal savings rate show a clear downward trend from 1982 to 2005. In 2006 the trend was reversed, but personal savings rates remained below their 1982 value at a very low level seen in historical perspective.

At the end of the 1980s, several years before Bernanke's speech, in their paper 'Why is US National saving so low' Lawrence and Carrol (1987) expressed concern about the low level of savings and growing dependence of the U.S. economy on foreign loans. After careful review of the possible explanations for the declining American savings rate, they concluded it was the result of a combination of the federal deficit and long-term downward trend in private and personal savings. Their explanation for the personal savings trend was based on the increasing access of households to credit and the improved economic condition of the elderly, reducing the incentive of younger generations to save.

In the 1990s, although the Clinton administration improved the federal budget so much it went into surplus in 2000, the savings rate of the private sector continued to decline and the issue did not disappear from the economic debate (Gale and Sabelhaus, 1999; Parker, 1999; Maki and Polumbo, 2001; Marquis, 2002; Guidolin and La Jeunesse, 2007). According to Marquis (2002), the persisting decline in private savings in the 1990s was ultimately a consequence of two events: financial innovation relaxing individual financial constraints and fostering a rise in consumption; and the increase in permanent income generated by an upward trend in productivity associated with

investments in the ICT sector. Guidolin and La Jeunesse (2007) added wealth effects, demographics, Social Security programs and macroeconomic stability ('great moderation') to the list of possible explanations.

More recently, rising income inequality in the US has attracted attention as a possible cause of the long-term decrease in the private savings rate. The argument put forward by Rajan (2010) and Reich (2010) goes as follows: since the 1980s, the income of average educated American workers lagged behind productivity growth so their share of national income declined. In order to maintain their level of consumption, they increasingly turned to credit-financed consumption, producing a continuous decline in savings rates<sup>9</sup>. For the moment, this brief review of the economic literature on the causes of the low US household savings rate can be summarised by saying that most explanations put forward are based on domestic factors and therefore the GSG hypothesis of simple passive adaptation by the US economy to external trends in world savings does not appear to be very convincing. Whilst the negative impact of financial innovation and cheap credit on household savings rates fits the GSG story, these factors were already functioning in the 1980s when Asian and other developing and emerging countries were running trade deficits and accumulating foreign debt rather than running trade surpluses and exporting capital to the US financial market.

Focusing now on the savings surplus outside the USA, in the high-saving group of countries China plays a special role as the largest trade partner of the USA outside North America. This explains why the Chinese savings rate has recently attracted so much attention. Doubtless, what is striking about China is its rapid recent surge in savings which, already high in 2000, peaked at 53% of GDP in 2007 (Yang et al., 2011: 7). Many explanations have been put forward for the very high Chinese savings rate (Leightner, 2010; Chamon and Prasad, 2010; Kraay, 2000; Yang et al., 2011; Xinghua and Yongfu, 2007; Zhou Xiaochuan, 2009). Overall, the rising trend in Chinese savings is the result of simultaneous positive contributions by companies, the government and households. At the company level, the privatisation of many state-owned enterprises increased their efficiency so improved profitability associated with low labour costs and a widespread policy of low dividends resulted in a steady rise in corporate savings. As

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<sup>9</sup> Actually, the increase in the inequality of income distribution is not just an American problem; it is a global one as documented, among others by ILO (2008) and OECD (2008, 2011a, 2011b).

to the public sector, tax revenues increased more rapidly than expenditure, widening the government surplus. Finally, one of the most accredited explanations for rising household savings is the growing inequality in income distribution associated with a higher propensity to save by richer households; demographic dynamics with a rise in the dependency ratio due to the aging of the population and gender imbalance; the lack of a welfare system that increases private expenditure for health and child care. However, although the savings rate in China was very high, in the second part of the 1990s, when the US trade balance was already deteriorating, Chinese national savings slightly declined so that we do not see a strict correlation between US and Chinese savings, the one declining and the other increasing.

It is worth noting that savings surpluses outside the USA would not have been able to cause such a huge trade deficit had it not been for a policy decision by the Fed to accommodate the rapid growth in the supply of credit which ultimately led to the sub-prime bubble. In other words, domestic monetary policy along with household attitudes toward debt-financed consumption played an important role in the dynamics of US internal and external imbalances.

The Fed pursued expansionary policies throughout most of the 1990s and 2000s. Such a stance in monetary policy shows up in Figure 7, which shows annual consumer price inflation rates for the USA and the EMU area from 1992 to 2010.

In the sub-period 1995-2008, with the exception of 2002, USA inflation rates were above EMU rates. A look at the 2000s shows that between 2002 and 2007 the US inflation rate almost doubled while in Europe inflation was stable, slightly above the ECB target of 2%. The sharp decline of inflation in 2009 is obviously a consequence of the recession caused by the international economic crisis starting in 2007.

As far as interest rates are concerned, there was a decrease in US short-term rates in the first half of the 2000s (Figure 8), a period of rising US inflation.

As Taylor (2009: 3) has showed, such a trend in US interest rates represents a sharp downward deviation from the path followed in previous years, signalling loose monetary policy. The temporary decline in inflation in the period 2006-2007 is, interestingly, associated with US overtaking European interest rates (Figures 7 and 8), evidence of the tightening of the Fed's monetary policy over previous years. This increase in domestic interest rates contributed to the development of the sub-prime

financial crisis. It should be noted, in fact, how the rise in interest rates in the USA after 2005 was a shock that caused widespread household defaults in the sub-prime mortgage market. Since real estate was the main collateral in that market, household defaults forced banks to sell a growing number of newly purchased houses, leading to the decline in house prices and to the ultimate burst of the sub-prime bubble.

To sum up, the GSG hypothesis cannot alone explain the sharp decline in the US savings rate. Other US domestic and external factors have to be taken into account. In particular useful insights come from the analysis of US domestic savings and monetary policy along with an investigation of the causes that led to a situation in which surplus countries accumulate surpluses and simultaneously opt to invest them in the US financial market. The latter is related to the key role of the dollar in the world economy, a topic we shall deal with in the following section.

In relation to why emerging economies willingly financed the US economy in the 2000s, it should be remembered that emerging Asian countries were importers of savings until the severe economic and financial crisis that hit the region in 1997. Subsequently, these countries increasingly became positive net savers. It was the Asian crisis at the end of the 1990s that induced countries to switch their development strategies from a model based on domestic investments financed through foreign debt to an export oriented model in which trade surpluses and foreign asset accumulation were key ingredients (Wolf, 2008). However, we would like also to stress that the specific international role of the dollar helped the USA to attract foreign capital flows on a scale no other country could achieve. The bottom line is that thanks to the asymmetric nature of the dollar standard monetary system, the USA has so far been able to ignore balance of payments constraints that in the rest of the world are usually binding (Fiorentini 2002, McKinnon 2005).

#### *4. Explanations of global imbalances: the 'Bretton Woods II' hypothesis*

The explanation of US external imbalances known as the 'Bretton Woods II' (BWII) hypothesis was forcefully expounded in a series of papers by Dooley et al. (2003, 2007, 2009) and is based on the existence of an implicit bargain among emerging Asian countries and the USA. The basic idea of the proponents of the BWII hypothesis is that emerging Asian countries have very high savings rates yet their financial sector is



not efficient enough to transform national savings into an adequate flow of domestic investments, so they mainly rely on FDI. In order to attract FDI, after the Asian crisis of 1997, these countries started accumulating foreign exchange reserves in dollars, running current account surpluses mainly with the USA. The rationale for this strategy is that if a country has enough reserves to service foreign debt, for say at least 12 months, then its solvency is well established. In other words, foreign reserve accumulation through trade surpluses is both a way to offer collateral to foreign investors and to buy assurance against sudden capital flights and financial crises. This strategy implies a constant flow of financial investment from emerging countries to the USA and an exchange rate policy against the dollar that produces a 'de-facto' fixed exchange rate regime in the Pacific area. China, for example, after the 40% devaluation of the renminbi in 1995 kept a 27 constant RMB/dollar exchange rate up to 2005 when the Chinese Government allowed it to appreciate by 10% in three years, a rather modest revaluation.

In this framework, the role of the US financial sector was to transform incoming Asian savings into an outflow of efficient FDI returning to the originating countries and enhancing the economic development of the area. Since the BWII regime is based on unilateral pegging to the dollar by countries that have bilateral trade surpluses with the USA, the consequences for the American economy are that a current account deficit necessarily arises and domestic long run interest rates are kept low. According to this hypothesis, the implicit bargain is therefore the following: the USA offers FDI, international liquidity and collateral in the form of growing dollar reserves held by Asian countries. The latter finance the US current account deficit by buying American assets, providing a supply of low cost credit to US households and firms. The bargain between the USA and Asian (mainly China) countries is summarised in Figure 9.

Available official data do in fact show a huge accumulation of foreign exchange reserves by developing countries. In absolute values, Figure 10 shows that Asian countries including China are the most active players in this field. Similarly impressive is the dramatic growth of the reserve/import ratio (IMF). In developing countries as a whole, the ratio started from a value of 46.3% in 1998 and in ten years almost doubled, peaking at 86.7% in 2008. Even more striking is the ratio for Asian countries, increasing from 58.6% in 1999 to 114.8% in 2008. This means that today Asian

countries are able to finance one year of imports out of their foreign exchange reserves without exporting any commodities!

Complete data on the foreign currency reserves of central banks is sadly unavailable: many central banks, including the Chinese, disclose no information on these reserves. However, data from the IMF COFER database, show that in 2010 about 60% of international reserves were held in dollars, with a euro share of around 26%.

The above evidence supports some aspects of the BWII hypothesis, although the rapid decrease of FDI as a source of funding for Chinese fixed investments contradicts it. In fact, according to data from China Statistical Yearbook 2009, FDI contributed 11.19% to funding in 1995 and a mere 90% in 2008 (Branstetter and Foley, 2010: 513-43; Yang et al., 2011). Furthermore, the hypothesis is less generally relevant than its proponents assert. The so-called BWII appears to be quite specific to the USA-China link rather than global (Wolf, 2008: 145). Besides, the phenomenon of the huge accumulation of dollar foreign exchange reserves in emerging countries shows once again that the pattern of global financial imbalances is closely related to the asymmetric nature of the current international monetary system, allowing one country to avoid external constraints thanks to its currency being used and held abroad for trade and precautionary purposes. This kind of imbalance, in which the core of the world economy (the USA) acted as 'buyer and borrower of last resort' by absorbing production and excess savings from less developed countries, doubtless contributed to the stabilisation of the world economy after the long wave of international financial crises in the 1990s. However, such a pattern is no longer sustainable since now the reserve currency country faces a binding external constraint. The USA simply cannot delay the re-balancing of the external position both in real and financial terms. The credit crunch produced by the explosion of the domestic financial crisis associated with the fall in US production and real household incomes has reduced GDP and demand for imports with a negative impact on international trade flows and financial surpluses abroad. Foreign investor confidence in US dollar assets is still intact but it may be eroded if the dollar starts devaluating. In fact, a declining dollar exchange rate is one of the factors that may help to eliminate the US current account deficit (Feldstein, 2008, 2011), but, at the same time, reduces the value of US assets owned by foreign investors so that their willingness to purchase dollar bonds, securities and equities may weaken.

We do not expect US consumers and companies to be able to purchase large amounts of foreign goods in exchange for cheap credit as in the recent past.

##### *5. Global imbalances, crisis and asymmetry*

There are several reasons that explain the ability of the USA to run long current account deficits, but the core explanation is the asymmetric nature of the dollar exchange standard shaping the international monetary system. Both the GSG and BWII hypothesis discussed above have as a key ingredient the willingness of emerging countries to invest their trade surpluses in the USA. In the GSG view, such willingness is due to the higher investment opportunities and returns offered by the US financial market; according to the BWII hypothesis, foreign countries need collateral that is well accepted by international lenders. Whatever the reason, certainly the USA has recently been able to attract foreign funds well beyond what would be normal for any other country.

A look at US assets held abroad shows that a large share of foreign portfolio investments consists of assets whose returns are not particularly high in comparison to those earned by US owners of foreign assets. At the same time, countries accumulating huge dollar reserves are foregoing better domestic and foreign investment opportunities since returns on foreign currency reserves are lower than returns on FDI or other securities. This fact is well documented, among others by Gourinchas and Rey (2005) and Forbes (2008). The latter, for example, shows that in the period 2002-2006, total average returns (including exchange rate movements) on US assets abroad was 11.2%, while returns on US foreign liabilities was just 4.3%. Looking at returns on private sector investments, Forbes finds that when all securities (equities and bonds) are included American investors earned on their foreign portfolio an average return of 14.3%, compared to a much lower 5.9% earned by foreign owners of US debt. Even worse is the differential in the case of FDI: the Figures are 16.3% for American investors in contrast with a meagre 5.6% on foreign investments in the USA. In general, the GSG assumption that foreigners prefer US assets because of their superior performance therefore seems unsupported by real data (Wolf, 2008: 136). We are back to our starting point: why do international financial flows go from less developed

countries to the USA? Our answer is the role of the dollar in the current international monetary system.

Since the end of WWII, the dollar has been the world's main reserve currency; due to hysteresis, it maintained such a role even after the end of the Bretton Woods era in 1971. In the international economy, there were simply no real alternatives to the dollar as a medium of exchange and a reserve currency. Even today, after the birth of the euro, the dollar is the currency most often used for international trade and finance. As issuer of the de-facto international reserve currency, the USA is able to borrow from abroad by issuing assets in its own currency. A consequence of the capability of borrowing in domestic money is that the debt burden does not depend on exchange rates. This contrasts with well-known balance of payments and currency crisis in the 1980s and 1990s hitting several developing countries with large external debt denominated in foreign currency (dollars), i.e. Mexico, Brazil, Argentina and Indonesia. The Asian crisis of 1997 is a clear example of the difficulties that countries unable to sell domestic bonds abroad may incur. When for any reason investors stop funding a foreign country and start withdrawing their investments, a sudden devaluation and a dramatic rise in the foreign debt burden creates panic and economic turmoil. Insofar as the dollar is accepted worldwide, the USA has therefore the privilege of becoming indebted by issuing dollar-denominated international bonds.

As for *net foreign debt*, we should recall that while the US sells dollar foreign debt, at the same time US international assets consist in securities, bonds and equity denominated in foreign currency (yen, euro, sterling), so that any devaluation of the dollar *improves* the US net foreign asset position. This asymmetry in US international portfolio helps to explain why America has so far been able to finance its increasing trade deficit with a cumulative real depreciation of the dollar by 40% in the period 2001-2007. This phenomenon is known in literature as the 'valuation effect' (Gourinchas and Rey, 2005) and has had a substantial positive effect on the US net foreign debt position. Alessandrini and Fratianni (2009a), have used official BEA data to show that, in the period 2001-2007, the dollar depreciation increased the dollar value of US foreign assets by \$950 billion. That figure helps to explain why, in the same period, the increase in US net foreign debt position was just one quarter of the cumulative current account deficit.

Another asymmetry of the international monetary system is the fact that the most important commodities, raw materials and oil are invoiced in dollars. Almost half of world trade is carried out with the dollar and the USA invoices in domestic currency about 95% of its exports and 85% of its imports (Golberg and Tille, 2005; Salvatore, 2000; BCE, 2008). The privilege of being the issuer of the international medium of exchange enables the USA to exploit *seignorage* along the lines described in general terms in section 2: insofar as the rest of the world is willing to accept the key role of the dollar, the USA may obtain foreign resources simply in exchange for domestic money. All other countries have to export something in order to obtain the foreign currency they need to pay for their imports. Leightner (2010: 50) clearly made this point:

*Much of the USA's trade deficit is financed by countries, like China, who are willing to take our cash and hoard it. Indeed China's one trillion dollars of USA assets represents the USA receiving one trillion dollars of goods and services from China in exchange for US dollar, US treasury bonds and other US assets. If China would be willing to never spend those dollars, then the USA will have received one trillion dollars of goods and services free.*

The limit is that the excessive creation of dollars would fuel world inflation by eroding trust in the dollar as a valuable reserve currency. An increase in world inflation would help to ease the US foreign debt burden but at the cost of a loss of status for the US currency. Countries like China which hold most of the world's dollar reserves are well aware of this problem yet are in a difficult position. Their rapid accumulation of dollar reserves was the consequence of a policy strategy to exploit the opportunity of rising domestic expenditure in the USA. The recent crisis of the US economy would seem to suggest diversification in the currency composition of international reserves. However, a relevant switch away from the dollar, say toward the euro, would result in rapid depreciation of the dollar, reducing the net foreign asset position of dollar holding countries. It is clear that if the need for foreign currency holdings were removed, the dilemma would be resolved and the stability of the international economy greatly enhanced.

Summing up, until now the USA has been able to run large trade deficits financed with foreign debt because of the asymmetry in the international monetary system allowing the country whose money acts as the reserve currency to avoid normal balance of payments constraints. It is therefore unsurprising that in the last decade several emerging countries have found the accumulation of low return dollar reserves useful. The origins of the global imbalances lie in the mutual interests of the USA, eager to finance its excess of domestic consumption over production at a low cost, and emerging countries, keen to avoid a repetition of the 1990s financial crisis through export led growth and the accumulation of dollars, the reserve currency. The cost of such a strategy, one that assured ten years of rapid worldwide growth, is now evident: excessive external and domestic debt in the American economy fuelled by massive inflows of financial capital, and the excessive reliance on the US market by developing countries. This mutual relationship is the main reason for the rapid worldwide spread of the US recession. Global imbalances were not the immediate cause of the US financial crisis of 2007 but they created the conditions for its development. We know that the US financial crisis was the consequence of a credit boom in the housing sector due to a lack of regulation and widespread use of derivative assets traded over the counter. However, the credit boom was global rather than specific to the USA, as Astley et al. (2009: 180) and Duncan (2005: 120) have documented. The rapid accumulation of dollar reserves that surplus countries reinvested in the USA was tantamount to a global monetary expansion creating a favourable environment for the development of credit and the housing bubble. If it is true, as Reinhart and Rogoff (2009: Chapter 16) have recently claimed in their history of financial turmoil, that a rapid credit expansion is the best predictor of financial crisis, the sequence of negative events that hit the world economy in 2007-2008 cannot be considered a surprise, after all.

At the time of writing it is not clear how long the crisis will last, but in our opinion stable recovery requires the profound reform of the international monetary system to avoid a return to the pattern of recent global imbalances. The solution we propose is to create a symmetric monetary system in which none of the national currencies takes on the role the dollar played so far (Fiorentini and Montani, 2010). This amounts to the creation of a *supranational world currency* with *supranational institutions*.

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Table 1: Top ten trading partners of USA (1998)

US export	US import	Total trade
Netherlands	Japan	Canada
Brazil	China	Japan
Saudi Arabia	Germany	Mexico
Australia	Canada	Germany
Belgium	Mexico	China
Hong Kong	Taiwan	UK
Korea	Italy	Korea
Egypt	Malaysia	Taiwan
Argentina	Sweden	France
South Africa	Philippine	Singapore

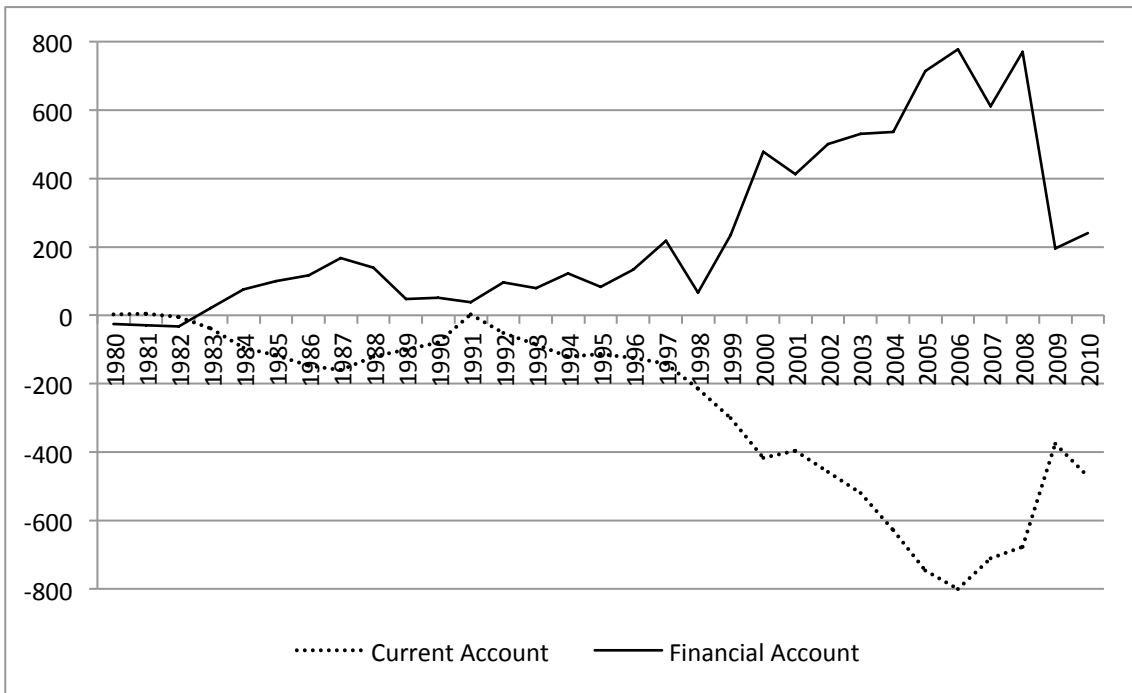
Source: US Census Bureau

Table 2: Top ten trading partners of USA (2010)

US export	US import	Total trade
Canada	China	Canada
Mexico	Canada	China
China	Mexico	Mexico
Japan	Japan	Japan
UK	Germany	Germany
Germany	UK	UK
Korea	Korea	Korea
Brazil	France	France
Netherlands	Taiwan	Taiwan
Singapore	Ireland	Brazil

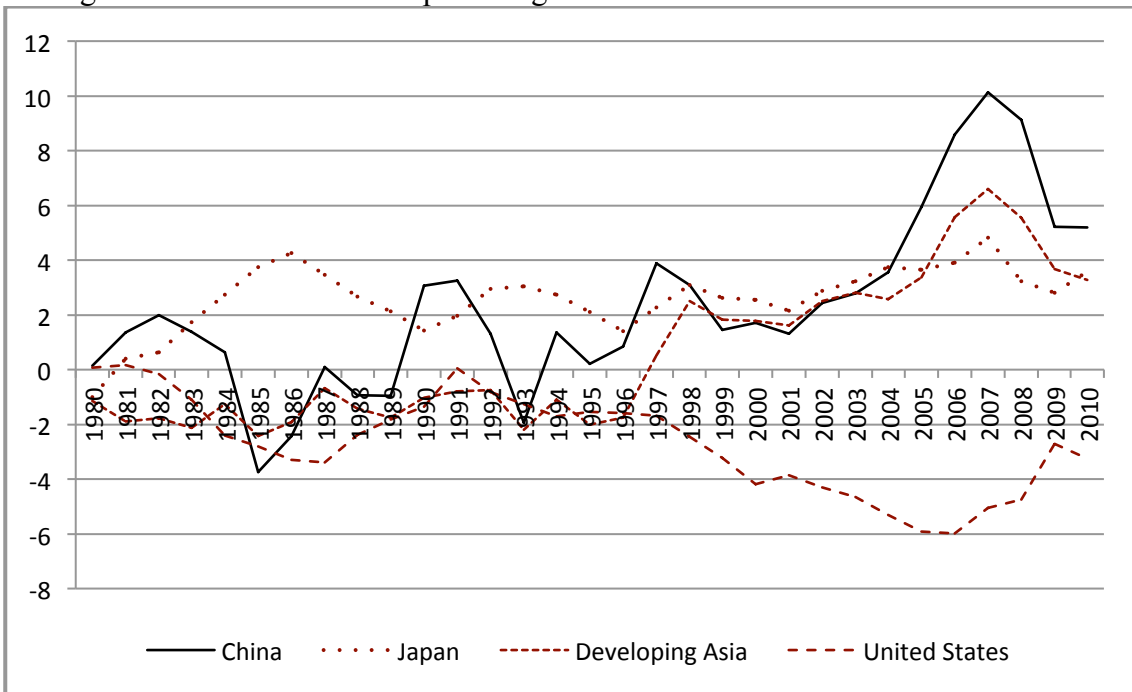
Source: US Census Bureau

Figure 1: US Current Account and Financial Account (1980-2010, USD billions)



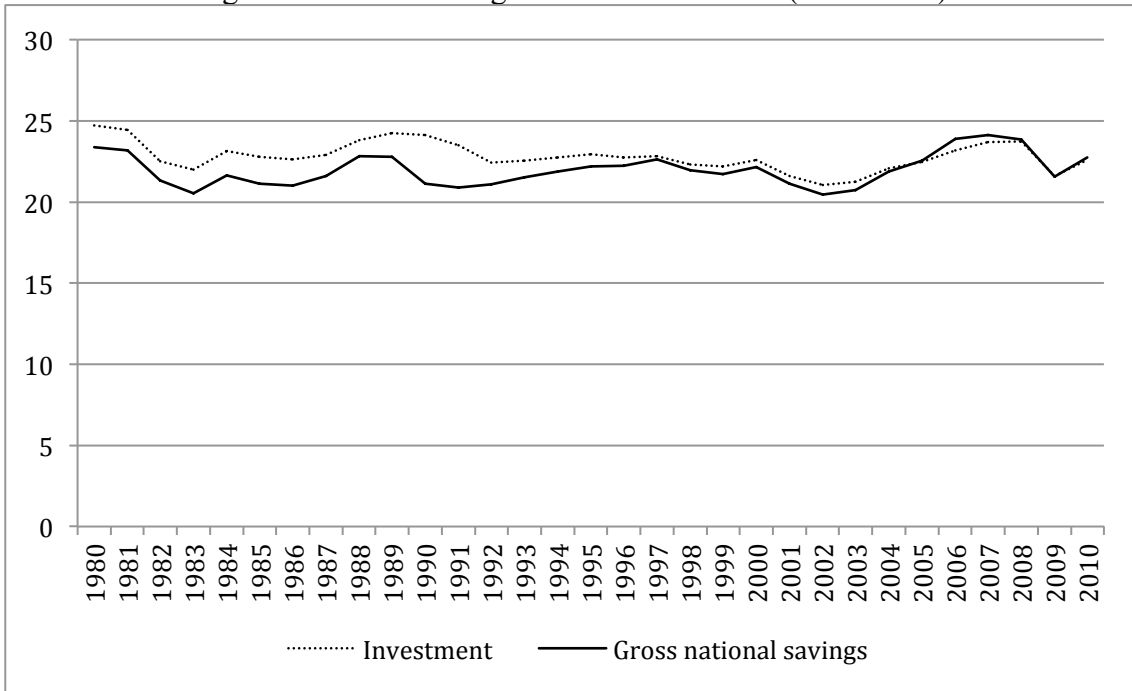
Source: OECD Main Economic Indicators

Figure 2: Trade balance as a percentage of GDP in the USA and Asian Countries



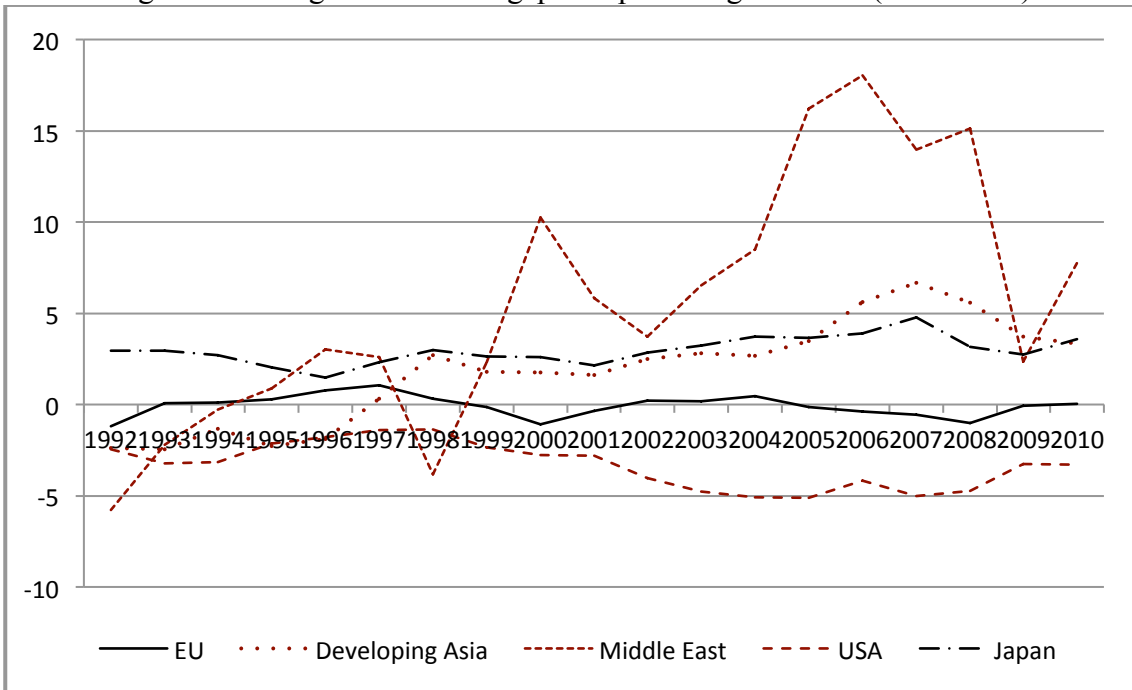
Source: IMF World Economic Outlook Database

Figure 3: World Saving and Investment rates (1980-2010)



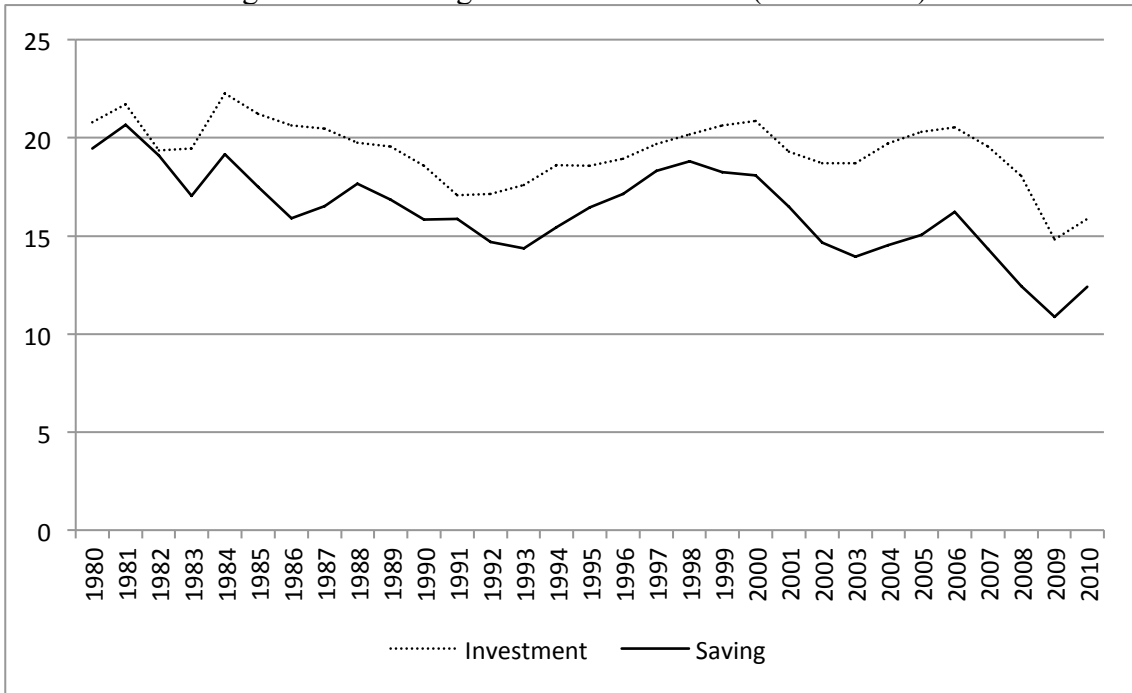
Source: IMF World Economic Outlook Database

Figure 4: Saving – Investment gap as a percentage of GDP (1992-2010)



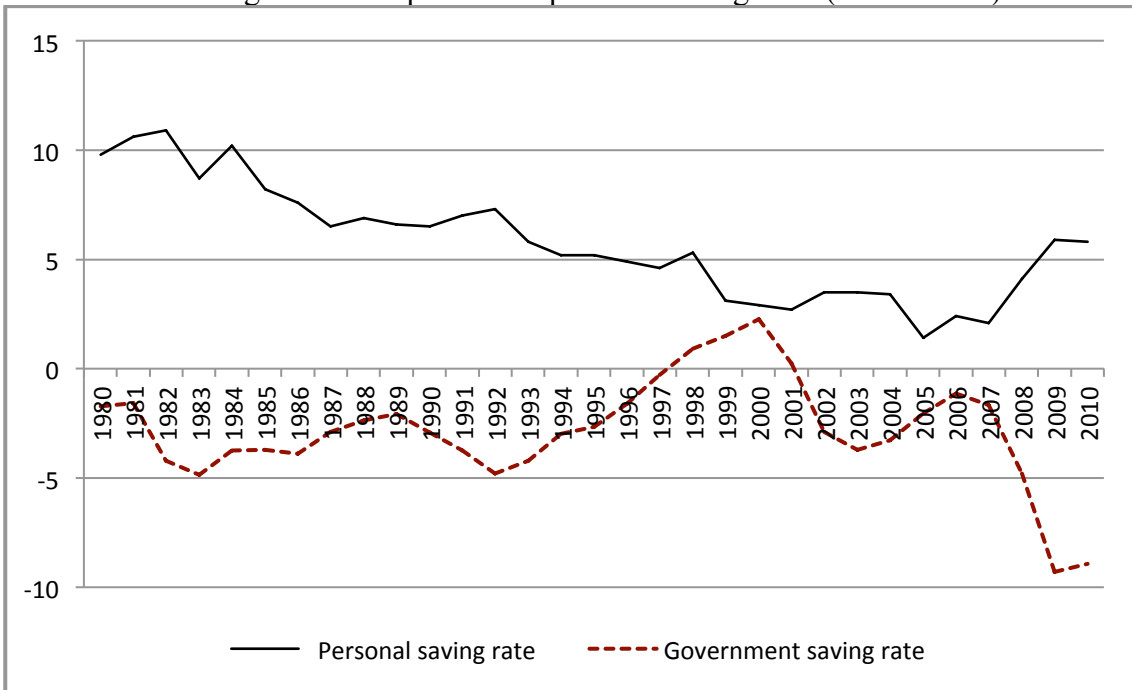
Source: IMF World Economic Outlook Database

Figure 5: US saving and investment rates (1980 - 2010)



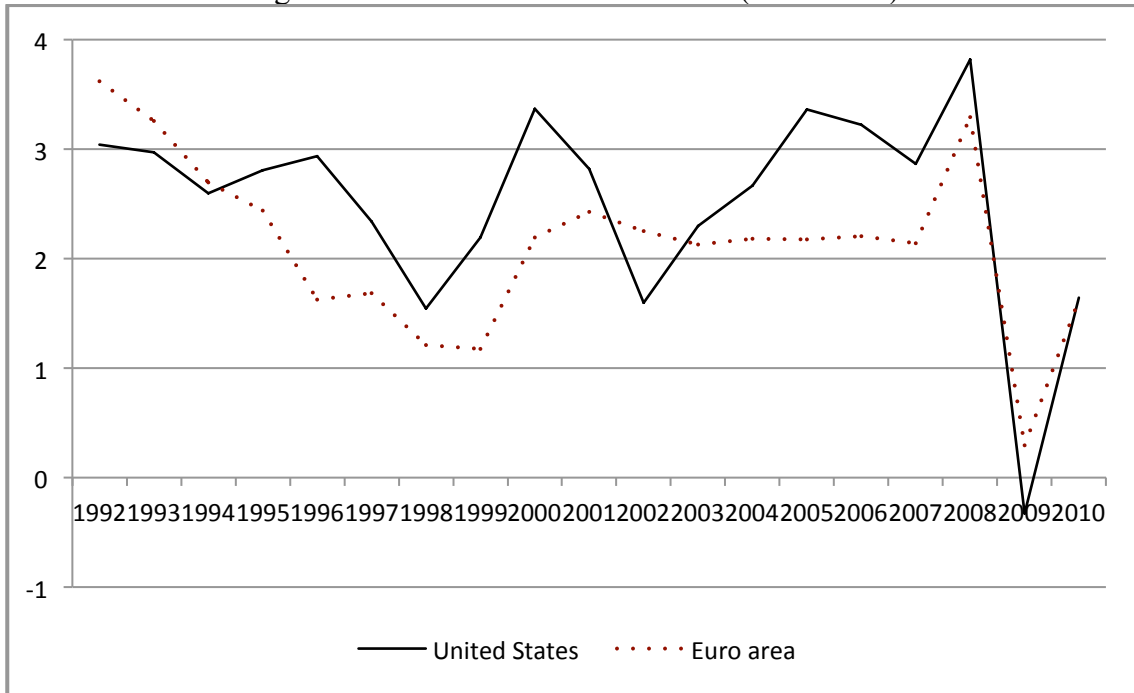
Source: IMF World Economic Outlook Database

Figure 6: U.S. public and personal saving rates (1952 - 2010)



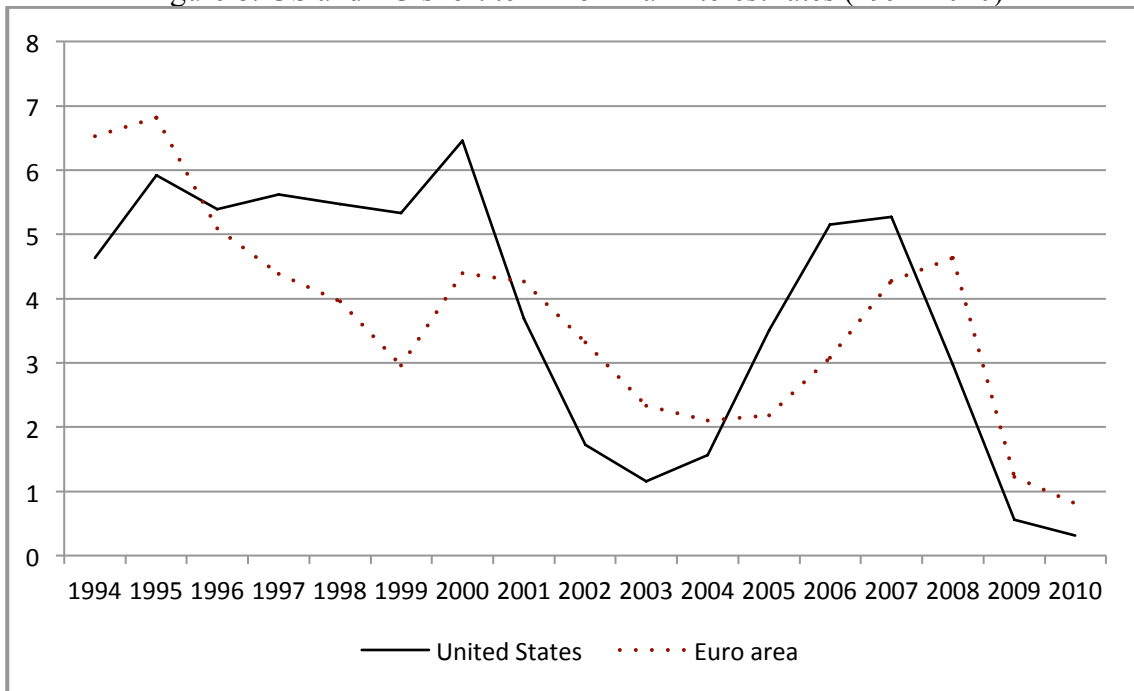
Source: Bureau of Economic Activity – NIPA tables

Figure 7: US and EMU inflation rates (1992-2010)



Source: IMF World Economic Outlook Database

Figure 8: US and EU short term nominal interest rates (1994-2010)



Source: OECD Main Economic Indicators

Figure 9: the Bretton Wood II circuit

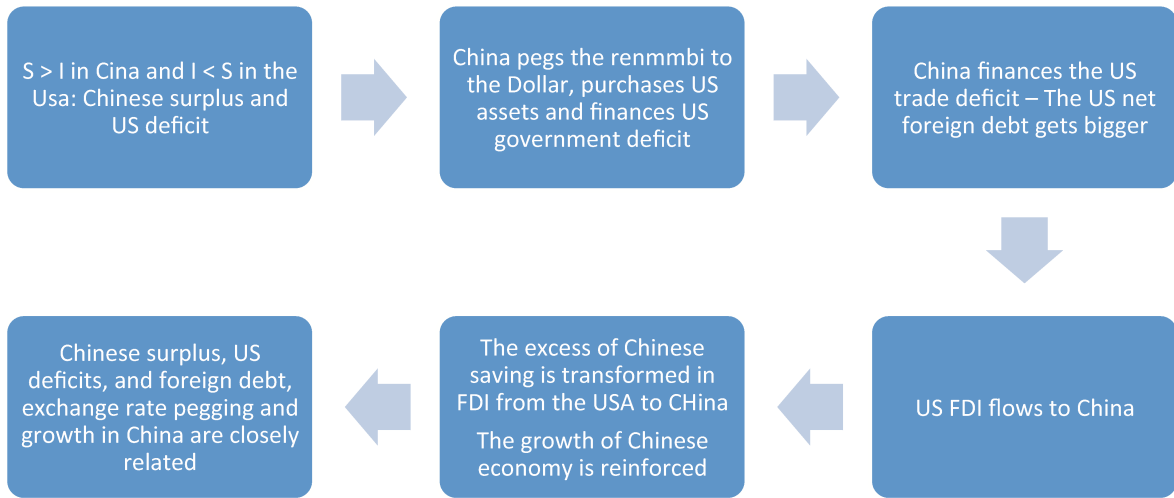
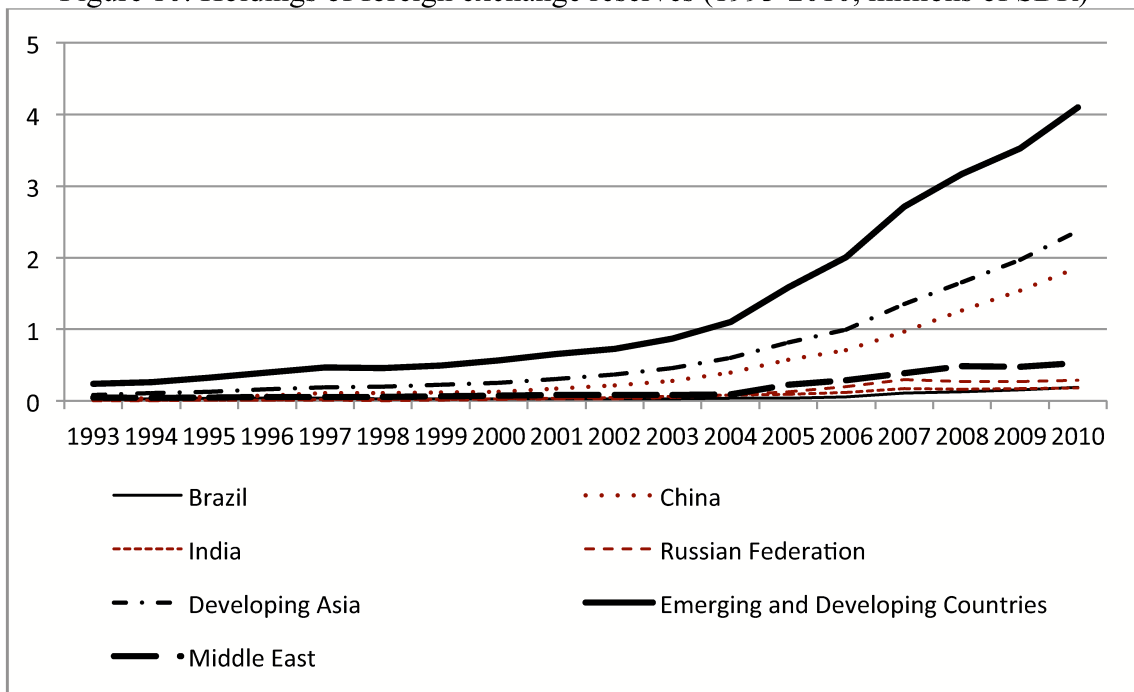


Figure 10: Holdings of foreign exchange reserves (1993-2010, millions of SDR)



Source: IMF International Financial Statistics