

Global Imbalances Before and After the Global Crisis

Luis Servén

Ha Nguyen

The World Bank
Development Research Group
Macroeconomics and Growth Team
June 2010



Abstract

This paper surveys the academic and policy debate on the roots of global imbalances, their role in the inception of the global crisis, and their prospects in its aftermath. The conventional view holds that global imbalances result primarily from unsustainably high demand for goods in the United States and other rich countries, and that their impending correction must involve major United States trade adjustment and dollar depreciation—although recent literature argues that their extent may be dampened by financial adjustment effects. In contrast, an alternative view portrays global imbalances as the equilibrium result of asymmetries in world asset demand and supply. Absent changes in the deep determinants of

these, global imbalances can persist. International capital flow patterns before and during the crisis lend support to the equilibrium view. The paper also examines different hypotheses proposed in the literature on the role of global imbalances in the generation and propagation of the financial crisis. On the whole, the evidence suggests that global imbalances were not among the major causes of the crisis. Lastly, the paper assesses alternative scenarios about the future of global imbalances, considering in particular their potential consequences for developing countries, and the policy measures that these might adopt to enhance their growth prospects in a changing global equilibrium.

This paper—a product of the Macroeconomics and Growth Team, Development Research Group—is part of a larger effort in the department to understand global imbalances. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at Lserven@worldbank.org.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

Global imbalances before and after the global crisis

Luis Servén*

Ha Nguyen*

JEL codes: F32; F36; F42

* We thank Ramón Guzmán, Aart Kraay, Anton Korinek, William Martin, Martin Ravallion and Sergio Schmukler for helpful comments; Junko Sekine for able research assistance, and Trang Tran for editorial help. Any errors are our own responsibility. The views expressed here are only ours and do not necessarily reflect those of the World Bank, its Executive Directors, or the countries they represent.

1. Introduction

Since the outbreak of the world financial crisis, the phenomenon of global imbalances -- that is, the coexistence of large current account deficits and surpluses in the global economy - has taken center stage in the debate on the international economic outlook. Academic and policy scholars have pondered the nature of the imbalances and have offered contrasting views about their role in the inception of the crisis, their potential threat to future global economic stability, and the policy measures that should be taken towards what has been termed the "rebalancing" of the global economy.

Global imbalances are not a new phenomenon. In fact, the 1980s witnessed a situation qualitatively similar to that observed in recent years, characterized by large U.S. current account deficits that were persistently funded by other countries. There are two important differences, however. One is the magnitude: the U.S. deficits of the 1980s did not reach the scale of those observed more recently, and the episode was also briefer. The other is the geographic distribution: in recent years, the U.S. external deficits, as well as those of other advanced countries, have been funded primarily by emerging economies, unlike in the 1980s, when such funding came mostly from other rich countries (with Japan as the primary lender). In other words, recent global imbalances involve a flow of capital from poor countries to rich countries, against the prediction of conventional economic theory that developing countries should be net capital importers¹.

These distinguishing features of the global imbalances of recent years raise the presumption that the factors behind them are likely different than those at play in the 1980s. Understanding such factors is important to assess how global imbalances may evolve after the world crisis. Likewise, understanding the role of global imbalances in the gestation of the crisis is necessary to gauge the potential risks that their continued presence could pose to the world economy.

These issues are the focus of this paper. Its purpose is threefold. First, it takes stock of existing views on the roots of global imbalances. Second, it examines different hypotheses proposed in the literature on the role of global imbalances in the generation and propagation of the global financial crisis. Third, it assesses different scenarios about the future of global imbalances, considering in particular their potential consequences for developing countries, and the policy measures that these might adopt to enhance their growth prospects in a changing global landscape.

The paper is organized as follows. Section 2 offers a brief review of the recent history of global imbalances. Section 3 summarizes different views from the academic literature on the roots of the imbalances. Then Section 4 examines the arguments offered by various observers on the

¹ This is the so-called "Lucas's paradox", named after Lucas (1990).

role of the global imbalances in the inception of the world crisis. Section 5 reviews the trends in global imbalances immediately after the crisis. Section 6 discusses alternative scenarios for the future of global imbalances, their impact on developing countries, and the appropriate policy responses. Finally, section 7 concludes.

2. Global imbalances before the crisis

In spite of their recent rise to prominence in the debate on the roots of the crisis, global imbalances are hardly a new feature of the world economy. Figure 1 provides an overview of their trends over the last thirty years. The top panel depicts the external imbalances of the United States, the European Union (henceforth EU), China, and the rest of Asia, as well as oil-exporting countries, all measured as percentages of world GDP. The figure shows that the U.S. current account deficit grew virtually without interruption since the mid 1990s, to exceed 1% of world GDP after 1999. It peaked in 2005 and 2006 at over 1.5 % of world GDP. Thereafter, the U.S. external deficit declined, to about 1.2% of world GDP in 2008, and preliminary estimates suggest that it fell under 1% in 2009.

The world economy is obviously a closed system, and the deficits of some countries have to be matched by the surpluses of others. During the late 1990s, the counterparts to the U.S. deficits were the large surpluses of Japan and emerging Asian countries, excluding China, as well as the surplus of the EU during the years of the Asian crisis (1996-97). After 2000, however, the situation changed radically. While the U.S. remained the country with the biggest current account deficit relative to world GDP, the biggest surpluses were now those of China and oil-exporting countries. In fact, since 2005 China's surplus has exceeded the combined surpluses of Japan and the rest of emerging Asia, and during 2007-2008 the bilateral deficit with China accounted for an increasing fraction (around 40%) of the U.S. overall current account deficit (Figure 1b). Hence the popular (and inaccurate) view of global imbalances as a problem of the United States vs. China has started making some sense only in the last two or three years².

Figure 1a also makes clear that the last decade is not the only episode of large global imbalances in the recent history of the world economy. In the mid-1980s, the U.S. current account gap also reached large proportions, about 1% of world GDP. But both the duration and the magnitude of the deficits were substantially lower than those observed in recent years. In particular, in the 1980s episode there were only three years in which U.S. deficits exceeded 1 % of world GDP, as opposed to ten years in the present episode. In addition, the counterparts to the U.S. deficits during the 1980s were the surpluses of Japan and the EU, in contrast to the current episode, in which that role has been played by emerging markets. In other words, the

² This is argued also by Lin, Dinh and Im (2010).

global imbalances of the last decade have been accompanied by massive capital flows from developing countries to rich countries, in particular the United States.

Since the current account surplus is identically equal to the difference between saving and investment, the trends in these two variables in different countries and regions provide some information about the sources of changes in their respective external imbalances. In this vein, Figure 2 reports the trends in saving and investment rates (as percent of the GDP of the country or group of countries in question) from 1990 up to the present.

In the case of the United States, the most remarkable factor is the uninterrupted fall in saving after 1997, at an accelerating pace since 2006. As a result, in 2008 the saving rate reached its lowest level in two decades, a full seven percentage points below its value in 1990. This reflected both declining public saving – owing to expansionary fiscal policy -- and falling private saving -- facilitated by financial innovation and improved access to consumer credit. In turn, investment followed a cyclical pattern, with peaks in 1999 and 2006. Comparison of the trends in saving and investment reveals that from the end of the 1990s to 2003 falling saving was the principal cause of the increasing external deficits of the U.S., while after that year the trends in the current account were dominated by those of investment rates – increasing until 2006 and decreasing later.

The low saving of the United States stands in sharp contrast with the extremely high levels observed in China, where saving currently accounts for over half of GDP. Since 2000 both saving and investment rates rose in China, but the former did so more quickly. A disaggregate analysis reveals that the increase in total saving reflects primarily the rise of corporate saving, which in recent years has hovered around 20 percent of GDP, although household saving has also been on the rise (Kujis 2005, 2006; Prasad 2009). Many observers attribute China's high levels of corporate saving to the weak corporate governance of large enterprises, which have the right to retain their profits since the fiscal reform in 1994. In any event, the result has been a major increase of China's current account surplus, which peaked at 10 % of GDP in 2007.

Aside from the U.S., in other industrial countries saving and investment rates have undergone only relatively modest changes. In the EU, the slightly decreasing trend in saving over the last decade led to a gradual reduction, and eventually a reversal, of the area's current account surplus. In Japan, both saving and investment rates followed a downward trend over the 1990s, but they remained fairly stable in the last decade, during which the current account continued to show a modest surplus.

The trends in saving and investment in industrial countries stand in contrasts with those observed in Asian and oil-exporting countries. In both groups, saving followed an upward trend. In Asia this reflected rising saving in the region's emerging markets, while in oil-exporting

countries the reason was the persistent rise in world oil prices. Rising saving led to widening current account surpluses in both groups of countries -- especially among oil exporters, whose combined surplus exceeded 15 % of GDP in 2008.

3. The roots of global imbalances

The roots of global imbalances have attracted massive interest from academics and policy analysts. At the risk of over-simplifying, we can distinguish two basic views. The first one considers global imbalances an unsustainable phenomenon, whose impending correction must entail U.S. current account adjustment and a major depreciation of the dollar. These could come in the form of a *sudden stop* of capital flows into the U.S. and collapse of the exchange rate (see, e.g., Roubini 2009). For want of a better term, we shall term this the “disequilibrium approach”. In turn, the second view takes a diametrically opposed perspective, according to which global imbalances represent an equilibrium situation that, absent changes in its deep determinants, can be self-sustaining. We next review the main lines of both approaches.

3.1 The disequilibrium approach

To assess these opposing views, it is useful to start from the intertemporal budget constraint. Excluding the possibility of default and abstracting from capital gains and losses on external assets and liabilities, the intertemporal budget constraint of a country dictates that its net liability position against the rest of the world at any given time cannot exceed the present value of its future current account surpluses.

It is important to note that, even if such condition holds, it is entirely possible for a country to run current account deficits for a long period of time, as long as it is capable of running sufficiently large surpluses in the future. This could be the case of developing countries that borrow from developed countries to invest and accumulate capital, and repay their debts once they reach a higher stage of development (Kraay, Loayza, Servén and Ventura, 2005). Alternatively, a developed country could also run current account deficits if in the future it is expected to grow faster than the rest of the world. In effect, the country finances its consumption by borrowing against its future income. In this vein, Engel and Rogers (2007) argue that, based on reasonable assumptions about future growth in U.S. GDP relative to the rest of the advanced countries, U.S. current account deficits might be an outcome of such intertemporally-optimizing behavior.

Whether the deficits reflect intertemporally-optimizing behavior or, as argued by many observers, excessive private and public spending, the fact is that the U.S.’s net foreign asset position has undergone a steep decline. Figure 3 documents the trends in the U.S.’s international asset position over the last thirty years. From a creditor position amounting to 10% of its GDP at the beginning of the 1980s, it has turned into a debtor position that was

approaching 25% of GDP in 2009. In absolute terms, this is the biggest debtor position in the world. According to the disequilibrium approach, this is an unsustainable trend, and the country at some point needs to change the sign of its trade balance. This in turn entails a depreciation of the dollar to increase U.S. net exports.

Under this view, the adjustment process would not be very different from the one that led to the elimination of the big U.S. external deficits of the 1980s. Figure 4 compares the trends in the real effective exchange rate of the dollar during that episode (specifically, the years 1981-92) with those observed in the last decade (1998-2009). From its peak at the beginning of 1985, the dollar had depreciated over 40% by the end of 1991. The depreciation was accompanied by the virtual elimination of the current account deficit, as shown in Figure 2 above. In contrast, over the last decade the dollar has followed a pattern of depreciation similar to that observed in the 1980s, although the magnitude of the depreciation since the peak in early 2002 to date has been smaller— around 30%. Moreover, external deficits have remained quite large, at least until 2008. Under the disequilibrium view, this suggests that further real depreciation of the dollar is still to come. In fact, the magnitude of the trade balance correction, and the depreciation necessary to achieve it, have been the object of detailed analysis in numerous studies; see for example Obstfeld and Rogoff (2005, 2009).

The disequilibrium view dictates that the correction of the external imbalances demands a *real* adjustment – a reversal of the trade balance. But recent literature has underscored a potentially important role that *financial* adjustment can play. Such role arises because the change in the net foreign asset position of a country consists of (1) the trade balance and (2) the total return on net foreign assets, inclusive of changes in the prices of assets and liabilities. In particular, changes in asset prices – i.e., capital gains and losses on foreign assets and liabilities -- imply that the change in net foreign assets is no longer given by the current account balance.

Until recently, financial adjustment had received little attention, but it is especially important in the case of the United States. First of all is the role of return differentials: assets held by U.S. investors abroad yield higher return than U.S. assets held by foreign investors (Hausmann and Sturzenegger 2004, Gourinchas and Rey 2007, Forbes 2010). Hausmann and Sturzenegger (2004) noted that, despite having a negative net foreign asset position of close to -20% of GDP in 2004, the U.S. still earned a \$30 billion positive net return that year³.

³ Hausmann and Sturzenegger (2004) argue that if assets are valued according to the income they generate, the value of U.S. assets held abroad is much larger than officially measured. They term this discrepancy “dark matter”, and attribute it to intangible assets such as superior technology and organizational knowledge embedded in FDI.

In turn, the depreciation of the dollar also favors the U.S. The reason is that the external liabilities of the U.S. are denominated mostly in dollars, while its assets are denominated in other currencies (usually those of the issuing countries). Therefore, a depreciation of the dollar generates a wealth transfer in favor of the U.S., because the value of its liabilities falls relative to the value of its assets – exactly the reverse of what usually happens in emerging markets indebted in foreign currency when their exchange rate undergoes a real depreciation.

This means that the depreciation of the dollar has a double effect on the external asset position of the United States. On the one hand, it generates a real adjustment, through an improving trade account balance. On the other hand, it generates a financial adjustment through capital gains (losses for the rest of the world). Simplistic assessments of the trade surplus required to put the external position of the United States on a sustainable trajectory can lead to exaggerated conclusions if they do not take into consideration this second effect, which is becoming increasingly important given the sharp increase in cross-country asset holdings in the last two decades.

How big is the financial adjustment effect? The topic has been debated extensively; see for example Gourinchas and Rey (2007) and Blanchard, Giavazzi and Sá (2005). It is hard to give a precise answer due to the lack of sufficiently detailed information on the composition of U.S. external assets and liabilities (Curcuru, Thomas and Warnock, 2008), but the consensus is that financial adjustment plays a significant role, so that the depreciation of the dollar required to ensure the sustainability of the U.S. external position can be much more modest than what would be necessary if external adjustment had to take place only from the trade balance.

As an illustration, Figure 5 (from Nguyen, 2010) offers an assessment of the financial adjustment occurred over 1994-2007 through asset price changes. After 2002, it generated large gains for the U.S., which peaked at 4% of its GDP in 2006 and 2007 --an order of magnitude similar to that of the current account deficits of those years. Two main factors were at play. The first one was the relative decline in U.S. stock market prices since 2000, which generated capital losses for foreign investors (see Kraay and Ventura, 2005, for a detailed discussion). The second was the depreciation of the dollar after 2002.

3.2 The equilibrium approach

Against the disequilibrium view of U.S. current account deficits as an unsustainable phenomenon in need of correction, the equilibrium approach explains global imbalances as the result of structural factors and/or policies adopted by economic authorities in other countries that have led to a steady accumulation of assets on the U.S. by the rest of world. Absent changes in such structural factors and policy choices, global imbalances could persist.

Although details vary in different versions of the equilibrium approach, one feature common to all of them is the emphasis on the capital account, in contrast with the emphasis placed on the current account by the disequilibrium approach. Within this general perspective, it is necessary to distinguish two main versions. The first one underscores international asymmetries in the supply of and/or demand for financial assets. One major exponent of this literature is the work of Caballero, Fahri and Gourinchas (2008a, b), which focuses on the availability of assets for international savers. Its key ingredient is the financial underdevelopment of emerging countries, which prevents them from generating financial instruments attractive for their savers – because the yields on local assets are too volatile, or because of the expropriation risks that they bear, as made clear by the recurring financial crises of the 1990s. The result is that international savers tilt their portfolios towards assets of countries with more advanced financial markets – the United States in particular. A growth acceleration in emerging countries (or an oil price boom) that increases their wealth and saving -- the ultimate causes of the so-called ‘global saving glut’ (Bernanke, 2005) -- leads them to expand their holdings of U.S. assets. The only way this can be achieved is through U.S. current account deficits that raise the volume of U.S. assets available to international investors. This process can persist as long as its driving force -- the underdevelopment of financial markets in emerging countries – remains unchanged. As a result, capital flows 'uphill', from poor to rich countries.

An analogous line of reasoning stresses international asymmetries in the demand for assets, rather than their supply. These may arise from the limited appropriability of the returns on emerging-market assets (Mendoza, Quadrini and Ríos-Rull, 2009) or, alternatively, from the shortcomings of the social protection system of these countries (Carroll and Jeanne, 2009), which force individuals to save more for retirement or to protect themselves from the risk of unemployment. In either case, the result is that savers in emerging countries tend to save more than those in industrialized countries. In a context of international financial integration, this leads to a global equilibrium in which emerging countries acquire a creditor position, whereas advanced countries are net debtors. If the ultimate determinants of this equilibrium– the underdevelopment of financial markets, or the weakness of the social protection system, respectively -- remain unaltered, global imbalances and uphill capital flows can persist indefinitely.

The second version of the equilibrium approach emphasizes policy makers’ choices as the main cause of the accumulation of external assets by emerging markets. Again there are two variants of this argument. One attributes foreign asset hoarding to the so-called “new mercantilist” development strategy: the attempt of a number of emerging markets– particularly in East Asia, with China among them–to pursue export-led growth. Such objective calls for an undervalued

real exchange rate to preserve export competitiveness⁴. The best way to achieve this is by compressing domestic spending, particularly consumption, which inevitably leads to persistent current account surpluses and foreign reserve accumulation. This strategy defines the so-called 'Bretton Woods II' system (see Dooley, Folkerts-Landau and Garber, 2004), in which emerging Asian countries play the role of producers of last resort, and advanced countries – led by the United States— are the consumers of last resort whose current deficits are financed by capital inflows from Asia.

Under appropriate circumstances, the mercantilist strategy may succeed in accelerating economic growth. However, its merits from the welfare standpoint are questionable, because large-scale accumulation of external (and typically low-yield) assets involves major opportunity costs in terms of foregone consumption and investment; see Korinek and Servén (2010) for details. Nevertheless, as long as Asian emerging markets stick to the export-led strategy, Bretton Woods II can remain in operation indefinitely.

Another variant of this argument justifies the accumulation of external assets as a precautionary policy⁵. In the absence of mechanisms for international diversification of aggregate risk, emerging countries integrated in the global financial system need to resort to self-insurance against external shocks such as disruptions of international capital flows— of the kind observed in the crises of Asia and Russia in the 1990s. They accumulate external assets, preferably short-term instruments, from which they can draw in the event of a 'sudden stop'. Unless the global financial system generates new international diversification mechanisms, this precautionary foreign asset accumulation is unlikely to stop.

What does the evidence say about the empirical validity of these arguments? The massive accumulation of international reserves of emerging economies during the last decade seems to confirm that the policy of deliberate hoarding has played an important role. Figure 6 illustrates the evolution of the international reserves of industrial and emerging countries. Between 1998 and 2008, reserve holdings of the latter, measured at constant prices, increased fourfold, while those of industrial countries rose only 50 percent. As a result, the volume of international reserves held by emerging markets at present greatly exceeds that of industrial countries. For example, at the end of 2008, China's foreign reserve stock was almost as large as that of all industrial countries combined. The rest of emerging Asia has also increased dramatically its

⁴ For example, for the case of China, Cline and Williamson (2008) survey existing estimates of the equilibrium value of the renminbi. Only one of the 18 studies in their survey concludes that the renminbi is overvalued. On average, the estimates indicate substantial renminbi undervaluation—on the order of 20 percent for the real effective exchange rate and 40 percent for the bilateral renminbi-dollar exchange rate

⁵ This of course is closely related to the explanations based on asset demand of Mendoza, Quadrini and Rios-Rull (2007) and Carroll and Jeanne (2009) summarized earlier. In both cases, the underlying force is the lack of adequate insurance mechanisms. The main difference is that now the focus is on country-level insurance against external shocks, rather than individual insurance against idiosyncratic shocks.

reserve holdings. But the phenomenon is not confined to Asia; Latin American economies (with Chile at the top) and oil exporting countries have also accumulated large volumes of international reserves over the last decade.

Even if we accept the view that the accumulation of international reserves, or external assets more broadly, was a deliberate policy choice of emerging economies, the question remains whether it was driven by caution against the volatility of international capital flows, or by the pursuance of competitive exchange rates. Assessing the relative weight of these two factors is not an easy task. Moreover, their respective roles likely differ across countries and over time. Aizenman and Lee (2007) examine the question empirically using data from 49 countries in the 1980-2000 period, and conclude that both motives were at work, but the precautionary saving motive was more important. Jeanne and Ranciere (2009), in turn, conclude that the accumulation of external assets after 2000 has been too large, particularly in Asia, to be justified by the precaution motive alone.

On the other hand, if deliberate policy choices of the economic authorities had been the main force behind the accumulation of assets on the United States, capital inflows to the U.S. should reflect a dominant role of official flows over private flows. Figure 7 shows that the picture is more mixed. Net purchases of U.S. assets by official entities (central banks and other government bodies) from emerging markets in Latin America, Asia and the Middle East have grown increasingly large in the 2000s. After the onset of the crisis in 2007, they became the sole source of inflows from these countries. However, over the decade as a whole the total volume of emerging-market official inflows to the U.S. was roughly on par with that of private inflows.

Thus, the big role played by private capital in the total flows from emerging markets in the run up to the crisis seems to lend some support also to the first version of the equilibrium approach summarized earlier, which explains global imbalances primarily on the basis of asymmetries in the supply and/or investors' demand for international assets. Forbes (2010) offers some corroborating evidence, based on an analysis of the geographic origin of private capital flows to the U.S. She finds that investors from countries with less developed financial markets tend to hold greater shares of their investment portfolios in the U.S. This fact is in accordance with the equilibrium approach views of Caballero, Fahri and Gourinchas (2008a, b) and Mendoza, Quadrini and Ríos-Rull (2009) discussed above.

4. Global imbalances and the origin of the crisis

The role of global imbalances in the inception of the world crisis has been hotly debated. Some observers view the imbalances as one of the key causes of the crisis, and make their elimination an urgent priority to safeguard the stability of the world economy. Others think that the

imbalances have played, if anything, a secondary role, and that the roots of the crisis have to be found instead in the shortcomings of financial regulation, and possibly also in misguided macroeconomic policies in rich countries, both of which may have caused, in turn, a widening of global imbalances.⁶

According to the first view, global imbalances helped trigger the financial crisis because they put international financial intermediation under stress (see, for example, Portes 2009). On the one hand, the financing of large international imbalances forced financial institutions to intermediate huge masses of resources. On the other, the imbalances caused a decline in world interest rates (see Figure 8), which encouraged credit growth and investors' 'search for yield'. Under weak financial regulation, these two forces fueled excessive risk-taking by financial intermediaries and asset bubbles, whose explosion triggered the global financial meltdown.

Upon closer scrutiny, however, these arguments seem questionable. It is not obvious why the stresses on the financial intermediation system should relate to *net* capital flows, which are the counterpart of current account deficits. It seems more logical to think that such pressures depend, if anything, on the volume of *gross* resources intermediated, which bears no systematic relation with net flows. In this regard, it is important to note that the order of magnitude of the U.S. current account deficit (around of 5-6 % of GDP at its peak) is very modest in relation to the size of its financial system, so that changes in the deficit of a few percentage points of GDP are very unlikely to have any material effect the pressures that the financial system has to withstand.

The geography of the financial crisis is not supportive of this view either. Banks in surplus countries, such as Switzerland or Germany, were as involved as U.S. banks in the creation of supposedly risk-free assets through concentration of risks (Acharya and Schnabl 2009). Hence the story that a flood of saving poured into deficit countries and overwhelmed their financial systems does not seem correct (Kashyap 2009). A more plausible story is that banks that engaged in such strategies -- with the help of weak regulation -- got into serious trouble, whatever the sign of the current account of the countries in which they were based.

In this regard, it should be noted that Japan's financial crisis of the 1990s -- which, although quantitatively of much smaller magnitude than the current one, is qualitatively the most similar episode in recent times -- happened in a context of persistent current account surpluses. This also raises doubts on the causal role of the large U.S. current account deficits in the inception of the global crisis.

⁶ Eichengreen (2010) summarizes both views, and their respective policy implications, while taking an agnostic position.

It is also unclear how global imbalances would have caused the decline in world interest rates. The persistent decline in real interest rates shown in Figure 8 is very likely related to the 'global saving glut' underscored by Bernanke.⁷ But it is not obvious how it should relate to the increased *dispersion* of current account deficits across the world, which is what global imbalances are about. Thus, while low real interest rates offer a fertile ground for the formation of bubbles, it is not obvious that they would necessarily rise if global imbalances were somehow eliminated.

However, this is not to say that global imbalances and the crisis were unrelated phenomena. Arguably, their ultimate causes had much in common. Caballero (2010) has argued that a different kind of imbalance was at the root of both global imbalances and the financial crisis: the massive global excess demand from private investors and central banks around the world, as well as U.S. financial institutions, for safe debt instruments. This in turn can be traced to the international asymmetries in the supply for high-quality financial assets mentioned above. The excess demand, also the cause of global imbalances (along the lines described earlier), lowers the U.S. real interest rate, which fuels leverage, and puts pressure on the financial system to generate safe assets, eventually leading to the creation of triple-A assets from the securitization of riskier, lower-quality ones (Caballero, Fahri and Gourinchas 2008b). The crisis was triggered by the rise in subprime defaults, and quickly spread out with the panic associated to the chaotic unraveling of the complex financial industry.

Some observers have also argued that the ability of deficit countries, notably the U.S., to finance large imbalances through foreign borrowing at low cost allowed them to postpone the correction of expansionary macroeconomic policies that likely helped fuel asset price bubbles (e.g., Obstfeld and Rogoff 2009)⁸. More importantly, the boom in asset prices contributed to widening the external gap in deficit countries, by encouraging consumption as well as residential investment – with the help of financial innovations that allowed households to increase spending in the face of rising net worth⁹.

If global imbalances were not at the root of the crisis, should they not be a cause of concern? In theory, large current account imbalances are not themselves a problem. Current account imbalances can reflect the optimal responses of economic agents to changes in, e.g., the

⁷ However, Obstfeld and Rogoff (2009) argue that rising global saving was the main factor behind the fall in real interest rates only after 2004. In the years immediately before that date, such role belonged to declining investment.

⁸ Many observers have pointed out that low policy interest rates played a key role in fueling the housing bubble. This is consistent with empirical evidence that short-term rates have a significant positive effect on housing prices (e.g., Iossifov et al 2008), and that low policy rates significantly encourage the acquisition of assets by leveraged financial intermediaries (Adrian and Shin 2009).

⁹ Laibson and Mollerstrom (2010) argue that asset price movements can account for the observed pattern of external deficits through their wealth effects on consumer expenditure.

anticipated profitability of investment. In reality, however, the experience of past crises has shown that large external imbalances often represent a major source of aggregate fragility. Economies with large current account deficits may be left at the mercy of swings in capital flows. Also, large external imbalances facilitate international contagion when their funding takes the form of volatile short-term capital.

It is important to stress, however, that prior to the crisis many observers had worried that the United States might face a 'sudden stop' of capital flows, which could give rise to an abrupt depreciation of the dollar and a disorderly adjustment of global imbalances. In reality, the crisis did not lead to such scenario. The sudden halt of capital flows affected many economies – especially the emerging markets in Eastern Europe – but not the United States, which turned out to be once again the last refuge of international investors.

5. Global imbalances during the crisis

It is unquestionable that the world crisis has led to a reduction, at least temporary, in global imbalances. As Figure 9 shows, the current account deficit of the United States, measured as proportion of GDP, has fallen to less than half of its peak – from 6.1 per cent of GDP in the second quarter of 2006, to 2.8 in the second quarter of 2009. Moreover, the process gained momentum during 2009, undoubtedly helped by the recession¹⁰. The contraction of the U.S.'s external imbalance reflects, on the one hand, the decline of private investment, especially in construction, and, on the other hand, the increase of private saving.

On a global scale, the crisis led initially to an abrupt fall of international capital flows, and to the collapse of world trade and oil and commodity prices¹¹. The latter in turn caused a large reduction in the surplus of oil-exporting countries, which is estimated to have fallen from over 2% of world GDP in 2008 to about .5% in 2009. But in some important ways the impact of the crisis was very different than expected. Instead of the depreciation that many had predicted, the dollar experienced an initial appreciation (see again Figure 4), as a result of international investors' 'flight to safety' that led them to shelter in low-risk U.S. Treasury debt, at the expense of all risky assets – from corporate debt to emerging-market assets. The dollar became the reserve currency of last resort, and the government of the United States the borrower of last resort. Paradoxically, the United States, undeniably the source of the crisis, turned out to be also investors' last refuge.¹²

¹⁰ Recent IMF estimates, reflected in Figure 1 above, suggest that the U.S. current account deficit fell to less than 1% of world GDP in 2009, as opposed to 1.2% in 2008.

¹¹ Oil prices took a dive from their peak close to \$140 a barrel at the onset of the crisis in July 2008, to a trough around \$30 a barrel at the beginning of 2009. They have since stabilized around \$70 a barrel.

¹² The insurance role of U.S. assets at times of international turmoil is examined by Gourinchas, Rey and Govillot (2010).

Throughout the global turmoil, the U.S. has had no difficulty to continue financing its (narrower) external imbalance. However, capital flows to the United States have undergone important changes. These are illustrated in Figure 10, which is an update of the graph presented in De la Torre, Schmukler and Servén (2009). Although the flows in the figure comprise long- term financial instruments only, the time profile is revealing. The top line captures the inflow of capital from non-resident investors. Until 2008, it is always positive, reflecting an upward trend interrupted in late 2006. The bottom line captures the inflow of capital from resident investors. For the most part, these take on negative values, indicating capital outflows by U.S. investors. But at the onset of the subprime turmoil in mid 2007, these patterns change abruptly: capital inflows from non-residents collapse, and outflows of residents reverse—reflecting capital repatriation by residents to stem losses in domestic markets or to seek safe haven from the global turbulence. In 2009, however, the data reveal an incipient return to the pre-crisis pattern: capital inflows of foreign investors, and outflows of resident investors, both appear to return to their earlier trends.

Figure 11 offers additional detail on the pattern of capital flows into the U.S. before and after the crisis. Until 2008 foreign investors steadily accumulated all types of U.S. assets. As the crisis hit in 2008, there was a short-lived withdrawal of investors from U.S. assets, and a sell-off of agency bonds in particular. Thereafter, investors have returned to large-scale acquisition of U.S. Treasuries – likely due to the “flight to safety” -- and, to a more modest extent, equities. However, they have stayed away from U.S. corporate and agency debt. Interestingly, the capital inflow cycle of 2008-2009 was closely matched by the timing of China’s accumulation of foreign assets.

6. The future of global imbalances and its implications for developing countries

In light of the trends in capital flows just reviewed, are global imbalances simply coming back? It is difficult to give a conclusive answer. The future of global imbalances depends on a constellation of real and financial forces whose evolution is hard to predict. Nevertheless, it may be useful to think in terms of two broad scenarios, and their consequences for developing countries.

6.1. The return of global imbalances

Global imbalances may well be restored after the crisis. To the extent that the deep determinants of the imbalances remain largely unchanged, the post-crisis configuration of current account deficits might not be very different from the pre-crisis situation. Several ingredients contribute to make this a likely scenario. First, from a global perspective, the crisis has underscored the effectiveness of the self-insurance strategy pursued by emerging markets, as countries that had amassed big volumes of external assets managed to weather the global

storm better than the rest. In fact, this may encourage these and other countries to intensify their accumulation of foreign assets, especially given the fact that -- even at the height of the turmoil -- some emerging economies were reluctant to use up their vast reserves because they feared weakening the confidence of international investors (Aizenman and Sun 2009). This in turn may prompt them to hold even bigger stocks of liquid foreign assets in the future.

Second, in the same vein, barring deep – and, to date, unforeseen – reforms to speed up the development of emerging countries’ financial markets, savers from those countries will very likely continue to demand large volumes of financial assets from more developed markets. Moreover, while international savers may increase their degree of diversification away from U.S. assets, a massive sell-off of dollar assets by large investors (such as China) is unlikely, as they would incur big capital losses on their asset holdings.

These global factors imply that the “uphill” pattern of capital flows is likely to persist. Indeed, recent IMF forecasts of China’s saving-investment gap suggest little decline in the external surplus from its high pre-crisis levels (Figure 12a). In turn, from the U.S. perspective, a quick rebound of the economy from the crisis could lead the way to the recovery of world trade and commodity prices, and firm up the comeback of capital flows from emerging countries. Further, the record-high U.S. public deficits could well prevail over the rise in private saving prompted by the fall in asset prices and household net worth, halting (although perhaps not reversing) the decline of the current account deficit (Figure 12b).

For small developing countries, this scenario would come close to ‘business as usual’, at least for some time. In a context of rapid recovery, Asian emerging countries could continue to pursue their export-led growth strategy based on currency undervaluation, fueling further the return of global imbalances. However, one potentially important difference is that, in the post-crisis world, improved financial regulation, as well as enhanced investor awareness, will likely bring to an end the underpricing of risk that characterized the run up to the global financial crisis. This means that the cost of capital, especially for developing countries, is likely to be higher than it was in the pre-crisis world, so that the efficiency of investment will become a more pressing concern from the perspective of developing-country growth.

6.2. Vanishing global imbalances

Though less likely, other forces might push to significantly narrow global imbalances. From an international perspective, the new mechanisms of international risk diversification (such as the contingent credit facility recently established by the IMF) might begin to reduce the incentives for self-insurance and stop the buildup of foreign reserve stocks in emerging economies. This in turn would bring a double benefit. It would relieve these economies from the need to hold low-yield short-term foreign assets and allow them to diversify their portfolio into more profitable

investment opportunities. Moreover, for the global economy a reduction in developing-country reserve holdings would help limit the excess demand for safe assets that many observers place at the core of the crisis (Caballero, 2010). It would also contain the buildup of global systemic risk arising from the 'fire sale' externality that liquidation of major-currency assets by countries in distress would impose on other countries.

A shift in portfolio diversification by international savers away from U.S. assets would also contribute to a narrowing of global imbalances. While such trend has been at play since the late 1990s, it could accelerate in the face of investors' renewed doubts about the future performance of the U.S. economy and the dollar, or if the recent turmoil in the U.S. financial system – which rendered worthless a great volume of assets -- were to weaken the perceived appeal of U.S. assets¹³. However, there is little indication that such accelerated shift is taking place.

An early withdrawal of the fiscal stimuli by the economic authorities in the U.S. and other advanced countries would have similar consequences. Such course of action, however, could also delay the world recovery, and put in jeopardy the export-led growth strategy pursued by a number of emerging markets. Although China and other major emerging countries have so far weathered the crisis reasonably well, they did so in the context of aggressive fiscal stimuli in advanced countries. A reversal of the fiscal expansions in rich countries, and a longer-lasting global slump, would imply a further slowdown in global demand for developing country exports.

From the perspective of low-income countries, the increase in import demand from middle-income economies could pick up some of the slack, and help them offset, at least in part, the slowdown in advanced economies' export demand¹⁴. However, the export-led growth strategy pursued by a number of middle-income emerging countries, notably in East Asia, would come under stress in a context of reduced global demand.

One way out of this impasse would be for surplus emerging markets to rebalance their economies through an increased reliance on inward-looking growth. Such shift may have already started, as shown by the massive fiscal stimulus implemented by China in 2009, one of whose stated objectives was to ease the economy's dependence on world export market growth. In the short run, the stimulus has helped China maintain its high growth rate, but mounting concerns have arisen recently regarding the (in)efficiency of the expenditures involved, as well as their possible contribution to the emergence of asset bubbles.

¹³ Major emerging markets, such as China and India, have already started diversifying their portfolios through direct investment abroad.

¹⁴ Between 1996 and 2008, the share of BRIC countries (Brazil, Russia, India, China) in total world imports rose from 9% to 17%.

In general, an orderly rebalancing of emerging economies with strong external positions and sound macroeconomic frameworks would likely involve an exchange rate appreciation upfront to reduce the accumulation of foreign assets and encourage domestic demand (Blanchard and Milesi-Ferreti, 2009). Policy measures attacking entrenched distortions, such as those causing excessively high saving rates in both the household and corporate sectors, and those hampering financial development – two inter-related problems – would help in this regard. The high saving rates of China and other emerging Asian countries do not just reflect frugality and hard-to-change cultural values – although these factors surely play a role¹⁵. They are also partly attributable to the weak social protection system, as argued by Carroll and Jeanne (2009). In this respect, the strengthening of social safety nets under way in China and other emerging countries will likely reduce their astronomical household's saving rates and increase their consumption¹⁶. The process may take a considerable time, but it should eventually allow a substantial increase in domestic demand¹⁷.

In China, and to a lesser extent other surplus emerging markets as well, high corporate saving (i.e., earnings retained by firms) also reflects underlying distortions. In China, large state subsidies, monopolistic conditions, and fast growth have all generated massive profits in some sectors. However, since the fiscal reform in 1994, most state-owned enterprises have not distributed dividends to shareholders or the state, choosing instead to retain their profits to finance potentially inefficient investment in the Chinese corporate sector (Kujis 2005, 2006). A requirement for state-owned enterprises to distribute dividends would help channel the saving into more productive uses via financial markets, or perhaps boost consumption¹⁸.

Another factor behind high corporate saving is the lack of alternative financing mechanisms, such as deep corporate bond markets, which encourages firms to retain their earnings to finance future investment projects. In addition, repressed low interest rates on alternative assets (e.g., bank deposits) give firms an incentive to recycle their retained earnings into further investments, including those in marginally productive projects. Reforms to speed up the development of bond and equity markets would reduce firms' incentives to retain earnings and undertake possibly inefficient investment projects.

¹⁵ For example, Wei and Zhang (2009) attribute the high household saving rates in China to a rising gender imbalance and an increasingly competitive marriage market in the country.

¹⁶ The top stated priorities of the 2010 Chinese People's Congress included establishing a safety net of pension, health care and unemployment benefits, and providing free primary and secondary education (AP, 03/08/10).

¹⁷ In China, this process may be already under way. For example, car sales recently exceeded for the first time those in the U.S., partly as a result of tax incentives small-engine cars (The Wall Street Journal, 09/09/09).

¹⁸ The Chinese government announced some time ago its intention to require SOEs to pay dividends, but did not specify when such policy would take place (The Wall Street Journal, 12/12/07).

Some observers have proposed a different approach to speed up growth in developing countries in the post-crisis world, based on active promotion of modern, high value-added sectors through tax-cum-subsidy industrial policy interventions (Rodrik 2009). In theory, these can be designed to replicate the effects of undervalued real exchange rates, i.e., encourage the growth of tradable goods industries (which played a big role in the successful growth experiences of Japan or South Korea), without the compression of domestic demand and the accumulation of foreign assets that so far have characterized neo-mercantilist policies (and added to global imbalances). However, the risk is that the sector composition of growth would be dictated by government choice rather than the discipline of world markets. Moreover, such a policy strategy would run counter existing WTO agreements. More generally, it is subject to the same caveats and controversies that have long surrounded the use of industrial policy. While the theoretical justification of industrial policy is well understood, its practical implementation often runs into insurmountable difficulties because governments might not have sufficient information to identify the ‘right’ products or industries to favor, and because institutional weaknesses common in developing countries make such interventions prone to rent-seeking and corruption¹⁹ – and possibly even detrimental to the efficient allocation of resources, which is key to sustained growth in developing economies.

7. Conclusion

The nature of global imbalances, their role in the world crisis, and their likely path in the post-crisis world have taken center stage in the debate on the international economic outlook. A number of recent contributions to this debate have argued that global imbalances should be viewed as the equilibrium outcome of structural distortions in global financial markets as well as major individual economies. On the whole, the pattern of international capital flows before and during the global crisis appears consistent with this view. Likewise, closer scrutiny shows that the case against global imbalances as one of the key causes of the crisis is weak.

Although the crisis has temporarily reduced the magnitude of global imbalances, their future is far from certain. Absent radical policy action at the national and global levels, the structural distortions at the root of the imbalances are likely to remain in place, and this suggests that global imbalances will return. In such case, the global environment for developing economies could show little change relative to the pre-crisis situation, although stricter prudential regulation of the financial system and a renewed perception of risk may well lead to a persistent increase in the cost of capital – making its efficient use an even higher priority than before, particularly for deficit developing countries.

¹⁹ In fact, undervaluation through reserve hoarding can be viewed as a way to achieve the same objective overcoming – at a cost – these obstacles; see Korinek and Servén (2010).

However, it is also possible, though less likely, that other forces triggered by the crisis might lead to a significant narrowing of global imbalances in the future. This could involve a decline in advanced countries' import demand growth, which would pose a challenge for developing countries – particularly surplus emerging markets pursuing export-led growth. Rising South-South trade might fill part of the global demand gap, but not all. The remedy would be for surplus developing countries to increase their reliance on inward-looking growth, through policy actions addressing the causes of excessively high saving and encouraging domestic consumption and investment.

References

Acharya, V. and P. Schnabl (2009): "Do global banks spread global imbalances? The case of asset-backed commercial paper during the financial crisis of 2007-09", unpublished manuscript.

Adrian, T. and M. Shin (2009): "Money, liquidity and monetary policy", *American Economic Review*, 99, p. 600–605.

Aizenman, J. and J. Lee (2007): "International reserves: precautionary vs mercantilist views", *Open Economies Review* 18, pp 191-214.

Aizenman, J., and Y. Sun (2009): "The financial crisis and sizable international reserves depletion: from 'fear of floating' to the 'fear of losing international reserves'?", NBER Working Paper 15308.

Associated Press , "China vows to improve social safety net" 03/08/10

Backus, D., E. Henriksen, F. Lambert and C. Telmer (2009): "Current account: fact and fiction", NBER Working Paper 15525.

Bernanke, B. (2005): "The global saving glut and the U.S. current account deficit", <http://www.federalreserve.gov/boarddocs/speeches/2005/200503102/default.htm>

Bertaut C. and R. Tryon (2007) "Monthly estimates of U.S. Cross-Border Securities Positions" , International Finance Discussion Papers 910, Board of Governors of the Federal Reserve System

Blanchard, O., F. Giavazzi and F. Sa (2005): "The U.S. current account and the dollar", *Brookings Papers on Economic Activity*, Spring.

Blanchard, O., and G. Milesi-Ferretti (2009): "Global imbalances: in midstream", IMF Staff Position Note.

Caballero Ricardo (2010): "The other imbalance and the financial crisis", NBER Working Paper 15636.

Caballero, R., E. Farhi and P. Gourinchas (2008a): "An equilibrium model of global imbalances and low interest rates", *American Economic Review* 98.

Caballero, R., E. Farhi and P. Gourinchas (2008b): "Financial Crash, Commodity Prices, and Global Imbalances", *Brookings Papers on Economic Activity*, pp 1-55.

Carroll, C. and O. Jeanne (2009): "A Tractable Model of Precautionary Reserves, Net Foreign Assets, or Sovereign Wealth Funds", NBER Working Paper 15228.

Cline W. and J. Williamson (2008): "Estimates of the Equilibrium Exchange Rate of the Renminbi: Is there a Consensus and If not, why not?" in Goldstein and Lardy edited, *Debating China's Exchange Rate Policy*, Peterson Institute of International Economics.

Curcuru, S., C. Thomas, and F. Warnock (2008): "Current Account Sustainability and Relative Reliability", NBER Working Paper 14295

De la Torre, A., S. Schmukler and L. Servén (2009): "Back to global imbalances?", http://www.roubini.com/globalmacro-monitor/257276/back_to_global_imbalances

Dooley, M., D. Folkerts-Landau and P. Garber (2004): "The revived Bretton Woods system: the Effects of Periphery Intervention and Reserve Management on Interest Rates and Exchange Rates in Center Countries," NBER Working Paper 10332.

Dooley, M., D. Folkerts-Landau and P. Garber (2009): "Bretton Woods II still defines the international monetary system", NBER Working Paper 14731.

Eichengreen, B. (2010): "The Financial Crisis and Global Policy Reforms", forthcoming in *Asia and the Global Financial Crisis*, Federal Reserve Bank of San Francisco, San Francisco.

Engel, C. and J. Rogers (2006): "The U.S. current account deficit and the expected value of world output", *Journal of Monetary Economics* 53, 1063–1093

Financial Times, "Wen dismisses currency pressure", 12/27/2009

Forbes, K. (2010): "Why do foreigners invest in the United States?", *Journal of International Economics* 80, p. 3-21.

Gourinchas, P. and H. Rey (2007a): "International financial adjustment", *Journal of Political Economy* 115.

Gourinchas, P., and H. Rey (2007b). "From World Banker to World Venture Capitalist: The US External Adjustment and The Exorbitant Privilege", in R. Clarida ed. *G7 Current Account Imbalances: Sustainability and Adjustment*, University of Chicago Press.

Gourinchas, P., H. Rey and N. Govillot (2010): "Exorbitat privilege and exorbitant duty", unpublished manuscript.

Hausmann R. and F. Sturzenegger (2004): "Global Imbalances or Bad Accounting? The Missing Dark Matter in the Wealth of Nations". Center for International Development Working Paper No. 124.

Iossifov, Plamen, Martin Čihák, and Amar Shanghavi (2008). "Interest Rate Elasticity of Residential Housing Prices." IMF Working Paper WP/08/247

Jeanne, O. and R. Ranciere (2009): "The optimal level of international reserves for emerging market countries: a new formula and some applications",
http://www.econ.jhu.edu/People/Jeanne/JeanneRanciere_Feb09.pdf

Kashyap, A. (2010): "Comment on 'The Financial Crisis and Global Policy Reforms' by Barry Eichengreen", forthcoming in *Asia and the Global Financial Crisis*, Federal Reserve Bank of San Francisco, San Francisco.

Korinek, A., and L. Servén (2010): "Undervaluation through foreign reserve accumulation: static losses, dynamic gains", World Bank Policy Research Working Paper 5250.

Kraay, A. , N. Loayza, L. Servén and J. Ventura (2005): "Country portfolios", *Journal of the European Economic Association*.

Kraay, A. and J. Ventura (2005):" The Dot-Com Bubble, the Bush Deficits, and the US Current Account", NBER Working Paper No. 11543.

Kuijs L (2005): "Investment and savings in China." World Bank Policy Research Working Paper No. 3633

Kuijs L (2006): "China in the future: a large net saver or net borrower?". Mimeo, World Bank

Laibson, D. and J. Mollerstrom (2010): "Capital Flows, Consumption Booms and Asset Bubbles: A Behavioural Alternative to the Savings Glut Hypothesis", NBER Working Paper 15759.

Lane, P. and S. Schmukler (2007): "The Evolving Role of China and India in the Global Financial System" *Open Economies Review* 18, 499-520

Lin, J. (2009): "Global Financial Crisis and Paradigm Shift in Both Sides of the Global Imbalance" Edward KY Chen Distinguished Lecture Series – 2009 Lecture

Lin, J., H. Dinh and F. Im (2010) United States-China External Imbalance and the Global Financial Crisis, *China Economic Journal* 3, 1-24

Lucas, R. (1990): "Why doesn't capital flow from rich to poor countries?" *American Economic Review* 80, 92-96.

Mendoza, E., V. Quadrini and J. Rios-Rull (2009): "Financial Integration, Financial Deepness and Global Imbalances", *Journal of Political Economy*, 117, p. 371-416.

Nguyen, H. (2010): "Valuation Effects with Transitory and Trend Productivity Shocks", World Bank Research Working Paper 5174

Obstfeld. M., and K. Rogoff (2005): "The unsustainable U.S. current account position, revisited", http://elsa.berkeley.edu/~obstfeld/NBER_final.pdf

Obstfeld. M., and K. Rogoff (2009): "Global Imbalances and the Financial Crisis: Products of a Common Cause", mimeo

Portes, R. (2009): "Global imbalances", In Mathias Dewatripont, Xavier Freixas, and Richard Portes, editors, *Macroeconomic Stability and Financial Regulation: Key Issues for the G20*. London: Centre for Economic Policy Research.

Prasad, E. (2009): "Rebalancing growth in Asia", IZA discussion paper 4298.

Rodrik, D. (2009): "Growth after the crisis", CEPR Discussion Paper 7480.

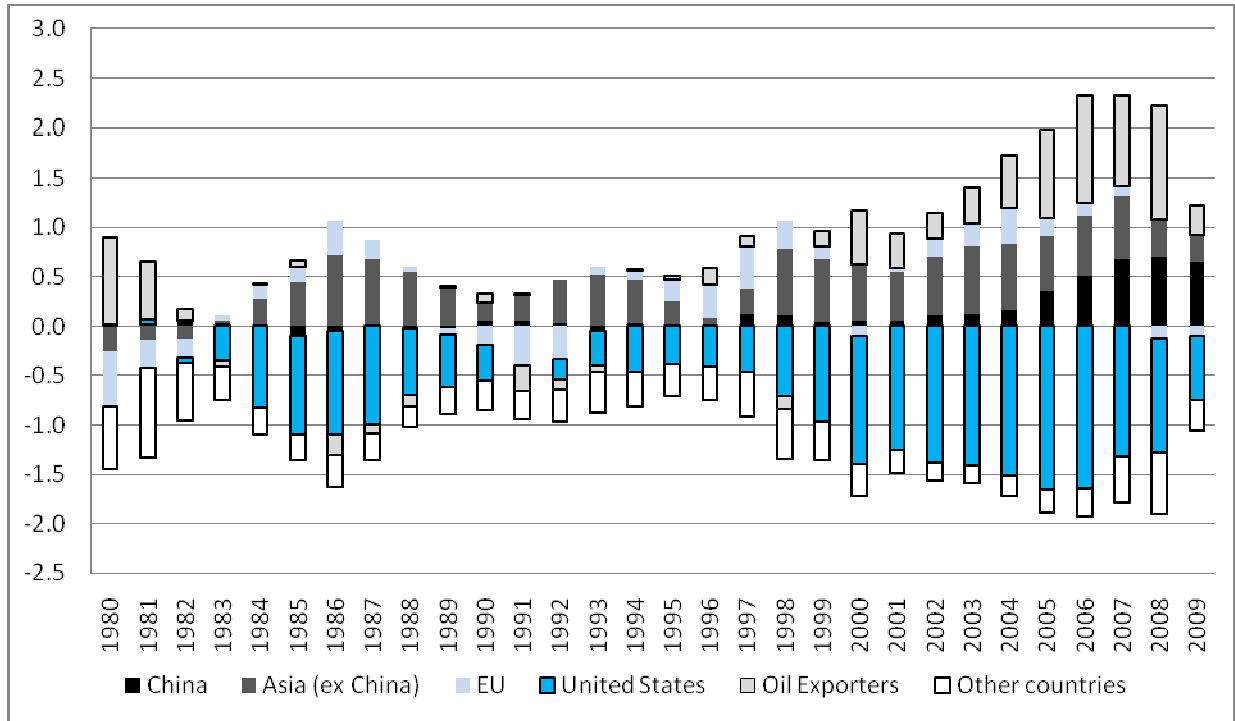
Roubini, N (2009): "Will the Bretton Woods 2 (BW2) Regime Collapse Like the Original Bretton Woods Regime Did? The Coming End Game of BW2", <http://www.rgemonitor.com/>

Truman, E. (2009): "Lessons from the global economic and financial crisis", <http://www.iie.com/publications/papers/truman0911.pdf>

The Wall Street Journal, "China Auto Sale Surge", 09/09/2009

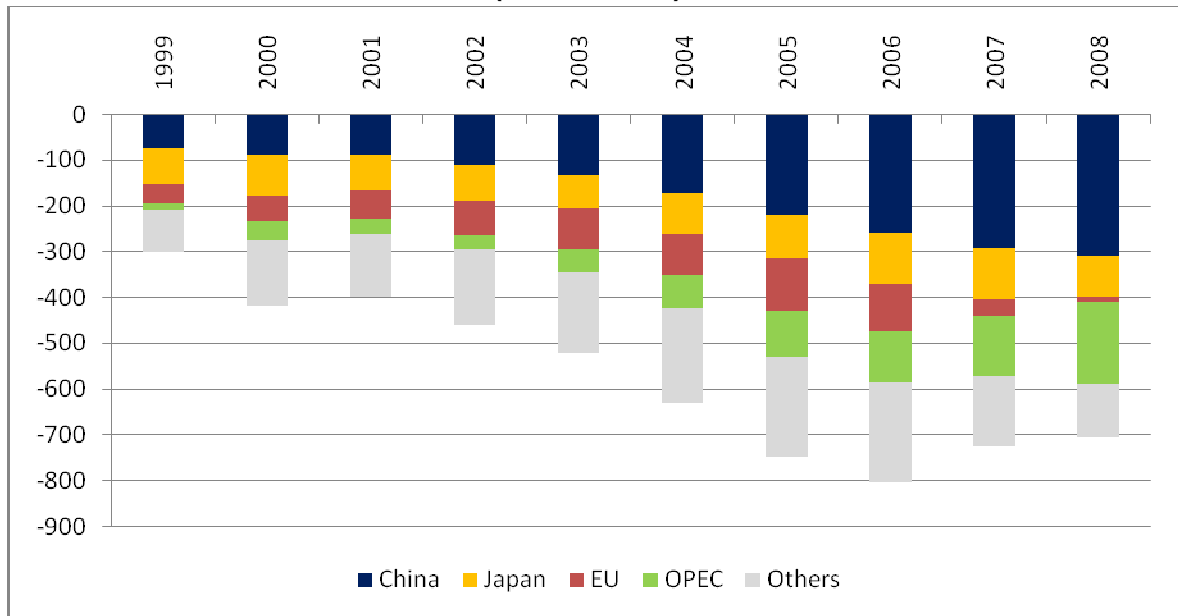
The Wall Street Journal, "China Sets Dividend Scale For Its State-Owned Firms", 12/12/2007

**Figure 1a: Current Account Imbalances
(% of World GDP)**



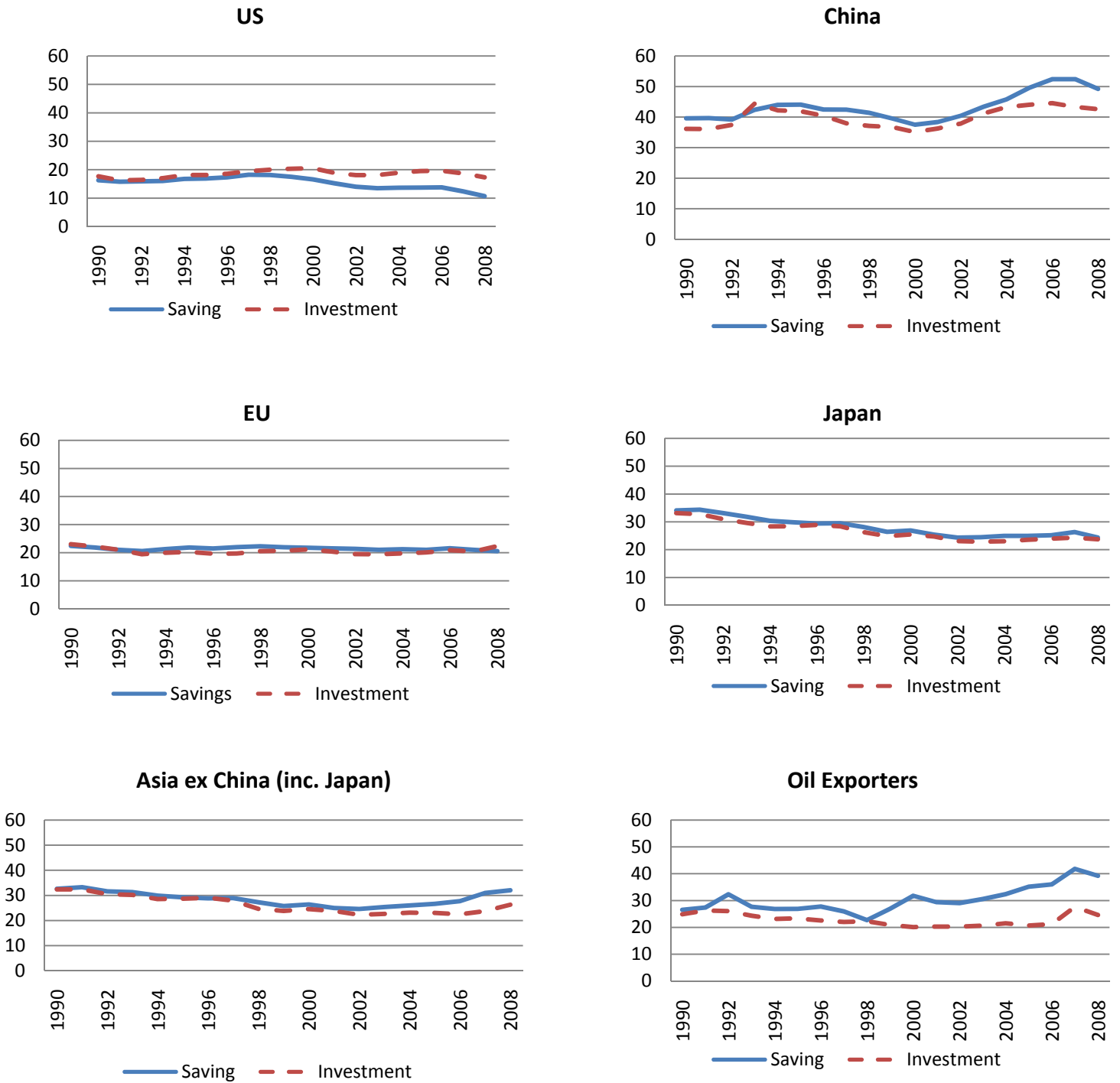
Source: World Economic Outlook. The 2009 data are IMF estimates

**Figure 1b: U.S. Bilateral Current Account Balances with Other Countries
(US\$ Billions)**



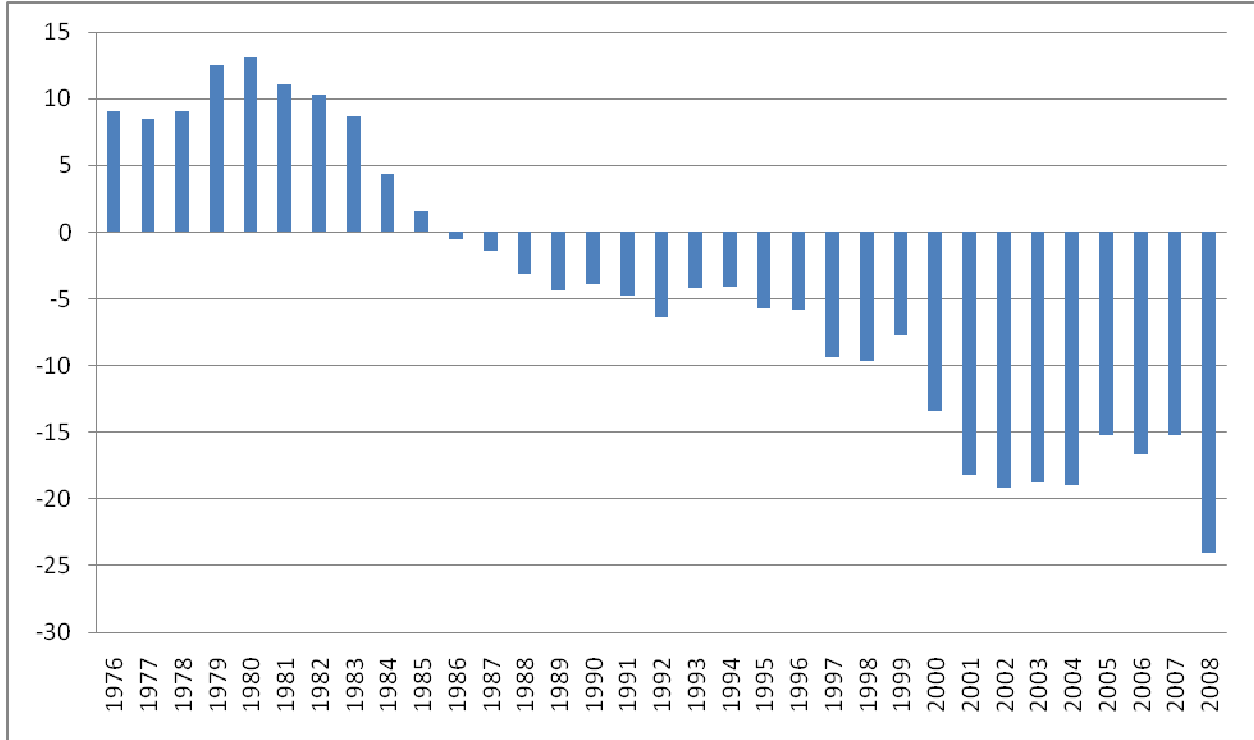
Source: Bureau of Economic Analysis

**Figure 2: Saving and Investment Rates
(% of GDP)**



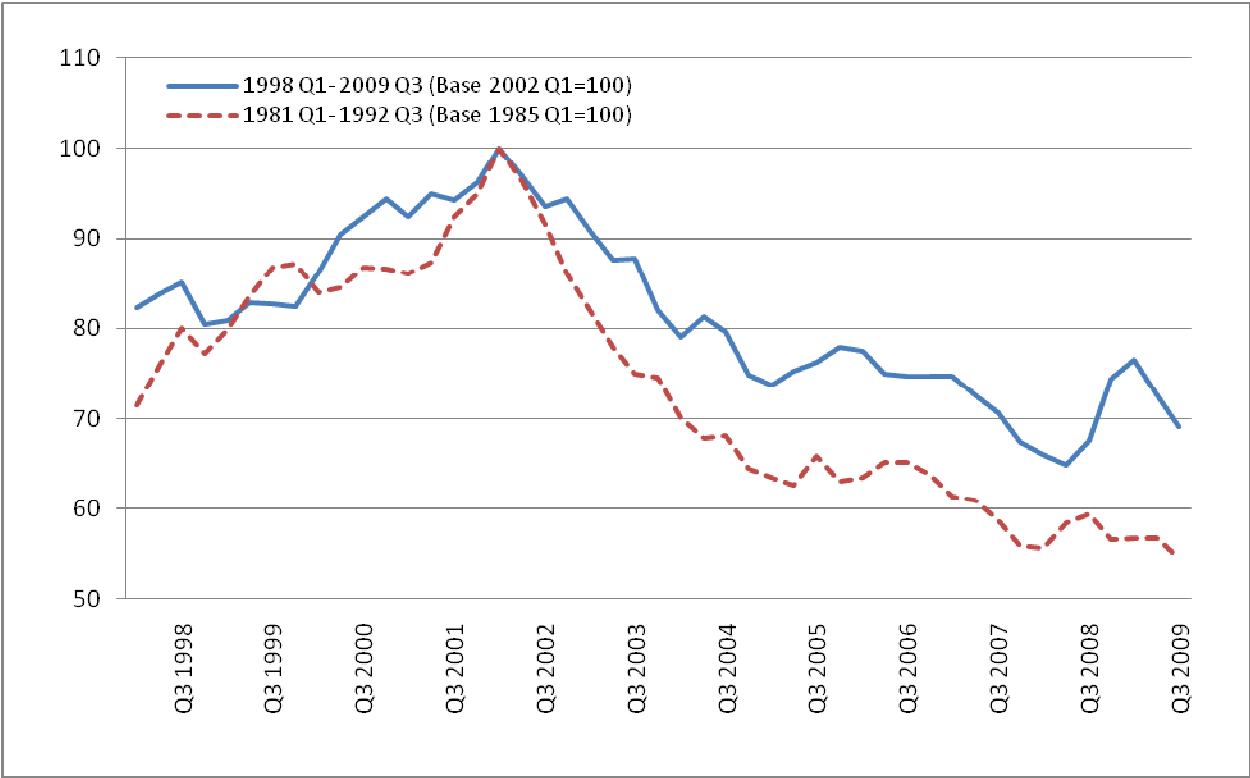
Source: World Development Indicators and World Economic Outlook

**Figure 3: U.S. Net Foreign Asset Position
(% of GDP)**



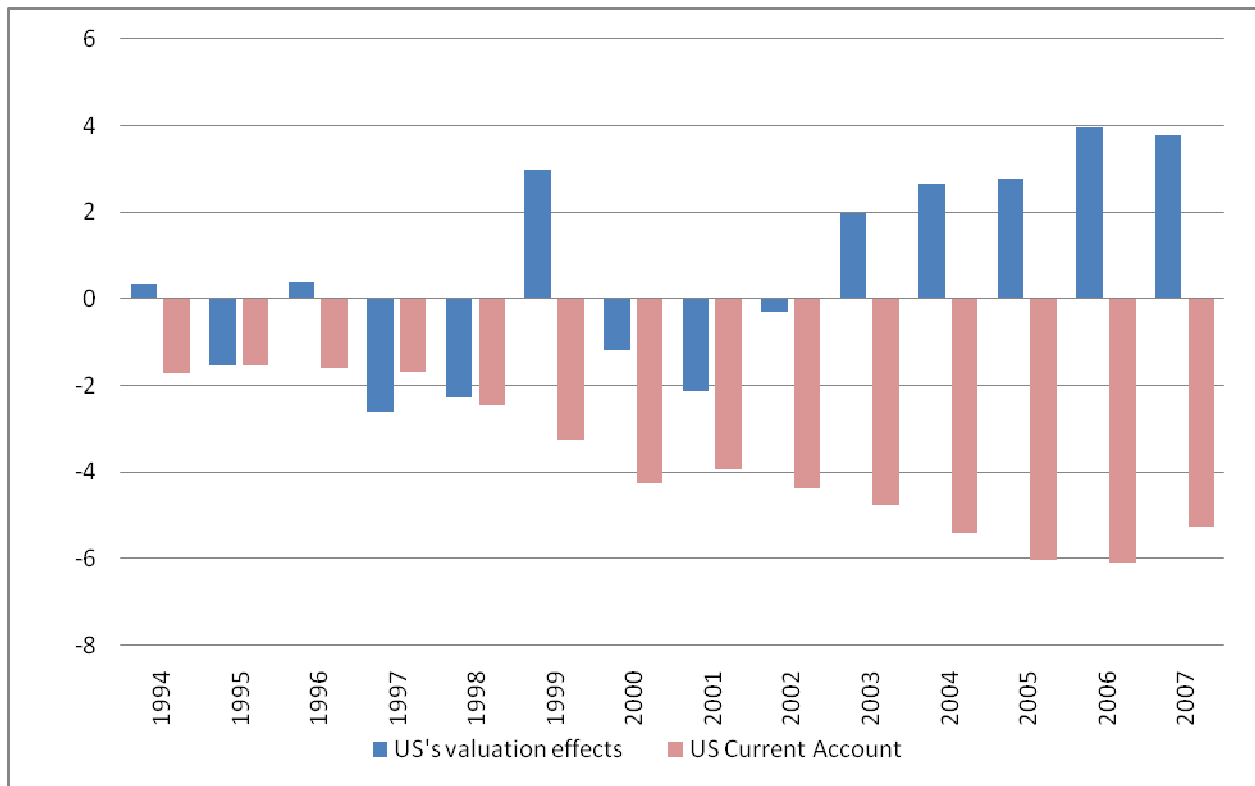
Source: Bureau of Economic Analysis

Figure 4: U.S. Multilateral Real Exchange Rate



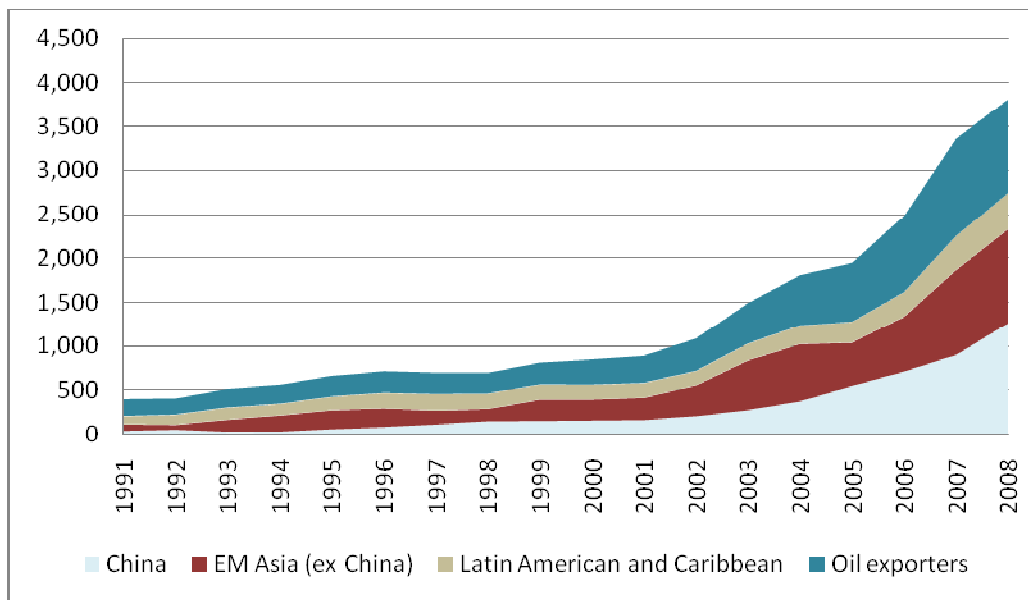
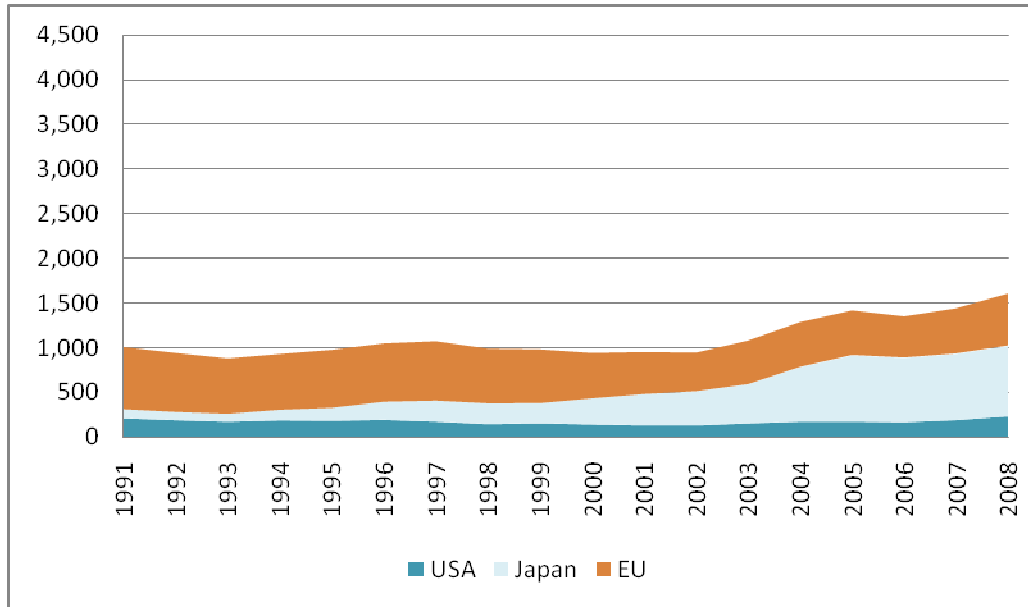
Source: International Financial Statistics

**Figure 5: U.S. Current Account Balance and Valuation Effects
(% of GDP)**



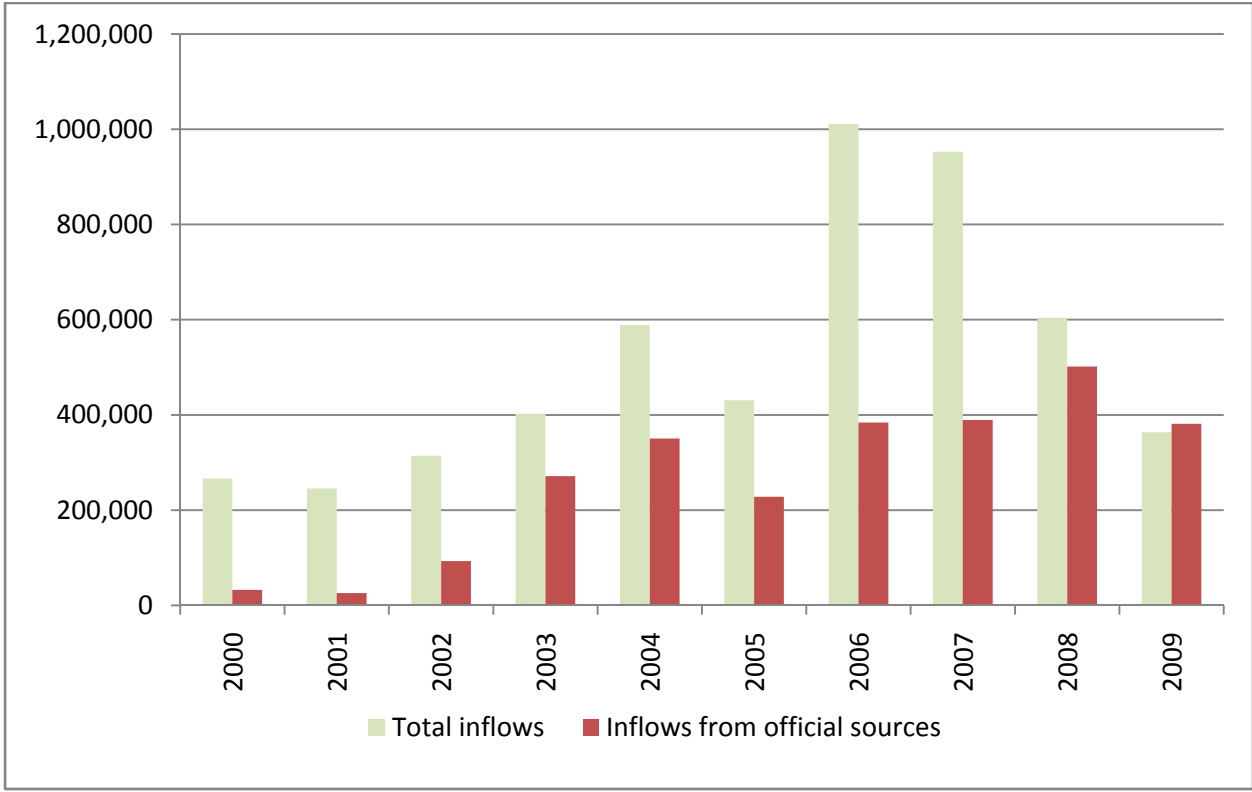
Source: Nguyen (2010)

**Figure 6: Foreign Exchange Reserves of Industrial and Emerging Countries
(Billions, constant 2000 US\$)**



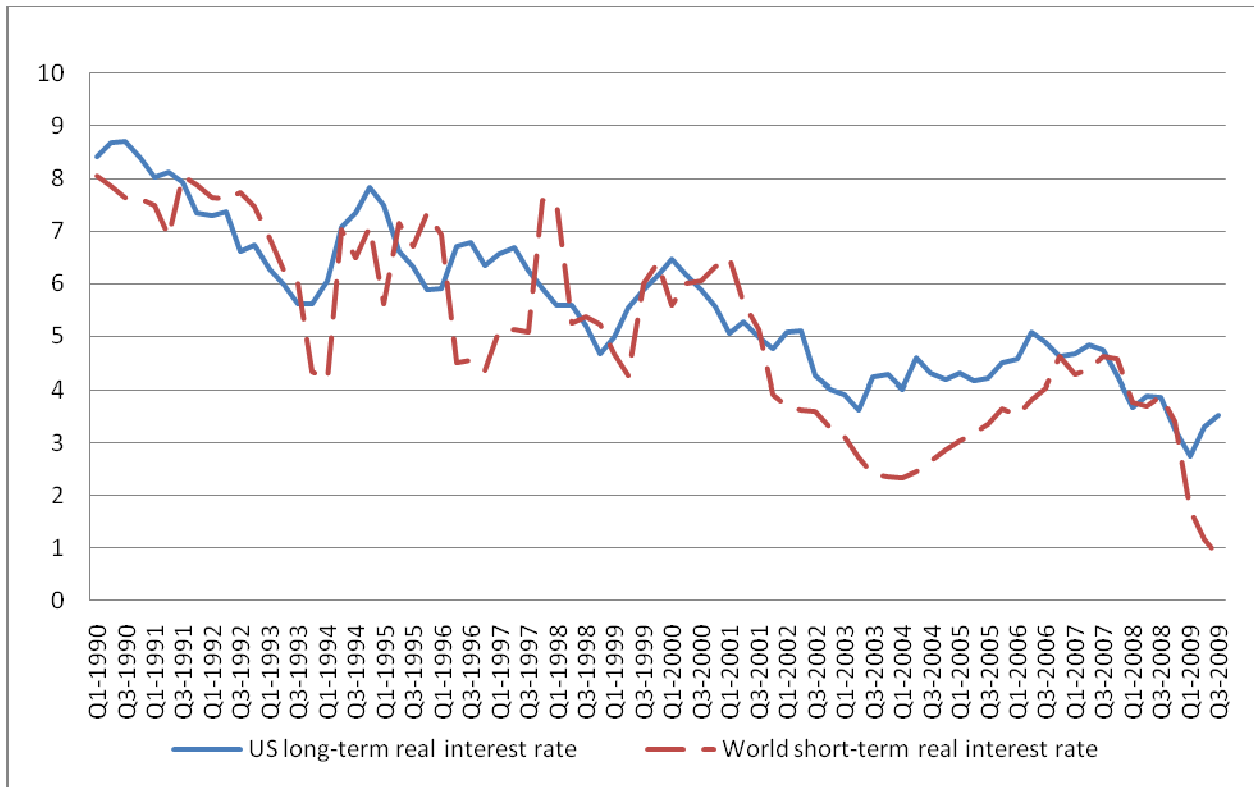
Source: World Development Indicators

**Figure 7: Gross Capital Inflows to the U.S. from Emerging Markets
(US\$ millions)**



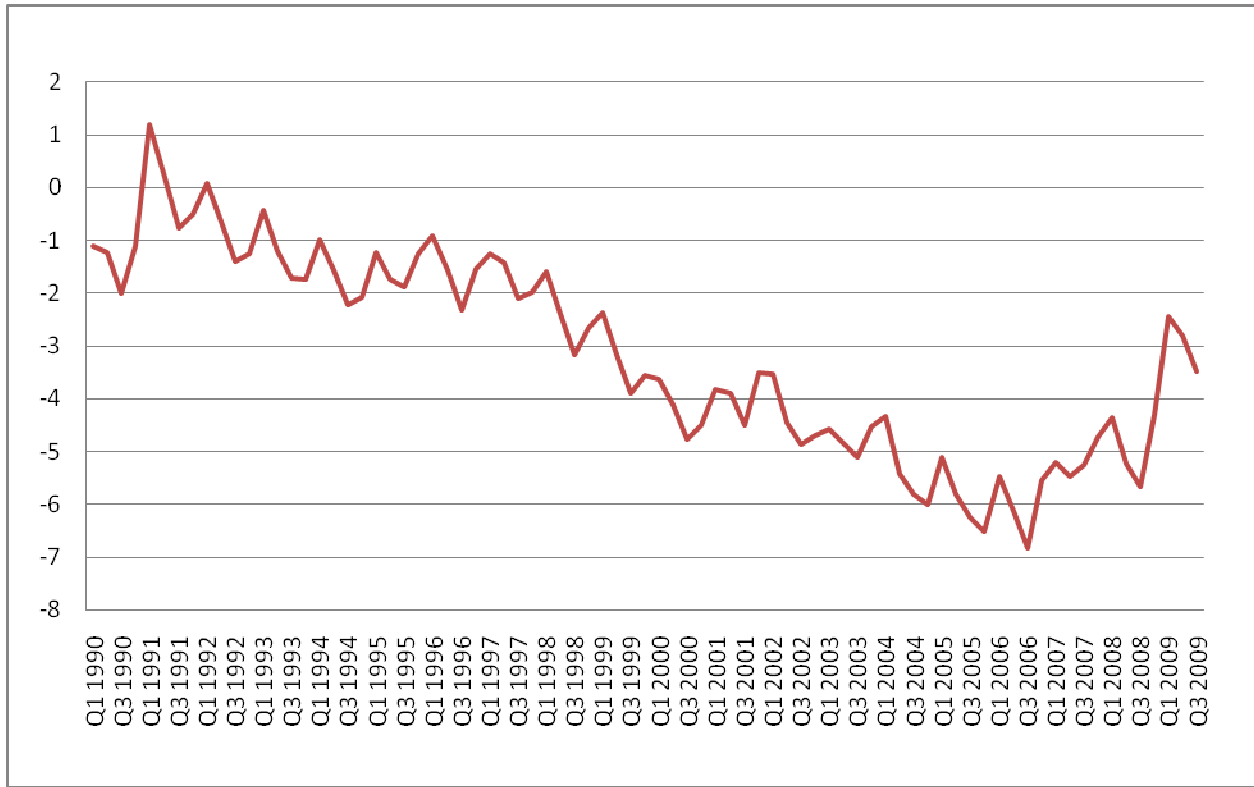
Source: U.S. International Transactions, Bureau of Economic Analysis

**Figure 8: Real Interest Rate on Public Debt
Long-term (10-year) and Short-term (3-month)**



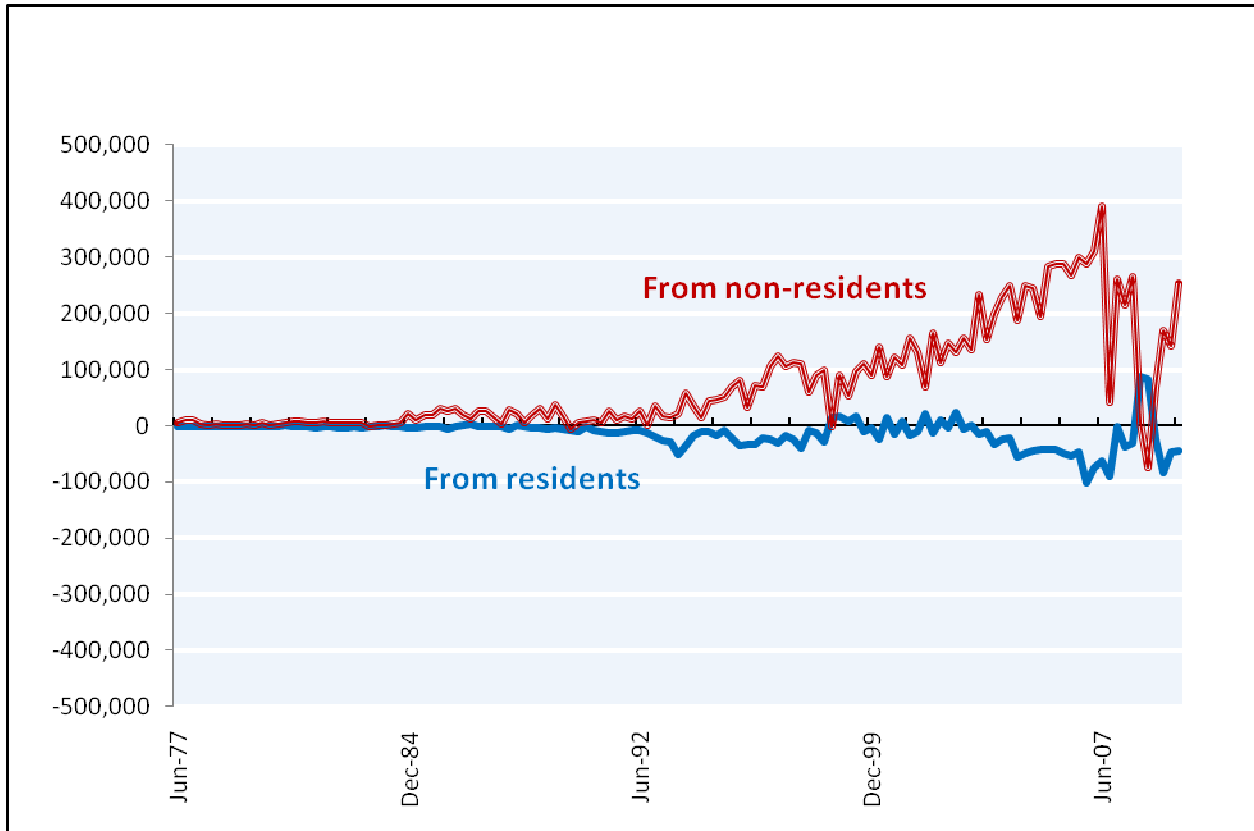
Source: OECD

**Figure 9: U.S. Current Account Balance
(% of GDP)**



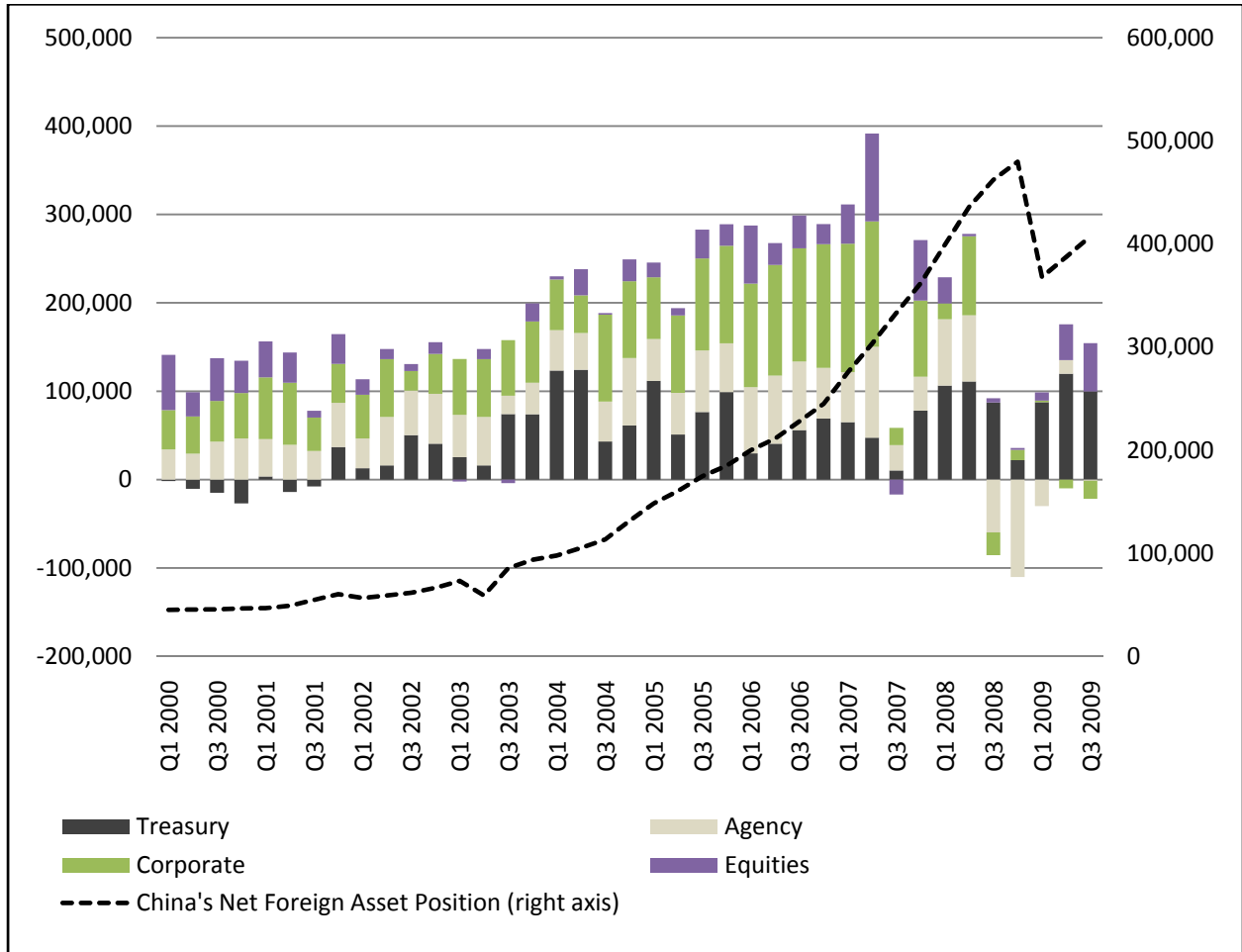
Source: International Financial Statistics

**Figure 10: Gross Capital Inflows to the U.S. (in Long-Term Securities)
(US\$ Millions)**



Source: U.S. Department of the Treasury

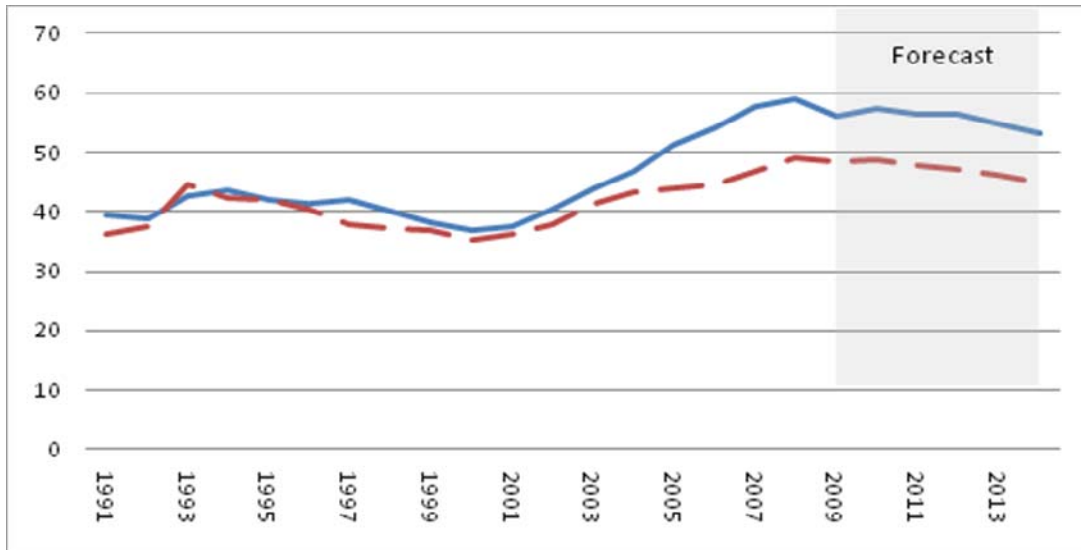
Figure 11: Net Foreign Purchases of U.S. Long-term Securities and China's Net Foreign Asset Position (US\$ Millions and Yuan Millions, respectively)



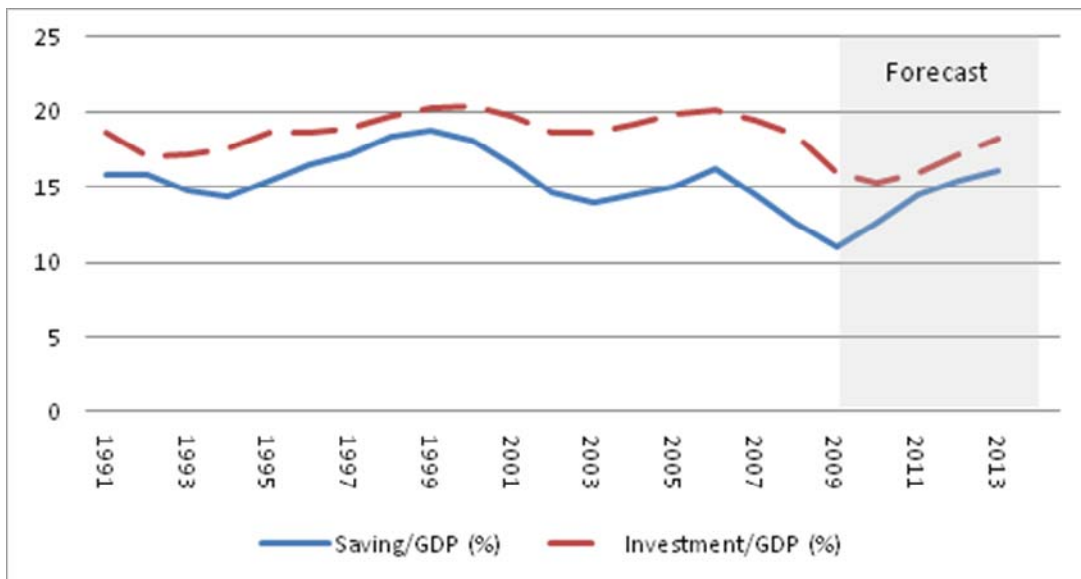
Source: U.S. Department of the Treasury, The People's Bank of China,

Figure 12
Saving and investment forecasts
 (% of GDP)

(a) China



(b) United States



Source: World Economic Outlook