Taking stock: global imbalances. Where do we stand and where are we aiming to?

Andrea Fracasso

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Dott. Luciano Andreozzi
E.mail luciano.andreozzi@economia.unin.it
Dipartimento di Economia
Università degli Studi di Trento
Via Inama 5
38100 TRENTO ITALIA
Taking stock: global imbalances. Where do we stand and where are we aiming to?

Andrea Fracasso

Department of Economics and School of International Studies, University of Trento

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Abstract

For two and a half decades the US has accumulated large current account deficits, mainly financed (though to different extents at different times) by the savings of the sluggish European and Japanese economies, of the fast-growing Asian countries and of the oil-producing nations. This peculiar situation represents what has been called the global imbalances phenomenon. This work reviews and analyses several contrasting contributions on a series of issues regarding global imbalances, namely their nature, their underlying forces, their past evolution and their expected developments. This work also contributes to the literature in that it distinguishes and clarifies the issues of sustainability and vulnerability of global imbalances. In addition, this work tackles the relationship between global imbalances and the recent reforms and stance of the IMF, the link between global imbalances and international reserve accumulation, the implications of global imbalances on economic theory and modelling, and the compatibility of global imbalances with two alternative and stylized representations of the current international monetary system.

JEL No. F02, F3, F4, F5
I. Introduction.

Since 2000, a lively debate about the global economic conditions has engaged many prominent economists, both academics and practitioners. This refers to the two and a half decade-long accumulation of large current account deficits by the US vis-à-vis the rest of the world. “Except for a tiny surplus in 1991, the US current account has been in deficit every year since 1982, and for the past five years the size of the deficit has grown in US Dollar terms, in real terms and as a share of GDP.” Buiter (2006, p. 3). These deficits have been mainly financed (though to different extents at different times) by the savings of the sluggish European and Japanese economies, of the fast-growing Asian countries and of the oil-producing nations. This peculiar situation has been dubbed as global imbalances. Despite the disagreement about whether the current condition represents an unbalanced situation or not, the term has entered the economic and financial jargon and is now commonly used to indicate the current global state of affairs. Strictly speaking, a global imbalance cannot exist as long as resources are transferred across countries and financial and good markets clear. What is considered unbalanced is, rather, the current distribution of resources across the world with respect to its long run and sustainable equilibrium condition.

There are, at least, four main aspects of the current global conditions that split economists’ views. The first refers to whether the situation can be conceptualised as an equilibrium or not. As a consequence of the answer to this first question, authors differ in their stance about a second issue, that is what forces have led to and still support the current distribution of resources. The third topic refers to the most plausible future scenarios and to the risks associated with the maintenance of the current trend, as well as with the diverse adjustment processes that might occur. The fourth issue regards the role that the real exchange rates are likely to play in such adjustment processes. Notwithstanding the large disagreement in each one of these areas, there is, in fact, one related issue that meets a broad consensus. Independently of the answers given to the previous questions, many authors agree that there exists a tangible risk of mounting protectionist pressures both in the trade and in the financial sectors in developed countries. As this possibility is likely to affect the incentives policymakers face while making decisions, I shall illustrate such concerns in a separate section. This choice does not entail that the permanence or the unwinding of global imbalances is independent of the governmental policies in developed and developing countries: the current set of economic policies is both an outcome and a cause of global imbalances. The permanence, abrupt reversal or gradual unwinding of the latter depend, among other endogenous and exogenous determinants, on the former.
In the work I shall stress the difference between the issues of sustainability and vulnerability of global imbalances. As much as the resilience of the phenomenon does not say much about its sustainability in the long run, its potential sustainability does not imply global imbalances can endure abrupt exogenous changes in market sentiment, in the economic policies of some emerging economies, and in the developments of key commodity markets. Given the sustainability and the vulnerability of global imbalances have often been mingled, this work contributes to literature in distinguishing the two in the discussion of possible future scenarios and of the role of global and individual policy adjustments aimed at redressing the imbalances.

After a short presentation of the stylized facts that characterise global imbalances (section II), in section III I shall propose a comprehensive review of the literature on global imbalances. In order to make the extent and the reasons of the stark disagreement among researchers apparent, I shall split the various positions in a clear-cut, though admittedly rough way. The review I propose, however, is not meant to emphasise exclusively the controversial aspects and the nuances of the various positions in the debate. Without excessively stretching the interpretation of the various arguments, in fact, I shall also point out potential overlaps and implicit agreements among them. As economists disagree on a very large range of topics - starting from (consolidated) accounting practices to more contentious theoretical modelling -, I believe that finding areas of overlapping consensus is not foregone.

Besides illustrating and commenting the diverse rationalizations of global imbalances presented in the literature, in this work I will consider some specific issues which are strictly connected to global imbalances but have been treated only indirectly in the literature on the topic. In particular, I will address the relationship between global imbalances and the most recent reforms of the IMF’s framework of surveillance and look at the connection between foreign reserves accumulation and the growth of sovereign wealth funds. I will also present the issues at the heart of the recent debate about the merits and limits of new open economy macroeconomic models to conceptualise the economic interactions of agents in an financially globalized environment in which the determinants and the composition of gross country portfolios play a crucial, although often neglected, role.

Accordingly, after reviewing the literature explicitly focused on global imbalances – conceptualisations (section III), origins (section IV), scenarios (section V) and implications for the US exchange rate (section VI) –, I shall then discuss the influence that global imbalances have had, at least in my view, on economic theory and modelling (subsection VII.1) and on other aspects in the realm of international economics, such as trade and financial protectionism (subsections VII.2.1 and VII.2.2). I shall also devote a short section or sub-section to each of the following themes: a)
the role the IMF has played in the debate about the appropriate policy reaction its members should undertake to redress global imbalances (VII.2.3); b) the causes and the implications of massive international reserve accumulation (section VIII); c) the impact of growing commodity prices on global imbalances (section IX); and d) the nature and the functioning of the uncoordinated international monetary system (section X).

Clearly, I shall not explicitly take a stance on each single issue I shall mention, yet I shall propose some personal comments where feasible. Given the mainly illustrative goal of the paper, I shall try to distinguish as clearly as possible my own position and those of the authors discussed.

II. US current account deficits and global imbalances: some stylized facts.

The US current account has been negative since the early 80s (with the sole exception of 1991) and in 2006 the deficit has passed $800 billion. The current account balance is the result of cross-country flows of goods, services, income payments, and unilateral transfers. Looking at the composition of the US current account balance is instructive to understand global imbalances. The US current account balance is mainly driven by the balance on goods while its other components vary less over time and tend to offset each other. (Fig. 1) Notably, the net income receipts on the international investment position remain positive and increase over time. When expressed in terms of GDP, the US annual current account deficit has steadily grown since 1992 onwards and it has reached about 6% in 2005 and 2006.

It has often been argued that the US is neither the first nor the only advanced country to run persistent and large current account deficits and that much alarmism on the sustainability of the US position might be undue. Once the relative size of the US economy is taken into account, however, the importance of the US cumulated deficits in the global economy appears more clearly.

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1 The current account (i.e. CA) is the sum of the net trade balance of good and services (TBGS), the net income compensation (NIC), the net unilateral transfers (NUT), the investment income earned on foreign assets abroad (i*A) , minus the investment income paid on liabilities (i*dom),

\[ CA_t = TBGS_t + NUT_t + i^* A_{t-1} - i^{dom} L_{t-1} + NIC_t. \]

2 The fact that the US earns a return on its foreign assets higher than what it pays on its liabilities has been called the US “exorbitant privilege” by Gourinchas and Rey (2006).

3 See Figures 21 and B.2, for the US current account as a ratio over GDP.

4 To gauge to which extent this proposition is true, in appendix B I plot the current account balances (in terms of the domestic GDP) for a selected number of emerging and advanced countries in 2005 and, restricting the sample, for the longer period 1980-2006.

5 Accordingly, in Figures 4 and 5, the current account balances and net foreign asset positions of a group of countries are reproduced as a share of world GDP. This representation makes apparent how large is the US net external debt.
Given such pattern of current accounts, the US net international investment position (hereafter net IIP)\(^6\) has steadily worsened over time. Figure 2 plots the US gross assets and liabilities and its net IIP.

\[^6\] The net IIP is also called the net foreign asset position or, somehow more improperly, the net external debt position. The change in the net IIP is equal to the net financial flows (NFL) plus the changes in the value of external assets and liabilities due to fluctuations in exchange rates and asset prices and values (both portfolios and FDIs) (VAL). The net financial flows almost coincide with minus the current account balance. \(\Delta \text{netIIP}_t = -NFL_t + VAL_t \equiv CA_t + VAL_t\)
It has been observed that cumulated current account deficits exceed the US net IIP as calculated by the Bureau of Economic Analysis. This appears clearly in Figure 3 where I plot the net IIP at yearend and the position obtained by summing the annual current account deficits to the net IIP in 1989. The discrepancy between the two series is due to two factors: a) the dollar value of gross liabilities and assets is modified by US dollar exchange rate fluctuations (according to the so-called “valuation effect” pointed out by Tille (2003)), and b) capital gains and losses in US foreign assets and liabilities differ in a way that tends to reduce the US net IIP.

Figure 3. The net IIP and the cumulated current account balances of the United States. 1989-2006

In effect, the uncertainty about the reliability of the data on the US net foreign asset position is high. First, the balance of payments and the IIP statistics are collected from different sources and large discrepancies exist between capital flows and stock investment data. Second, the IIP data are corrected by the BEA according to widespread, yet controversial accounting methods.\(^7\) Notwithstanding such uncertainty, the net debtor position of the US and the uninterrupted series of current account deficits stand as unprecedented.\(^8\)

Given financial and real resources are transferred across countries so that financial and good markets clear, the world balance of payment is balanced (but for statistical discrepancies). Accordingly, the US current account deficits are mirrored by current account surpluses in other


\(^8\) In fact, Backus et al (2005) contend that similar current account deficits (as a ratio over GDP) have already occurred in developed countries in the past and even in the US in the first half of the century. As they themselves admit, however, the size and the position of the US in the global economy prevents from finding analogous precedents. See also the appendix B on this.
countries of the world and financed by capital inflows from private and official foreign investors. Given the Euro area and Japan together have reported small current accounts surpluses over the last decades (see Figure 4), emerging markets have turned out to provide the bulk of the net resources flowing into the US. These countries represent also the main source of the inflows of goods at the basis of the US trade deficits. The aggregate current account surplus of emerging market economies moved from $80 billion in 1996 to $300 billion in 2004 and $643 billion in 2006. The patterns of the current accounts (as % over the world GDP) for a group of selected countries and areas are plotted in Figure 4.9

![Current account balances](image)

Figure 4. Current account for major countries and areas as % of world GDP. 1997-2006
Source: IMF, WEO 2007 April, fig 1.14.

The net foreign asset positions of the same regions (expressed in terms of world GDP) are reproduced in Figure 5.

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9 Clearly, the geographical distribution of bilateral trade balances and that of net capital flows have not to coincide: one country may run a current account surplus vis-à-vis the US without capital outflows towards it or it may run current account deficits and even receive positive financial inflows from the US. Other countries, on the contrary, may have an almost balanced exchange of goods and services with the US and finance the US debt by means of current account surpluses vis-à-vis other countries. The broad patterns described in the text, however, have clearly emerged in the last decade.
The US and the Euro area have been absorbing resources from the rest of the world, that is from developing and emerging economies: this is in stark contrast with what one would expect from traditional international macro-models and represents the bulk of the so-called Lucas’ paradox.\textsuperscript{10} Part of the financing needed by the indebted countries has been provided by private investors and part by official institutions.\textsuperscript{11} In particular, Asian and oil exporting countries in the last 5 years have accumulated large international reserves and set up various sovereign wealth funds and sovereign investment authorities with the intent of diversifying investments abroad. I will come back on sovereign wealth funds in section VII and on reserve accumulation in section VIII. For the time being, it is sufficient to highlight the upward trend in the reserve accumulation recorded in several countries. Focusing on a representative sample of four countries (that is China, Japan, Russia and Saudi Arabia), Figure 6 reproduces their level of international reserves expressed as a ratio over their domestic GDP, their external debt and their total liabilities.

\textsuperscript{11} The relative importance of official flows has risen after 2001. In the period 2002-2006, net official capital inflows had been equal to almost half of the US current account deficits. Nonetheless, private foreign inflows have always remained larger than the official ones. Over the period 2002 -2006, gross private flows were about $4,697 billion and gross official flows around $1,491 billion. (Bernanke (2007))
Saudi Arabia and several other oil-exporting countries already experienced a massive boom in the level of reserves after the oil shocks in the 70s. The growth of their economies hides the fact that official reserves have recently reached levels similar to those recorded in the 70s. In the last 10 years China, Japan, several other Asian countries and diverse emerging markets have rapidly increased their reserve holdings to unprecedented levels; the Asian crisis in 1997-1998 and the rapid development of the Asian countries have certainly contributed to fasten this process.

From a domestic perspective, the current account balance of a country can be seen as the difference between domestic (household, corporate and public) savings and investments. It follows that global current account imbalances are matched by different saving and investment patterns in the world. Figure 7 reproduces the patterns of global saving, investment and current accounts in the world, in the industrial countries and in the emerging markets. Despite a throughout discussion of the issue will be postponed until subsection III.2, some observations are in order. The ratios of global savings and investments over world GDP have trended downwards since the 70s. In particular, they reached historically low values at the beginning of the 2000s. This global pattern masks different trends in diverse countries: the downward tendency in industrial countries contrasts with the upward trend in emerging and oil-producing economies. Since mid-90s, the former group has exhibited investments exceeding savings, whereas the opposite has happened in the latter. (Figure 7)

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12 In 2002, probably because of the US stock market crash and the subsequent global slack, they reached the lowest level ever.
The aggregation level in Figure 7 is large and hides the heterogeneous situation of the various countries within each group. In Figure 8, therefore, I reproduce the disaggregated data for sub-groups of selected countries. It turns out that the negative difference between savings and investments in industrial countries is mainly due to the US large and negative position, while most of global savings are accumulated in East Asia and in oil-producing countries. Even though China’s savings are larger than investments, China is one of the few countries where domestic investments have grown together with savings. Considering that Chinese savings are very large because of the peculiar historical, financial and demographic condition of the country, the overall amount of investments looks even more remarkable: gross capital formation in China fares above 40% in recent years.

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13 The data are expressed as ratio over each region’s GDP, not as a percentage of world GDP.

14 See IMF WEO (2005), Rajan (2006b) and Makin (2006) discuss the consequences of overinvestment on misallocated capital, excess capacity in the domestic sector (and the credit crunch in 2003), increasing non performing loans in the hands of domestic banks, and exchange rate undervaluation. Makin (2006) extends the analysis to a comparison with the Japanese experience in the 80s.
The peculiar condition of the US deserves closer inspection. Investments, notwithstanding large cyclical swings, have kept up since 1980, whereas savings have not. As can be seen in Figure 9, net private savings started falling in 2000 and public savings turned negative in 2002.\textsuperscript{15} The joint presence of little net savings and current account deficits led some economists to argue that global imbalances in the last 25 years might be the consequence of US “twin deficits”, as already

\textsuperscript{15} On the contrary, corporate savings, not in Figure 9, have remained very high because of high profit rates.
happened in mid-80s.\textsuperscript{16} For a series of reasons I will discuss later on, this is hardly the case for the period before 2001 and applies, at most, after that year.

![Figure 9. Current account, net savings (overall, government and private), net domestic investment in the US (% of GDP). Source: Bureau of Economic Analysis. 27 August 2007](image)

Given such evolution of the global economic conditions, it would be natural to expect that the US exchange rate underwent some important changes over the long span of time of the global imbalances. This has indeed been the case. The trade-weighted real (CPI deflated) exchange rate index exhibits an appreciation in the second half of the 90s, a depreciation from mid-2001 to 2005, and a small appreciation afterwards. This pattern, as Figure 10 shows, is mainly due to the movements of the nominal effective exchange rate of the US dollar.\textsuperscript{17}

\textsuperscript{16} See, for instance, Roubini and Setser (2004).

\textsuperscript{17} The pattern of the US effective exchange rate hides the interesting movements of the various bilateral rates. This issue is crucial in accounting for global imbalances, in drawing policy prescriptions and in the political debate. I will come back on this while discussing the conflicting relationship between the US dollar and the Chinese Renminbi.
To conclude this illustration of the stylized facts regarding global imbalances, I plot the nominal and real effective exchange rates of a series of countries for the period from 1990 to 2005.

In the Euro area, a strong depreciation from mid-90s to the first years of the 2000s is followed by a relative appreciation and subsequent stabilisation of the exchange rate. Notably, the nominal
effective Chinese exchange rate has appreciated to a very limited extent vi-à-vis the US Dollar since mid-90s.

On the basis of these stylised facts and patterns characterising the global imbalances phenomenon, I move on to illustrate the various contrasting views regarding the underlying causes and the prospective development of global imbalances.

III. A critical account of contrasting views.

III.1 The extent of the disagreement: how long is the plan or how close is the cliff?

There is no doubt that the situation described in section II represents a peculiar state of the world. Many developing countries - because of large trade surpluses (generated either by export-led growth strategies or by the persistent surge in commodity prices) and abundant private capital inflows -, have financed the richest country in the world (i.e. US) at a growing rate in the last 10 years.\textsuperscript{18} This has first happened because of foreign massive purchases of promising US stocks and then because of the foreign accumulation of remarkable amounts of international reserves in the form of low yield US treasury bonds.

This situation, in fact, is \textit{per se} neither unsustainable nor dangerous.\textsuperscript{19} Even though the accumulation of large current account deficits by the US does indicate that the country is not living within its current means\textsuperscript{20}, this could be the result of a rational optimising behaviour if a) US income is expected to grow fast in the future (as a permanent income hypothesis would suggest\textsuperscript{21}) or if b) the US enjoys a key position in the global financial markets which allows it to obtain credit in exchange of some other intangible services.\textsuperscript{22} This would mean that the US is an “oasis of prosperity”.\textsuperscript{23} The issue around which the debate revolves is whether this second description fits or not current conditions. In addition, economists and policymakers argue about whether such

\textsuperscript{18} Before 1995, US deficits were mainly financed by other industrial European countries and Japan. (Xafa 2007 p. 60)

\textsuperscript{19} The definition of sustainability I borrow is proposed by Catherine Mann. “A sustainable situation is one where the stock or flow imbalance generates no economic force of its own to change its trajectory.” (Mann (2004) p.263)

\textsuperscript{20} In fact, Backus et al (2005) argue that Americans are not living beyond their means because net worth has not fallen over time. Even though the government’s net worth has gone down, consolidated household and government net worth is above post-war average. The authors explain this fact with the large capital gains in the assets households have. If consumption increases in net worth, this also helps to explain the high US consumption rates.

\textsuperscript{21} Interestingly, the permanent income hypothesis is not expected to hold in a complete markets environment where countries share idiosyncratic risks via cross-country holding of financial assets. However, to the extent that markets are incomplete, financial integration is incomplete, some shocks are permanent and investors are risk averse, a less stringent version of the permanent income hypothesis holds. See Fracasso (2007).

\textsuperscript{22} As pointed out by Faruque et al (2006), this is one possible way of interpreting the “Lawson doctrine”. The presence of large public sectors, market imperfections and market failures, however, inhibits the straight application of the Lawson doctrine to the current situation.

\textsuperscript{23} Mann (2002) p.131.
conditions are destined to change, and, if so, when and in which way a reversal is more likely to occur.

To be sure, the attention of researchers has first gone to the underlying conditions which have led and still sustain global imbalances. Notwithstanding a prolonged and vivid debate, a large disagreement among researchers remains around numerous points. There are several possible different logic explanations of the current situation. Each refers to one of a series of different aspects that, to varying degrees, have surely played a role in the evolution of global imbalances. Among the most frequently cited, I recall the US low private and public-sector savings (due to financial innovation, US asset price inflation and household wealth effects), the global “saving glut” (due to demographic factors in rich countries, capital market imperfections in emerging markets and limited investment opportunities in developing countries)\(^\text{24}\), the allegedly misaligned exchange rates of many fast growing countries, the willingness of emerging markets to hoard international reserves, the large and persistent growth of commodity prices, and the like.

As I will try to make clear, most research has gone in the direction of evaluating whether the current situation is compatible with an optimising behaviour of rational agents. In effects, it seems plausible that, *sic stantibus rebus*, current global conditions represent a market clearing equilibrium at relatively stable international prices. This issue, however, does not solve the key problem with global imbalances, that is whether they are sustainable or not. Even situations which can be conceptualised as self-sustaining equilibrium outcomes need not be sustainable. In my view, three issues, at least, make the current situation problematic. The first refers to the way foreign credit is spent in the US. Were it devoted to investments, it would spur prospective growth and contribute to the maintenance of the current conditions. Being this not the case in the most recent years, it is possible that US current account deficits have now more to do with public and private profligacy than with investment-driven borrowing strategies. The second qualm refers to the stability and persistence of the underlying (financial, economic and political) forces that have supported the situation so far. Were they doomed to fade out, the situation would unravel. Some of the changes occurred in the last 10 years need be neither permanent nor irreversible simply because they have proved to be long lasting. The third worry refers to the possibility that, were the current conditions really unbalanced, a disorderly adjustment could begin. While these concerns do not demonstrate the situation is unsustainable, they strengthen the cautionary position of those who urge policymakers to intervene so as to avoid a disruptive adjustment process, which could be incepted by any political, economic or financial shock.

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\(^{24}\) This brief account of the global saving glut view is consistent with the investment drought view as long as net desired savings are considered.
A curious image, first used by Paul Krugman (2007) and then circulated in some financial press, conveys the current concerns regarding global imbalances. He argues that the current global economic conditions may look like the famous “Wile E. Coyote”’s runs in mid-air. Typically, Wile E. Coyote runs off a cliff and remains floating in the air until the moment he reckons his unsustainable position. Then, he plummets fast and crashes against the ground. Those who sustain, as Krugman does, that global imbalances are risky, make the hypothesis that myopic investors might have not recognised the necessary ultimate depreciation of the dollar and, thus, keep on travelling in mid-air expectations. Once they will become aware that the run cannot last, they will fall and drag the economy with them. This view needs not be catastrophic. It is possible that investors are still in time to change their minds and adjust before they start making serious losses. Let me elaborate on the metaphor. If investors see where the plan actually ends, they do not need to fall: they might take a downward slope which drives them to a new plan. In other words, there is no need of an abrupt fall in the price of US assets, but a correction on the route seems warranted. If this correction does not occur, however, an abrupt adjustment will be eventually needed because the plan, ultimately, ends.

Those who argue the current global situation is fine, instead, claim the economy cannot float in the air and the situation we observe, by definition, is an equilibrium of opposing forces. The fact that Wile E. Coyote runs in mid-air for a little while is clearly unfeasible: in the real world this cannot occur for any person would abruptly fall as soon as off the cliff. The fact the current situation is an equilibrium of opposing forces does not mean that no adjustment will ever occur; however, as long as the underlying forces will last, global imbalances will last too. The economy always runs on a plan and when the plan changes shape, the economy follows.

In fact, most contributions that conceptualise global imbalances as an equilibrium outcome that ensues some structural changes in the global economy, do not deal with the very question asked by Krugman: is the current situation on a rational-expectations saddle path? The key issue, in my view, is where the plan on which the economies run ends. Accordingly, the disagreement derives from what the various researchers look at: optimists justify the current situation on the basis of optimising heterogeneous agents which are subjects to fundamental frictions and persistent shocks (that is, they look at the plan), whereas sceptical researchers look at ‘mid-air’ (unrealistic) expectations taking for granted that an adjustment in the medium-long run has to occur (that is, they look at the cliff). Myopic investors might believe the plan is longer than it really is: the extent of their (possible) mistake determines the sharpness, the length and the speed of the adjustment in the future.
In the next subsections, I will illustrate the contrasting views on the issue. I will start from the contributions where the current situation is considered as unsustainable and, therefore, unbalanced. I will then discuss the position of those who believe global imbalances are an equilibrium outcome of opposing long-lasting forces. To conclude, I will present the contrarian views of those who believe global imbalances are the mere results of accounting standards and practices.

### III.2 The conventional wisdom: true imbalances.

The claim that the current global situation is unbalanced (i.e. the conventional wisdom) hinges, in my view, on two main arguments. The first refers to the results of traditional new open economy macroeconomic (NOEM) modelling, the other to the historical experience of countries that had large and sustained current account deficits in the past. I will illustrate these two lines of reasoning in what follows.

In traditional NOEM models, capitals move to satisfy countries’ balance of payments. The direction of these flows depends on expected returns differentials and is subsumed in the interest rate parity condition. The quantity of flows, instead, depends on the evolution of net international/intertemporal trade; trade, in its turns, stems from domestic consumption and production patterns. Consumption and production are determined on the basis of standard models of intertemporal household utility and firms’ profit maximization. Given current account deficits drive capital flows, the international allocation of financial resources ultimately descends from national investing and saving behaviours. Consumption, production and trade are also affected by the relative international prices of the goods and, hence, by the real exchange rate. It follows that the nominal exchange rate is a key determinant of the global equilibrium. Even though the speed and the extent of the transmission of exchange rate shocks vary according to presence of pricing to market, price stickiness and other sources of imperfect and incomplete pass-through, changes in the nominal exchange rate may have large effects on the trade balance. In the same token, exchange rate arrangements preventing changes to the nominal exchange rates (such as the Asian pegs to the US dollar) alter the re-balancing process that would occur through the adjustment of nominal variables. Several shocks may hit an economy and drive it off its steady state, such as productivity and preference shocks, changes in government expenditure, commodity prices fluctuations,

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25 For a standard reference see Obstfeld and Rogoff (1996).
26 Real exchange rate and terms of trade may or may not differ if i) there is home bias in consumption, ii) there are non tradable (or non-traded) goods, iii) international transactions exhibit trade costs and iv) prices are somehow sticky.
28 This is even more the case when the pegs are accompanied by monetary interventions (i.e. sterilization) which prevent nominal domestic prices from adjusting.
movements in demographic trends, oscillations in investors’ appetite for risk, changes in the degree of trade and financial openness, and the like. All of these shocks and structural changes cause fluctuations in the determinants of the current account and, thus, in the current account itself. In these models, thus, current account deficits can be conceptualised as temporary fluctuations around a long run equilibrium balance; the magnitude and duration of the swings depend on the nature of the shock and on the flexibility of the factor, good and exchange rate markets. Finally, it has to be noted that expected permanent shocks to relative productivity may generate large fluctuations in the current account in the short and medium run; the intertemporal budget constraint of each country, however, has eventually to hold and the current account has sooner or later to revert to equilibrium. Accordingly, the series of current account deficits in the US seems to defy such “gravity” law: the longer the current account balance remains in the negative territory, the more likely will occur a fast reversal in global conditions.

The second line of the traditional argument focuses on a comparative and historical analysis. Many developing countries in the past have run large and sustained current account deficits. In most cases these have been followed by sudden stops and capital reversals, which have most often led to harsh financial crises and abrupt currency depreciations. In my view, this line of argument is, though sensible, not fully convincing. The US is a large country, it does not face many of the financial market imperfections that afflict developing economies, it holds the most developed and liquid financial markets in the world, its currency is used as international reserve and it remains the destination of capitals in any flight-to-quality episode. These provisos limit the extent of a comparison between the US as it is today and the experience of small and medium size countries in the past. It remains true, however, that if international investors will withdraw their funds from the US, this will inevitably incept an adjustment process which may resemble, in several dimensions, some precedent capital reversal episodes.

Obstfeld and Rogoff (2000, 2004, 2005, 2006), Blanchard, Giavazzi and Sa (2005), Eichengreen (2004,2006a, 2006b), Feldstein (2006), Roubini and Setser (2004 and 2005), Bergsten (2005), Cline (2005), Goldstein (2005) and Krugman (2007) are some among the economists that denounced such situation as unbalanced and unsustainable. Most of them argue along the lines of the conventional wisdom. The standard analysis shows that the capitalisation of a persistent current account deficit around 7% of the GDP in an economy growing in nominal terms at a rate of 5% leads to an eventual ratio of the US net external debt over GDP far above 100%. At such a level it is

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29 Notably, the story for the trade balance is similar, yet not identical. In fact, in equilibrium, positive investment income flows (stemming from the inherited net foreign asset position) may counterbalance permanent trade deficits and produce an overall balanced current account. Clearly, even though the trade balance can be permanently different from 0 in equilibrium, its ratio over the GDP cannot grow forever.
likely that foreign investors become less willing to allocate increasing part of their savings in the
US and, similarly, US citizens get less comfortable with letting foreigners accumulate a growing
chunk of their domestic assets. Given foreign investors have to finance not only the net position but
all gross external liabilities, the argument seems compelling. Once foreign investors will realise that
the growing imbalances and a prospective US dollar depreciation threaten their accumulated
investments, they will reduce their financing (at least at the margin) and capital flows towards the
US will decline. This will make the service of the debt more and more costly since the
compensation required by foreign investors to lend money to a highly indebted country will step up.
One possibility is that this occurs gradually: capital flows slow, US dollar and US asset prices
decline, the interest rates rise, and the US trade balance improves. Another possibility is that this
evolves fast. If foreign investors will rush out of US dollar and financial assets, instead of simply
adjusting their portfolio at the margin, they will cause a sudden fall in the value of such assets and
of the dollar. This, in turn, will depress consumption and investments and reduce the external trade
deficit. A corollary is that the longer the needed adjustment is delayed, the shaper and the more
abrupt the dollar depreciation is likely to be in the future.

III.2.1 A bird-eye view on the contributions of the conventional wisdom.

Having briefly discussed the common features of the group of works which question the
equilibrium properties of global imbalances, I will proceed now with a critical account of the
differentiate position of some researchers who contributed to the debate along this line.

Barry Eichengreen (2006b) reviews four perspectives on global imbalances and starts with the
standard analysis I illustrated above. He sympathises with the cautionary view and he questions the
sustainability of global imbalances. He argues that the debt over GDP ratio that would come out of
a persistent series of US current account deficits similar to those recently recorded is hardly
feasible. This is due to the fact that a) foreign investors may find lower and lower incentives to
invest a growing share of their portfolios on claims on the uncertain US future production and b)
US authorities and citizens may eventually oppose to the possibility that a large part of the national
capital stock is transferred into foreign hands. Even though he does not take a position on the
probable nature of the adjustment process 30, he calls for an urgent management of the adjustment
process.

A similar reasoning is offered by Michael Mussa (2004) who claims that there is an upper limit
for the external liabilities beyond which external debt financing becomes problematic even for a
country as big and solid as the US. If such ceiling, expressed as a ratio over US GDP, is reasonably

30 He refers to Faruquee et al (2006) for an assessment of the different scenarios.
around 100%, as he argues, then “current account deficits of 5% or more of the US GDP are not indefinitely sustainable.” (p.114). An adjustment process is necessary and, if it will not start soon, it will occur faster and sharper in the future.

Obstfeld and Rogoff (2006) move from the assumption that a reversal in the US current account has to occur so that the economy can go back to its long run equilibrium.\(^{31}\) In their model, which includes traded (both domestically and foreign produced) goods and non-traded goods, the authors consider the pattern of adjustment generated by a switch in global demand towards the US goods. The presence of nontraded goods cum home bias in consumption requires a relatively large real depreciation of the dollar for global conditions to rebalance. They argue that the dollar depreciation due to the switch in the relative global demand can be even larger in presence of nominal and real rigidities in the good and factor markets. Policy interventions can alter the adjustment process and reduce the depreciation otherwise necessary to close the current account balance; they are, therefore, commendable.\(^{32}\) Favourable exchange rate valuation effects, instead, have only a limited impact on the current account balance. Obstfeld and Rogoff move from the conviction that, sooner or later, the US has to go back to a full balanced current account because, even if foreign investors remain willing to finance US debt for a long while, the adjustment has eventually to take place. They conclude that the day of reckoning can be postponed by deeper global capital markets, yet not avoided.\(^{33}\) I will come back on the merits and limits of this contribution in the next section.

Blanchard, Giavazzi and Sa (2005) look at US external imbalances through the lens of a portfolio balance theory à la Kouri in which the world interest rate is given, foreign and US goods and assets are imperfect substitutes and, thus, the interest parity condition is relaxed. These assumptions imply that shifts in the global demand affect relative prices of assets. They argue the US current account deficits are mainly due to two phenomena: first, an increase in the US demand for foreign goods and, second, an increase in the foreign demand for US assets.\(^{34}\) This pattern has been accompanied by a real dollar appreciation in the second half of the 90s until late 2001 and a real depreciation afterward, accelerating in the most recent years. The exchange rate plays a crucial role in their model because, besides affecting the trade balance, it influences portfolio allocations

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\(^{31}\) The authors do not try to explain the origins of the US current account deficits and note in passing that the relatively high productivity growth in the US non-traded sector may be part of the underlying causes.

\(^{32}\) The IMF in the WEO 2005 has similarly argued that if policies are not consistent with a credible strategy aimed at closing global and internal balances, expectations may not be well anchored and investors may lose confidence in the benign nature of the adjustment process. This could lead to overshooting phenomena and crises.

\(^{33}\) The authors do not explicitly model the issues relative to capital market integration and financial development. In NOEM models, as said, capitals flow to finance current account deficits, but cannot cause them. This prevents the analysis from linking current account balances and the features of domestic and international financial markets.

\(^{34}\) This change in the foreign demand of US asset is due to an increase in foreign private demand for US equities in the second half of the 90s and in a spur in foreign central banks’ demand for US bonds in the 2000s.
between the imperfectly substitutable domestic and foreign assets. The first long-run equilibrium condition they derive requires that, *ceteris paribus*, the larger the net foreign debt position of a country, the lower the equilibrium value of its real exchange rate. The assumptions of home-bias in portfolio holdings and imperfect sustainability of US and foreign assets are the key determinants of such long-run portfolio-balance equilibrium condition. The real exchange rate has important effects also on the foreign and domestic relative demand of goods according to classical terms of trade effects. In addition, unexpected changes in the real exchange rate affect the net debt position through valuation effects and their strength depends on the size of the gross international investment positions of the countries. Besides changing the value of the gross and net investment positions, the valuation effect (due to unexpected changes in the real exchange rate) tends to reduce the cost of the interest payments on the debt: this helps the adjustment process and reduces the required real depreciation. Notwithstanding this beneficial impact in the adjustment process, valuation effects cannot importantly modify the ultimate required adjustment. In equilibrium, in fact, valuation effects cannot occur and the exchange rate level has to be consistent with the stock of outstanding external debt. The second long-run equilibrium condition they derive requires that, in order to have a balanced current account, the larger the net foreign debt position, the lower is the equilibrium level of the real exchange rate: the latter has to be capable to create a trade surplus sufficient to cover the interest payments on the debt and to balance the current account. This means that both the current account balance condition and the portfolio balance condition imply a negative relationship between net foreign debt and the real exchange rate. These two steady state conditions lead the authors to conclude that, the growing US negative external position must be matched, sooner or later, by a real depreciation of the dollar. The elasticities of asset holdings with respect to their relative investment returns (which are linked to the degree of substitutability of the international assets) are crucial for the path and the speed of the adjustment process (i.e. for the dynamics of the adjustment), but not for the steady state. The real depreciation of the US dollar, therefore, cannot be avoided. Blanchard and co-authors also show that, in order to achieve both external and internal balance, the depreciation of the US dollar must be matched by other policy measures affecting domestic savings and investments in the various countries. Neither the latter can substitute the former, nor vice versa.

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35 It should be noted that the portfolio home bias is a key assumption since it justifies the long run equilibrium relationship between the real exchange rate and the net foreign asset position. When wealth is transferred from the US to the rest of the world (for instance via US debt accumulation), home bias leads to a decrease in the demand for US assets if the latter is not counterbalanced by a decrease in the level of the real exchange rate.

36 Notice that even if a gradual US dollar depreciation is expected, a valuation effect favourable to the US can take place as long as foreign investors are willing to hold US assets at a lower rate of return than foreign investments because of some intrinsic features of US assets.
Some authors, such as Roubini and Setser (2004), argue that if current account balances primarily depend on domestic investments and savings, persistent deficits can be attributed to inappropriate domestic behaviour of the US private and/or the public sector.³⁷ This reasoning entails that a large chunk of the responsibility for the current global situation remains in US hands. In particular, from 2001 onwards, US citizens have reduced their saving rates to extremely low levels and budget deficits have grown after the tax cut. These authors do not deny that the effects of the apparent US “profligacy” have been magnified by current international monetary arrangements,³⁸ the rapid growth of China and other Asian economies, and the steady growth in commodity prices. Nonetheless, the actual changes in the behaviour of private and public US agents remain key to understand global imbalances.

Even though the controversial position of the IMF will be dealt with in section VII, it is worth noticing it goes along with the positions of the conventional wisdom. Accordingly, the IMF policy recommendations to tackle the imbalances look very much similar to those suggested by the abovementioned sceptical authors.

Beside the stance that the current imbalances will create financial turbulence in world markets, there are another views according to which “the imbalances are the harmless outcome of various events such as differences in productivity growth or business cycle volatility, demographic dynamics, a ‘global saving glut’, or valuation effects.” (Mendoza et al 2007 p. 1). This list of differences, despite broad, is not exhaustive and other factors are allegedly behind the growing of global imbalances. The explanations and conceptualisations of why the world has ended up with such large imbalances are numerous and diverse. In the next section I will give an account of such viewpoints and contributions.

### III.3 The revisionist view: an equilibrium condition.

Several researchers hold a perspective on global imbalances which strays from the traditional view. In a nutshell, they argue that in an era of increasing financial globalization,³⁹ financial globalisation has contributed to create an environment in which large current account imbalances have emerged because capital has circulated relatively easily and domestic credit constraints have been relaxed by foreign lending. In addition, the growing leverage in the countries’ external positions has created an environment where valuation effects can facilitate the adjustment process in the industrial countries (IMF WEO (2005)). On the other hand, financial integration has increased the exposure to market and exchange rate volatility, as made evident by the sub-prime market and banking crisis in August 2007.

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³⁷ This is a version of the so-called “twin deficits” hypothesis.
³⁸ Under the international monetary arrangement, the US dollar is the major international reserve currency and US assets (in particular Treasury bonds) are used to accumulate international reserves. Asian countries - in the attempt of preventing the nominal appreciation of their currencies and building a self-insurance buffer in the case of capital reversals – and oil exporting countries – whose current account have been boosted by growth in the international price of oil – accumulate growing shares of US public debt.
³⁹ Financial globalisation has contributed to create an environment in which large current account imbalances have emerged because capital has circulated relatively easily and domestic credit constraints have been relaxed by foreign lending. In addition, the growing leverage in the countries’ external positions has created an environment where valuation effects can facilitate the adjustment process in the industrial countries (IMF WEO (2005)). On the other hand, financial integration has increased the exposure to market and exchange rate volatility, as made evident by the sub-prime market and banking crisis in August 2007.
rapid US productivity gains, the foreign accumulation of US assets and the large US current account
deficits recorded for a prolonged period of time represent a situation that is both logical and
sustainable. Since the US current account deficits do not represent a real threat to investors, a fall in
the value of the US dollar is neither desirable, nor necessary.

Even among these optimist economists, however, there is some disagreement. Some point
out that foreign investors have no real investment alternative to US assets because of the limited
financial development in their own countries. Others argue that emerging countries need to buy
foreign assets a) to maintain their currencies undervalued with respect to the dollar so as to
stimulate exports and, ultimately, growth and b) to self-insure against private capital flow reversals.
The disagreement about the underlying reasons (i.e. development policy versus portfolio allocations
versus financial frictions) why emerging market economies purchase US assets and why these latter
seem to have some intangible advantages over foreign assets have direct consequences on the
expected permanence of global imbalances. With this in mind, I will proceed with illustrating some
of the rationalisations in this class of contributions.

Among the first to put forward the idea that global imbalances are an equilibrium condition
given the current economic circumstances is the US Federal Reserve Chairman Ben Bernanke. In a
famous speech of his (Bernanke 2005), the governor points to the joint presence of exceptional
external conditions and particular US domestic factors as the deep reasons of the global current
account imbalances. His argument, I believe, can be summarised as follows. A great number of
concurrent forces have created a significant increase in the global supply of savings -- which he
dubs a “global saving glut” – directed to one of the most promising and safe countries in the world,
i.e. the US. This phenomenon is at the basis of the increase in the US current account deficits and,
also, of the relatively low level of long-term real interest rates in the world.40 The significant change
in the non-US saving patterns is evident in Figures 7 and 8 and is linked to the capital outflows
(including reserves) from developing and emerging market economies.41 The reasons why the world
has ended up in a global saving glut, according to Bernanke, are several. First, many developed
countries have increased savings in view of an ageing population and because of “an apparent
dearth of domestic investment opportunities”. Second, emerging markets have accumulated foreign
reserves for self-insurance reasons and to maintain relatively undervalued exchange rates to

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40 The so-called Greenspan conundrum has to do with the fact that the yields of long term bonds have remained low
even after the short term interest rates started moving up in 2005. The conundrum has probably ended in June 2007
when US long term interest rates increased, causing an increase in the mortgage delinquency rate, a collapse in some
hedge funds and a squeeze interbank monetary markets.

41 Obviously, while stressing the relative importance of global factors, Bernanke does not underplay the role of US
policies and private behaviours. Rather, he moves the focus on the global scenario to find some global sources of a
global phenomenon. See section IV on this.
promote export-led growth.\textsuperscript{42} Third, the rapid growth in commodity prices (oil in particular) has boosted current account surpluses in those countries where consumption, social spending and productive investments are historically low.\textsuperscript{43}

Bernanke also notes that “the experience of the United States in recent years is not so nearly unique among industrial countries as one might think initially” and “a number of key industrial countries other than the United States have seen their current accounts move substantially toward deficit since 1996”, with Germany and Japan as principal exceptions to the trend. “A key difference between the two groups of countries is that the countries whose current accounts have moved toward deficit have generally experienced substantial housing appreciation and increases in household wealth, while Germany and Japan--whose economies have been growing slowly despite very low interest rates--have not.” All in all, Bernanke seems convinced that a) some of the reasons for the large US current account deficits are external to the country, b) purely inward-looking policies, though useful, are unlikely to redress the problem, and c) the factors underlying the US current account deficits are likely to unwind only gradually. This stance has been often interpreted as a new form of benign neglect for the fortune of the US dollar and the global current account imbalances. While the first conclusion might be right, I do not see the second one consistent with some arguments proposed by Bernanke, such as the fact that the external and domestic factors at the basis of the current situation are somehow exceptional.

Bernanke’s viewpoint has certainly several merits but, in fact, it has been the object of some criticism. One point that has been observed by Raghuram Rajan (2006) is that global savings have not increased, but reduced over decades (see Figure 7). If global savings were responsible for the low US and world interest rates, US investments would have increased: this has not occurred. The global saving glut, therefore, would be more appropriately described as a prolonged “investment drought” episode (with the exclusion of China which clearly over-invested\textsuperscript{44}). It is possible that such a reduction in investments is an optimal response by several Asian countries to over-investment in the past, to the depressing effects of the financial turmoil in 1997-1998 and to the recognition that volatile cross-border capital flows require emerging markets to a) build self-insurance tools and b) moderate historically lax fiscal and monetary policies. Global imbalances have first arisen, according to Rajan, as “a temporary and uncoordinated response to a crisis rather

\textsuperscript{42} Bernanke claims that this export-led growth strategy should be seen as a mercantilist form of export promotion since many East Asian countries face a too narrow domestic demand. Following the 1997-98 financial crisis, many countries have high domestic rates of saving and depressed levels of domestic capital investment (at least in comparison with historical norms). This suggests that their growth strategy is mainly export-driven.

\textsuperscript{43} These three observations go almost unchallenged. The IMFC’s policy recommendations to smoothly unwind global imbalances (which I will shortly illustrate in subsection VII.2.3) clearly builds on them.

than a permanent and perverse international order”. More recently, the oil price boom and the fixed exchange rate regimes adopted by large and fast growing countries have accentuated the trend initiated in the late 90s. The process has been further boosted by the industrial (in particular Anglo-Saxon) countries that have conducted accommodative policies to respond to and mitigate the effects of the financial turmoil in the early 2000s (Rajan 2006b). These policies, as pointed out also by Bernanke, boosted consumption and lowered private savings, in particular, through credit-fuelled growth.\(^4\)

Another objection to the global saving glut view comes from the reasoning put forward by **Caballero et al. (2007)**. If savings had been so abundant in developing countries, how come that there were no asset bubbles (and even a decline) in their domestic financial markets as it usually occurs when savings massively exceed domestic investment opportunities? One possibility, they argue, is that savings in Asian and oil-exporting countries were not freely channelled to domestically productive use because of the limited financial development and the regulatory restrictions in these countries. Caballero et al. (2007) develop a theoretical model to explain three related economics facts recorded since early 2000s, that is the pattern of low real interest rates, the lasting current account imbalances and the raising importance of US assets in global portfolios (see Figure 12 for the latter phenomenon).

![Figure 12](image)

**Figure 12.** Share of US assets in Rest of the World as a fraction of domestic output and financial wealth(\%).
Source: Caballero et al (2007) fig. 1

The model represents an original framework to analyze global equilibrium and its response to shocks and structural changes. Contrary to the NOEM models, this model is designed to emphasize the role of global asset-markets rather than intertemporal consumption. This is key. While consuming and saving behaviour is highly stylised\(^4\), the authors model asset supply so as to take

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\(^4\) For a concise account on how financial improvements, increasing house prices and sophisticated financial products (such as mortgage equity withdrawal) have contributed to this, see Feldstein (2007).

\(^4\) Their simple consumption and saving function, nonetheless, requires the Ricardian equivalence does not to hold and this is not an innocuous assumption. In a non-Ricardian setting, an increase in the share of income capitalized into tradable assets increases the total supply of financial assets and affects global equilibrium allocations.
into account the limited financial development of emerging countries. These limitations turn out to shape global capital flows, interest rates and portfolios allocations.

As in a series of previous papers (such as Caballero and Krishnamurthy (2001), Caballero (2006)), the authors investigate the role of private collateral in international transactions and show the implications of the differences in countries’ ability to produce assets that can be internationally traded because backed by valuable private collateral. In particular, Caballero and co-authors consider two possible phenomena which, in their view, produce implications on the global economy in line with the three abovementioned stylised facts. They look at the effects of a collapse in emerging asset markets (such as that experienced by emerging markets in the late 1990s) and the gradual integration of fast growing economies. The idea is that when a local asset bubble crashes in emerging markets, savers look abroad for valuable investment opportunities in order to store their savings and capitals flow towards industrial countries. The integration in the world economy of countries with a different ability to generate valuable financial assets and with different rates of growth has magnifies this trend. A decline in the supply of valuable financial assets by fast growing emerging markets then tends to boost the value of US financial assets, thus US wealth, consumption and current account deficits.

This conceptualisation on how global imbalances have grown is sensible and puts the right emphasis on the protagonists of the last 15 years, that is capital flows. In a nutshell, the heterogeneity in the degrees of financial market development in different regions of the world affects the impact of global shocks and structural changes on the global allocation of goods and assets. The authors argue that heterogeneous degrees of financial developments may explain capital flow patterns: in fact, they motivate the increase in US asset demand with a collapse in emerging market asset markets, the increased integration of large and growing developing countries and the US ability to produce internationally valuable assets. These are peculiar events and this opens a few questions: how long the current condition will last? In general, emerging market’s ability to create

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47 Such private collateral has, as empirical counterpart, export proceeds. Although both focusing on the idea that collateral is key to explain global imbalances, the analyses of Caballero et al (2007) and Dooley et al (2007) are not easily reconciled given Dooley and co-authors see export proceeds as insufficient empirical counterpart and look at the gross stock of US assets as collateral. I will come back on the issue later on.

48 See Caballero and Krishnamurthy (2006) for a model of bubbles in emerging markets as the outcome of the limited ability to produce valuable financial assets. Caballero (2006) claims that the global shortage of financial assets may find its origins in the emerging market crises in late 90s and in the rapid growth rates of domestic savings in China and oil producing countries.

49 In fact, it could be argued that, because of financial repression and limited capital account convertibility, a great deal of the financial flows directed towards the US have come from emerging markets’s central banks rather than from foreign private investors. Given the behaviour of the former is hardly a substitute of the latter, the explanation offered by Caballero and co-authors does not fit equally well the various circumstances that led to accumulation of US assets in diverse emerging markets.

50 In one extension of the model the authors give account of the US relatively higher returns from FDI. By allowing for an investment margin, they rationalise FDI and the consequent asset heterogeneity magnifies the effects of a collapse in emerging asset markets on global imbalances.
valuable assets is increasing over time, financial development is improving and China seems not destined to remain “emerging” for too long. In addition, will Asian countries continue to accumulate Treasury bonds or will they start purchasing more profitable assets? The establishment of several new sovereign wealth funds seems to suggest that a change will occur. Will the US assets preserve those intangible virtues that make them preferable to the alternatives? A loss of confidence in the liquidity (e.g. credit crunch) or the reliability (e.g. following a scandal à la Enron) or the availability (e.g. for restrictions due to financial protectionism) of US assets may occur if US growth prospects change. Even though the issue is not discussed by Caballero and co-authors, the sustainability of global imbalances remains strictly linked to the occurrence of any of these shocks and to the persistence of the behaviours and features of the emerging markets which led to this point. A change in the current setting would be able to unset global imbalances and the problem of sustainability remains: it follows that if the continuation of global imbalances and the further accumulation of US deficits can incept a change in the environment, then global imbalances might ultimately be unsustainable.

Also Mendoza et al (2007) develop a model to focus on the characteristics of the US financial system. The model predicts that increased financial integration creates, endogenously, a reduction in US savings and an increase in the foreign demand for US assets. These authors do not assume differences in resources, preferences, and production functions across countries: mere differences in the structure of the domestic financial markets lead to external imbalances once financial integration overcomes a certain critical threshold. The degree of financial integration has steadily increased over time, as shown by the Chinn-Ito index plotted in Figure 13, and financial integration implies more and more countries enter the global markets and financial asset prices equalise.

![Figure 13. Financial openness index 1970-2004](source: Mendoza et al (2007).)
The authors allow for endogenous production and include both (individual) endowment and production risks. Endowment risk is beyond the control of the agents while the investment risks can be avoided: if the agents do not buy the productive asset, they do not produce and bear no risk. If asset markets were complete, agents would perfectly insure against both risks. Market frictions, however, limit the set of feasible claims in each country and agents face a portfolio choice between risky and risk free assets. Countries differ in the extent these market frictions bind and, in particular, the degree of enforcement of financial contracts varies. Countries, in fact, are diverse in their institutional, legal and contractual environments.

This rationalisation shares some similarities with the ideas of Caballero and co-authors, such as the key role of the heterogeneity of domestic financial systems. However, the financial imperfections considered in this work generate differences in the demand of assets, not in the country’s ability to supply assets. In addition, the presence of risks and uncertainty is vital whereas it is absent in Caballero et al (2007). These differences have important implications on the sources of the global imbalances. While in Caballero et al (2007) different shocks to the growth rates and/or structural changes in the country’s ability to supply valuable assets (i.e. crises) are the forces behind global imbalances, in Mendoza et al (2007) the international integration of capital markets is the underlying change that, interacting with the peculiar features of the various domestic financial markets, generates global imbalances.

Even though I will not dwell on them here, some contributions have focused on demographic differences as ultimate sources of the emergence of global imbalances. Henriksen (2005) looks at the population dynamics of the US and Japan, while Attanasio et al (2006) enlarge the scope to demographic patterns in developing countries. Demographics heterogeneity matters in

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51 Notably, aggregate shocks are absent and international risk-sharing motives do not generate cross-country asset holdings. Productive assets are internationally immobile and cross-holding of productive assets is necessary for international production.
52 This modelling choice helps to explain the composition of gross asset portfolios, not just the net foreign asset positions (i.e. the typical aspect of global imbalances investigated in most of the other works).
53 In the model, the enforceability constraint comes from the assumption that shocks are not verifiable and agents can divert part of the incomes from endowment and production at a certain cost. The possibility of agents to divert investment incomes generated abroad is a function of the environment of the residence country, not the foreign country.
54 In Caballero et al (2007) financial integration simply increases the size of the “rest of the world” (R) region which accumulates current account surpluses and finances US deficits. This different way of representing financial integration produces different results from Mendoza et al (2007).
55 Chinn and Ito (2007) find that macroeconomic attributes (such as the stage of development, the demographic profile, the legal environment and the level of institutional development) are important determinants for current account surpluses (and thus for saving and investment decisions). They conclude that data do not support the argument that the more developed financial markets are, the less saving a country undertakes. In countries with low developed legal systems and open financial markets, such as the East Asian ones, greater financial development is found to produce lower, not higher, saving. It is only in institutionally advanced countries that financial development increases savings. In Asian countries, an investment drought over the post-crisis period seems more likely to have occurred. The authors also find that the budget balance is an important determinant for industrial countries and for the East Asian countries.
the determination of savings patterns, yet it does not account for the composition of the capital flows and the portfolio allocations. For this reason, I will not discuss them in greater detail.

A few authors support the view that, besides being an equilibrium condition, global imbalances are a desirable allocation of capital in a world in which countries have different growth strategies and levels of development. In what follows, I will illustrate the contributions of Dooley, Garber and Folkerts-Landau (2007) and Cooper (2004). According to Dooley et al (2007), the Achilles heel of NOEM is the implicit and unrealistic assumption that “threats to deprive the debtor countries of gains from trade provide incentives for poor countries to repay more than trivial amounts of international debt.” In the real world, they argue, collateral is required to sustain gross capital flows and, thus, the NOEM models fail to take this aspect into account. Dooley and co-authors maintain that net capital movements between emerging and industrial countries can provide themselves a strong incentive for repayment. The argument goes as follows. Fast growing developing countries manage to generate large savings, but domestic financial markets waste a fraction of them because of limited financial development. The domestic capital stock that would come out of this weak process would be modest if part of such domestic savings were not moved offshore so as to “be intermediated by foreign intermediaries and re-exported back to the developing country through FDI”. Such trade in assets is consistent with the very large gross capital flows that produce the net capital flows and stocks at the basis of global imbalances.

Without corrections, in such a context the risks for the residents in both countries would be unbalanced because of the well known inability of sovereigns to enforce (debt) contracts internationally. Dooley and co-authors argue that governments in developing countries cannot commit not to expropriate foreign investments and need to accumulate a proper form of collateral to be able to attract foreign capital flows. The solution to the problem is the identification a credible threat to sovereign debtors that enhances the chances the repayments will be carried out. The classical incentive scheme used in the literature - based on the concession and withdrawal of trade

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56 The authors refer to the works by Eaton and Gersovitz (1981), Bulow and Rogoff (1989a and 1989b), Obstfeld and Rogoff (1996) and, despite not cited, Rose (2006b).

57 “Specifically, we have argued that net capital outflows from poor countries provide collateral to support the far larger gross capital flows between economies of different stages of development and creditworthiness that are at the heart of successful development. As a result, large US current account deficits do not generate ever-rising global risks. To the contrary, the cumulating net accounting imbalances exist to preclude the risk imbalances that would otherwise cumulate to stifle the gross capital flows.” (2007 pp. 2-3).

58 According to Roubini and Setser (2005), however, this is not consistent with the relative low private capital outflows from China towards financially developed countries since 2003. This could indicate that “China is exporting financial intermediation – attracting world’s savings and re-investing those savings in dollar assets through the PBOC’s balance sheet”. (Roubini and Setser (2005) p. 22).

59 This description of the world is consistent with the factual observation of numerous sovereign debt defaults, with the limited and pro-cyclical capital flows towards developing countries (the so called Lucas’ paradox (1990)), with countercyclical and volatile risk premia in emerging markets (See Kose et al 2006)).
and financial market access by the foreign lenders - is neither a sufficient and nor a credible threat.\textsuperscript{60} In fact, it is necessary that the countries that desire to receive foreign private flows accumulate collateral in a form that makes feasible foreign retaliation in case of default or expropriation. They argue that government’s international reserve assets could be used as collateral and, indeed, they are. Looking at actual data, they find a close correspondence between the level and growth of reserves in many emerging markets and the collateral that would be necessary to insure the gross foreign equity inflows in these countries. The analysis is consistent with the persistent and large US current account deficits, with the ability of the US to borrow at low interest rates and with the willingness of central banks to purchase US low yield assets. The story has some shortcomings and I will come back on them in section VIII.

The idea of reserves serving as collateral is not the only contribution Dooley, Folkerts-Landau and Garber have offered to the debate on global imbalances. A precedent and compatible explanation of theirs for reserve hoarding and the permanence of global imbalances puts the emphasis on the relationship between current capital flows and emerging economies development strategies. \textbf{Dooley, Folkerts-Landau and Garber (2003)} argue that the current pattern of US external deficits is consistent with a revived Bretton Woods system, which they call “Bretton Woods II”. Developing countries aim at maintaining competitive (i.e. undervalued) exchange rates so as to sustain the more productive exporting sectors and to foster growth in a measure that is sufficient to absorb the large amounts of rural workers in the industrial sector.\textsuperscript{61} Crucially, this is an optimal development strategy and it will continue as long as growth will remain an overarching goal of domestic policymakers. Accordingly, global conditions do not represent a threat to global investors and to the world macroeconomic environment but a logical development of the circumstances. They also argue that, given the size of unemployed population and peasants in many emerging countries,\textsuperscript{62} there is no serious reason to believe central banks will reduce their willingness to purchases US assets. In other words, it is unlikely, in their view, that global imbalances will unwind because of a shock in the reserve accumulating process. I will come back on this view in sections VIII and X.

An alternative, optimist view, which is commonly identified as the “new economy view”, is based on the underlying idea that the appetite of foreign investors for US claims is (and will remain) high because the rapid productivity growth and high corporate profitability in the United States

\textsuperscript{60} See footnote 47.
\textsuperscript{61} Caballero et al (2007) underplay some of arguments put forward by Dooley and co-authors. For instance, they argue that reserves are indirectly held by emerging market local private sectors through (quasi-collateralized) low-return sterilization bonds because of limited capital account openness. See also Calvo and Talvi 2006 on this.
\textsuperscript{62} The share of population employed in the agricultural sector has fallen from 70% in 1980 to 40% in 2006. (Makin (2006) p. 310).
make US investments attractive. According to such a view, “financing even a $1 trillion current account deficit, which is what a 7 per cent deficit currently implies, requires less than 15 per cent of the more than $8 trillion of gross foreign savings outside the United States. And placing that share of foreign savings in the United States is attractive.” (Eichengreen (2006b) p.647). Moreover, if US economic growth accelerates relative to its trend thanks to such foreign investments, the ratio of US net IIP over GDP is destined to grow even slower. Accordingly, the classical capitalisation exercises that do not consider such feedback of FDI inflows on US growth miss an important effect and overestimate the likelihood the situation is unsustainable. Notice, however that the condition that foreigners invest in US productive assets is, in fact, controversial. In most recent years net foreign capitals have been directed towards low yield US treasury bonds. While this has allowed the US to derive a positive net investment income despite its negative IIP (i.e. the exorbitant privilege of Gourinchas and Rey (2006) and Lane and Milesi-Ferretti (2006)), bonds are a highly unproductive investment from the point of view of the US. In addition, foreign claims on future output grow with the interest rates whereas capital flows do not produce positive effects on US productivity and production growth.

This notwithstanding, Cooper (2004) claims that, assuming a US growth around 5% in nominal terms, the US current account deficit can remain constantly equal to 500 billion dollar each year without any major problem. Given the current net investment position and assuming 5% interest rate forever, economic growth will contain the growth of the ratio of US net external claims to GDP to 46%. This upper limit will be reached after 15 year and this ratio will decline indefinitely. In Cooper (2006), the author reviews his calculations and still concludes that “viewed from the perspective of a knowledge-based economy in a globalized world undergoing dramatic demographic change”, the US current account deficit is a natural phenomenon that can last for many more years. In light of this, Cooper notes that, given gross world savings are about 8 trillion dollar, a mere 10% of them invested in the US would be sufficient to finance a current account deficit about 800 billion. Once the US size and the relative importance of the dollar are also taken into account, it is not unconceivable that the world will keep on putting 10-15% of its whole savings into the US economy. Updating the calculations in his 2004 paper, Cooper maintains that if the current account balance will remain constant and equal to 2006 current deficit also in the future, the ratio of net IIP over GDP will grow only until 2019 and decline afterwards. A noteworthy aspect of the work is that Cooper discusses just in passing the sustainability of a different case, that is the

63 They find that one third of the excess return of US assets reflects the fact that the US is a world financial intermediary: it borrows mostly in the form of low-yield dollar denominated loans and debt and invests in high yield-foreign currency denominated risks assets (such as equity and FDI). Return differentials within asset classes amount to the remaining two thirds of the total return differential.

64 See Cooper (2006).
permanence in the future of a constant ratio of the current account over GDP around recent levels. Even though he does claim that US deficits would be sustainable also in this case, the implications of this alternative scenario for assets’ ownerships are not considered. This is odd given this is the scenario maintained as unsustainable by the economists holding the traditional view. In a nutshell, Cooper’s optimist conclusions refer to a scenario where the current account deficit remains constant in absolute value and do not hold for the continuation of a current account deficits between 5% to 7% of the GDP. In such a case, projections are less rosy and financial protectionism gets more likely.

Contrary to market commentary, Cooper argues that this pattern of deficit accumulation by the US will not lead to the transfer abroad of the ownership of a large share of US capital stock. Even though foreigners will certainly own more of the US capital stock, this will not create any serious transfer of ownership given the several layers of financial assets above capital stock the US has: the ownership of about 20% of capital stock in net terms is worth less than 10% of total US financial assets. A related reasoning is put forward by Backus et al (2005), who argue that non-residents will eventually own a larger share of claims on the US economy, yet this will not reduce the value of US net worth given the projects in which domestic and foreign funds are invested are highly profitable. As said, this is reinforce by the fact, as Cooper stresses, that since foreign capital inflows allow the US capital stock to increase, they enhance US growth and, in so doing, help to make the net IIP more sustainable.

This reasoning is also consistent with the conclusions of Bonatti (2006). In his unbalanced growth model, he shows that, even in a world of perfectly integrated good and capital markets, heterogeneous equilibrium rates of productivity growth can support persistent current account deficits in the fast growing country. The increase in the long term GDP growth due to capital inflows from the slow growing economy enhances the ability of the receiving country to sustain its external debt. The empirical papers which look at this rationalisation, on which I will come back later, show that while it cannot account for the post 2000s global economic conditions, it has certainly a lot to do with what occurred between US and UE in mid and late 90s.

Eichengreen (2006b) objects to some points in Cooper’s reasoning. Eichengreen’s main reservations are: a) the high US attractiveness may reduce, yet not eliminate the US external funding concerns in the long run, b) Cooper’s description of foreign flows is in contrast with the fact that foreign resources are concentrated on US debt securities, and not FDIs or stocks, c)
productivity growth is higher in many emerging markets than in the US, d) in past years, it was not US investments to grow but US savings to fall, e) most of the external finance has recently come from foreign central banks, not from allured private investors, f) the US net investment income from abroad is positive and this signals that US investments abroad are still more productive than foreign investments in the US. If, as argued, this is due to the fact that US assets are growth (i.e. “potential”) stocks (because they entail returns that have not yet materialised), then it is hard to see why investors recently put their money into US debt rather than US stocks and why the US returns have been systematically lower than the foreign ones. In addition, even if the new economy story was right, this would not change the stringency of the long run inter-temporal budget constraints in the conventional view: the accumulation of net foreign debt will eventually make harder and harder to sustain persistent US external deficits and some adjustment will have to kick in.

An alternative optimist view (that Barry Eichengreen refers to as the “savvy investor view”) is put forward, for instance, by Kitchen (2006). In a nutshell, the argument is that US-owned foreign assets provide higher returns that foreign owned US assets because US investors are more savvy than foreigners (and also because the dollar has so far depreciated against many currencies). Since this situation is likely to be preserved and the differential between the US capital gains and the foreigners’ capital losses is likely to continue, there is no reason to worry for an abrupt unravelling of global imbalances. The capital gain differential will tend to reduce the value of the US net external debt even if the current account will remain (moderately) negative. The standard view, neglecting these considerations on returns differential, predicts a too high level of debt over GDP: this weakens the claim that current condition are unsustainable. Even though Kitchen’s observations were right and the return differential were destined to last forever, the reasoning does not eliminate but only postpone and reduce the size of the ultimate adjustment. In fact, it would require a huge differential to offset the negative impact of current account deficits on the net IIP. In addition, such a rosy scenario depends on the maintenance of return differentials as large as those in the last years: this would imply more a “dumb foreign investor” story, than a “savvy US investor” view. Certainly, this view remains compatible with the idea that US assets provide implicit additional services to foreigners and that part of the return differentials is due to the limited substitutability of foreign and US assets. These explanations, however, are not sufficient to account for the differential between the returns on all US foreign assets and liabilities. In addition, while it is not hard rationalising why US FDIs abroad had outperformed foreign FDIs in the US in the last 10 years, is this superiority destined to last? Will the US assets continue to provide their embedded

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66 The productivity differential story is, in effects, most valid for the different current account trends in developed economies, such as US, Japan and UE.
services even if an adjustment process will kick in? Will EU, Swiss and Japanese assets remain on a side? The persistence of the underlying forces, in my view, remains an unaddressed, yet key, issue.

**Engel and Rogers (2006)** tackle the issue with both a traditional and innovative approach. The authors investigate whether the US current account deficits can be consistent with plausible assumptions and an intertemporal optimizing behaviour. They develop a long-run world equilibrium model where countries are expected to grow at different rates: this differential alters the future shares of world GDP with respect to the current ones. The current account of each country, in its turn, is determined by the expected discounted present value of its future share of world GDP relative to its current share. They conclude that the US current account deficit in 2004 is consistent with some plausible assumptions regarding the (long-run) future US growth relative to the other advanced countries.\(^{67}\) One interesting problem remains: the dynamics of the current account deficit since mid-90s are harder to explain than its value in 2004. In particular, the maximum value of the US current account dynamics should have been observed at the beginning of the period of expected growth, not in recent years. The actual pattern cannot be explained under the assumption that expectations of future US growth follow a Markov-switching model for predicting net GDP shares. On the contrary, the expectations derived from survey data on forecasted GDP growth in the G-7 countries make the predictions of the model consistent with the actual evolution of the US current account balance in the last decade. The intuition is that markets underestimated the brilliant performance of the US economy relative to the rest of the advanced countries and this has led to a gradual emergence of the US current account deficits. This might explain why the current account deficit have reached the apex so late.\(^{68}\) The increased access of foreign investors to US capital markets has contributed to boost cross-country lending. As the authors admit, there is not role for emerging markets in their analysis; this limitation makes the analysis more relevant for the late 90s than for the 2000s. It is interesting to notice that this work conceptualises global imbalances as an equilibrium situation under the assumption of a relatively high future US growth but, at the same time, shows that their actual dynamics can be accounted for only if past expectations of future US growth had been systematically lower than the actual data. Notice this contrasts with the new economy view which, instead, revolves around optimistic expectations about future US growth in the second half of the 90s.

\(^{67}\)The reasoning echoes the reasoning in Cooper (2004) and Bonatti (2006)

\(^{68}\)In addition, the authors recall the facts that consumption takes time to adjust, the relaxation of credit constraints for many US households occurred after 2001 and the widening of US budget deficits started in 2001 too.
I believe these findings can be related to the “Wile E Coyote” syndrome described by Krugman: too pessimistic expectations may account for the growth of the current account deficits in the past and, maybe, too optimistic expectations about the future US conditions and future US dollar value for its recent continuation. Engle and Roger (2006)’s paper, under this light, links the traditional to the revisionist view: current account imbalances may be the fruit of optimising agents with incorrect\textsuperscript{69} expectations.

Among the economists who support the view that global imbalances come from an efficient allocation of capital, a few push the reasoning even further and argue that, in fact, global imbalances are the result of imprecise, outdated or ill-conceived accounting practices. I will describe such positions in next subsection. The reason for dealing separately with these views is illustrative. Many of the ideas these authors put forward are implicitly accepted and employed by economists in favour of the equilibrium view. Given the harsh criticism these positions have heaved, it is not so common to find explicit references to their works and it is hard to juxtapose them with other positions. For this reason, I treat them separately.

**III.4 The contrarian view: any problem at all?**

Besides showing that US deficits accumulation is feasible and sustainable under a certain perspective (see subsection III.3), Cooper (2006) tackles the common contention that Americans save too little for future generations. Cooper argues that once R&D, expenditures in education and durable consumption are included among investments rather than consumption, the ratio of US

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\textsuperscript{69} Expectations need not be biased, just incorrect.
saving is approximately equal to 34% of US GDP. Therefore, accounting practices bias the evaluation of actual saving behaviour.

Other authors claim that current statistical and data collection practices have direct consequences on the perception that a global imbalances problem exits. A lively discussion, for instance, has been raised by a provocative and ingenious paper by Hausmann and Sturzenegger (2006). In this work Hausmann and Sturzenegger argue that current account statistics provide a poor indication of the actual evolution of US net foreign assets. This is due to a series of factors related to a biased accounting of net capital gains in the current account estimates. To prove this, the authors show that, despite the US accumulated current account deficits in the period between 1982 and 2005 amounted to $5.27 trillion, in 2005 the net return from the US IIP was equal to $17.6 billion, that is just half of the $30 billion the US obtained in 1982 when the net IIP was positive (i.e. $329 billion). The main reason of the inconsistency between the large accumulated deficits and positive net returns is that capital gains on net foreign assets have modified and improved the US net IIP in a way that is not fully accounted for by official statistics. In fact, part of the capital gains are considered in the official IIP statistics: the BEA corrects the US net IIP to take into account both the valuation effects coming from exchange rate fluctuations and other capital gains not recorded in the balance of payments statistics. This adjustment adds some $2.25 trillion to the total US net foreign assets, which are equal to -$2.69 trillion instead of -$4.94 trillion.

Notwithstanding such correction, an inconsistency remains between the US net investment position (which depict the US as a debtor country) and its positive investment income. Hausmann and Sturzenegger claim that two phenomena are responsible for such apparent inconsistency. The first one is that US foreign assets are not properly measured. In particular, US FDIs are more productive than foreign FDIs in the US since US FDIs benefit of home expertise and know-how, which are transferred to affiliates abroad even though they are not properly “exported”. This implies that the BEA current value correction of the value of FDIs is incomplete: the underestimation of the stock of FDIs (and, therefore, of net IIP) remains large even after the adjustments of the BEA. The authors argue the main reason is that the BEA treats US and foreign FDIs as equally productive while calculating their current values. The second phenomenon which

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70 See Section II and Appendix B for a deeper treatment of this issue.
71 In particular, the BEA corrects the book value of FDIs. In the baseline data it uses an evaluation at the current cost. In an alternative evaluation it corrects asset values for the stock market performance and in this way it obtains an estimate of FDIs at market value.
72 In the period 2000-2005 this adjustment leads to a deterioration of the US international position equal to $1.3 trillion, instead of the $3.26 trillion of cumulated current account deficits.
73 This is the sum of the cumulated deficits in 2005 minus the positive net IIP in 1982.
74 The fact that the US looks as a debtor country even tough it continues to receive positive investment income has made several economists (such as Cline (2005) and Gross (2006)) think that the US IIP and current account statistics might be inconsistent. Few authors, however, who, however, go as far as Hausmann and Sturzenegger.
75 This reading of the FDI return differential is consistent with the “savvy investor view”.

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explains the discrepancy between net investment position and income is that, considering all forms of returns (i.e. bond yields, dividends and capital gains), there seems to be a persistent *ex post* return differential in US and foreign assets. This allows the US to draw a positive net income stream from a negative net foreign investment position.\(^{76}\)

The existence of a return differential on the US international gross assets and liabilities is known in the literature since early 2000s.\(^{77}\) Hausmann and Sturzenegger, however, use this observation for a more general purpose and assume such a differential to be an equilibrium phenomenon, which depends on some intrinsic virtues entrenched in the US assets. In particular, the latter offer to foreign holders some embedded services in addition to their explicit yields. According to the authors, the capitalised value of such embedded services should be added up to the US net IIP in the same way the capitalised value of the returns from intangible assets are calculated in national accounting. Hausmann and Sturzenegger call *dark matter* the difference between the net IIP measure calculated with the capitalisation of net returns differential and the net IIP position as currently recorded by the BEA. Using the adjusted net IIP values to derive the current account (which is the difference between two consecutive net IIP, however calculated), the authors find an “adjusted current account”, which includes the implicit exports of such intangible embedded services.\(^{78}\) It turns out that the US adjusted current account is positive and the adjusted US IIP are positive too. Accordingly, they conclude global imbalances are not as bad as many pundits think and the US is not a debtor country.

On the basis of these findings, the authors try to identify the nature of these embedded intangible exports. The implicit services of US (but also of Swiss or German) bonds are a) insurance (holding US bonds represents an insurance instrument in volatile countries) and b) liquidity (holding US dollars allows emerging economies to participate in global markets).\(^{79}\) The implicit services in the US FDIs are, as said, expertise and know-how. The price of all these embedded exports is the negative return differential that foreigners are willing to bear in order to invest in US assets.

The authors concede that other sources of dark matter are possible. Some could come from aid flows or debt relief in some countries. Furthermore, as argued in Dooley et al. (2004), US asset accumulation allows peripheral countries (with export-led growth strategies) to keep undervalued

\(^{76}\) Curiously, Higgings et al (2005) and Gourinchas and Rey (2006) differ widely in their conclusions on which classes of assets are characterised by the larger and more persistent return differentials. The former point at FDIs (among fixed-income securities, i.e. government or corporate bonds, banking and other interest-paying claims, equities, and FDIs) as generating most of the positive income stream. The latter, instead, consider a more comprehensive measure accounting for capital gains and find that there are large differences in all assets, but FDIs.


\(^{78}\) Hausmann and Sturzenegger refer to Ulan and Dewald (1989) for this way of computing the current account.

\(^{79}\) When foreigners hold US currency, i.e. dollars, the US current account deficit is financed through seigniorage. When they hold low yield US bonds, instead, it is an unmeasured provision of financial liquidity services.
their exchange rates. These countries may also purchase US assets at lower expected returns because these assets guarantee a) the access of their products to US good markets and b) serve as collateral to US gross FDIs (as pointed out also in Dooley et al (2004b)). To a certain extent the dark matter hypothesis seems consistent also with Caballero et al (2007), which link the current imbalances to a form of financial backwardness in fast-growing countries. Since these countries cannot write claims on productive assets, their residents are forced to buy foreign assets with their savings.

Hausmann and Sturzenegger find that bilateral dark matter is statistically related to some of these alleged causes. In addition, once dark matter is taken into account, global net international investment positions appear to be relatively stable. The US turns out to be an exporter of dark matter and this is responsible for the accumulation of positive (not negative!) net foreign assets. Intangible service exports, in other words, offset the deficits in the ‘traditional’ trade balance. Hausmann and Sturzenegger claim that US exports of dark matter are steady and large enough to keep the US net asset position stable also in the future: global imbalances, besides not being present, are also unlikely to occur in the future.

Commenting such provocative paper is as hard as refraining from doing it. The proposed revisions to the accounting methods to derive the net IIP and the current account measures are important and challenging. The paper, in addition, follows the recently fashionable approach to take into account various valuations effects and this makes it compatible with the intuitions of other researchers. The paper, however, remains rather unconventional because of the choice of capitalising the return differential as a way to calculate the embedded services provided by US assets and liabilities. I will start with pointing out two aspects of Hausmann and Sturzenegger’ exercise I deem controversial. First, I am not convinced it is correct to capitalise the return differentials in all countries, in particular those exhibiting high volatility. As emphasised by the authors themselves, the return differential need be an equilibrium condition to be correctly capitalised. The high volatility of returns and exchange rates, by definition, violates this essential requirement. It follows that the conditions for the capitalisation of the return differential may hold when large regions of the world are considered, but not for every country. Second, the capitalisation exercise directly transmits the volatility of the underlying economic differentials to the adjusted IIP.

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80 I will come back on this in section X when I will discuss the so-called “Bretton Woods II” system.
81 In Hausmann and Sturzenegger’ words these countries “would be ‘purchasing’ the access to the US market, another form of trading dark matter.”
82 The US operates as financial intermediary which borrows in low yields-low risk assets and invests, provided valuable collateral exist, in the high yields-high risk activities.
83 This occurs also because central authorities intermediate most of purchases of foreign assets.
The stock of foreign assets becomes more volatile than usual: this is bizarre and at odds with the very “sluggish” nature of stock variables.

To meaningfully capitalise the return differential, it is important that the former is constant over time so that its annual fluctuations do not cause large variations in the capitalised stock of net assets. Yet, is this the case? The persistence of such differential cannot be taken for granted and the very same worries of those supporting the traditional view apply also here: how long can current conditions (and their underlying forces) last? As I tried to make clear since the beginning of this work, the main contentious point is the sustainability of global imbalances, not their plausibility. The dark matter explanation seems more focused on the latter than on the former. In fact, even if this explanation manages to capture and “quantify” some of the features making the US assets so attractive, it does not provide a useful measure to assess the sustainability of the system. Imagine that, for some reasons, foreigners have already accumulated enough dark matter deficits; they will stop buying US assets until the return differential will be reduced along with the diminished demand of intangible services embedded in the assets. This change worsens the US current account (both the traditional one – via lower investment income transfers - and the dark matter ‘adjusted’ one) and lowers the US net international investment position.84

This scenario of gradual adjustment follows an exogenous fall in the demand of dark matter. However, in my view, it does not take into account the endogeneity in the supply of dark matter. The value of the alleged intangible services provided by the US currency and bonds is not intrinsic in the assets but stems from the widespread recognition of their qualities. If the US public debt becomes riskier because of its growing size, or if central banks start substituting the Euro for the Dollar as major reserve currency, the services embedded in the US assets lose part of their attributed value without any fall in the world demand of “dark matter” services. The permanence of global imbalances and the occurrence of some shocks, therefore, may incept a vicious circle that spoils those peculiar features of the US assets that, according to Hausmann and Sturzenegger, are currently exported as intangible embedded services. Put another way, if dark matter is what sustains the global system, any adjustment that undermines the intangible values of the US assets may seriously affect the equilibrium conditions.

The capitalisation of the net return differential carried out by Hausmann and Sturzenegger hinges on the assumption of an unchanged confidence in the stability of the US economy, in its ability to provide insurance, internationally accepted and liquid assets. Yet a multiple equilibria environment seems more plausible to me: as long as the US economy will be considered stable by foreign investors, it will manage to export enough dark matter to finance its tangible consumption;

84 If this change is accompanied by a US real exchange rate devaluation the trade balance may improve and a positive valuation effect may partially offset the worsening of the net IIP.
once the accumulated exported dark matter will become excessive and will weaken foreigners’ confidence, the system will unravel.

Furthermore, following Hausmann and Sturzenegger’s reasoning, the reduction in the EMBI spreads and emerging market volatility after 2002 should have reduced the US exports of dark matter: in such an environment the insurance services embedded in the US assets should have lost part of their importance. This, in fact, has not occurred. A plausible reason is that, at that time, oil exporting and Asian countries started accumulating foreign reserves in the form of US treasury bills for purposes that differ from self-insurance. As different countries accumulate reserves for different reasons at different times, the determinants of dark matter exports change over time too. This shows that each of them is likely to eventually come to a halt: there is no certainty a new force will compensate the fading one.

In light of this, it could be concluded that the question of sustainability is not answered by Hausmann and Sturzenegger, yet simply transformed: how much exported dark matter is enough and how persistent are the forces supporting its supply and its demand?

The dark matter view has been severely criticised along other lines that differ from the considerations I offered above. Buiter (2006), for instance, attacks both the stock and flow measures used by Hausmann and Sturzenegger. In addition, he rejects their capitalisation method and the idea that past *ex-post* return differentials can be taken as a guide to future expected returns. Eichengreen (2006b) highlights three main weakness in the dark matter argument. First, the low returns on US assets may be due to the temporary anti-deflationary policy the Fed put in place after the financial crisis in 2001. This lax condition is not likely to last, also because the accumulation of public budget deficits will contribute to raise the yields of public bonds in the future. Second, Eichengreen stresses that the dark matter view is inconsistent with the “new economy” view, thereby foreign investors deal with US investments as growth stocks. While Cooper (2006) claims that the US would be lucky if foreigners will continue to invest in US assets, since this would ultimately increase the US capital stock, this process would amount to a reduction in US dark matter exports. When the return differential will start shrinking, dark matter will decline too. Third, net income payments are probably recorded with error as much as current accounts and the net IIP are. This contention is discussed at length by Gross (2006), who argues that data on US investment income receipts and payments are both biased.

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85 With the exception of the liquidity services due to seigniorage earned on the stock of US currency held abroad.
86 Buiter claims that the dark matter analysis “is tantamount to discounting risky returns using a risk-free discount rate” (2006 p.8).
87 This point is made also by Buiter (2006) and Gross (2006).
Gross (2006) argues that the huge difference in the returns on foreign FDIs in the US and US FDIs abroad is mainly related to a persistent differential in the reinvested (or retained) corporate earnings as reported in the balance of payments. The latter are not cross-border investment income flows because, being retained, do not “flow” abroad, as dividends or interests do. Because there are no international flows to be recorded in the balance of payments, the official IIP data on reinvested earnings are calculated from the reports of the profits made by the individual companies abroad minus repatriated profits: as long as firms have an incentive to underreport their profits in the US so as to reduce their tax liabilities, official data on foreign reinvested profits in the US tend to be lower than their actual values. Since retained profits correspond not only to implicit investment income flows, but also to further investments abroad, the double entry system of the balance of payments creates two distortions. The underreport of foreign profits in the US makes i) the current account look better and ii) foreign investment positions in the US look smaller. Balance of payments statistics, thus, draw an image of the US condition that is even better than it really is: smaller current deficits and a larger net investment position. Gross (2006) points out that some other items in the official statistics are calculated in a way that biases the interpretation of important sub-items of the investment income position: in the end, cross-border payment flows statistics (in the balance of payment) and international investment position statistics draw on different data sources. The BEA tables (reported in appendix B) on the components of changes in the net US international investment position over time reveal that the item “other changes” (such as those linked to data revision, change in coverage and adjustments in the value of the IIPs) are responsible for a large proportion of the overall change in the net IIP. Data revisions are indeed due to the fact that data on financial flows and IIP come from different sources and need to be reconciled \textit{a posteriori}. The item “other changes” is, in the end, the difference that reconciles the official data on the IIP with the capital flows recorded in the balance of payments. Large data revisions indicate that the data collection process suffers some serious problems and the series used in the current account and net IIP are inconsistent. Notably, the conclusion Gross draws from these observations is that a correct interpretation of the official statistics of the US current account and net investment position indicates the US is a debtor (and not a lender, as argued by Hausmann and Sturzenegger) and its position unsustainable.

For instance, “a share of a US companies held by a European would thus not appear in the US net IIP if the share is not held with a US-based custodian. But the purchase of the share would have been recorded in the balance of payments as a flow in the year the purchase took place.” (2006 p. 254). A similar reasoning holds for the foreign ownership of the real estate.
IV. At the origins: the forces sustaining the process.

To summarise some of the explanations for the occurrence and maintenance of global imbalances, I will follow Barry Eichengreen’s account (2006a). The first view I consider is what he defines as the “deficient U.S. savings view”. This consists in the idea that low national savings rates in the United States are the crucial determinants of US current account deficits. In their turn, low household savings are the consequences of low US interest rates and high private wealth (grown thanks to capital gains in the stock and real estate markets). Negative public savings, instead, are the result of a somehow lax fiscal policy the US government has implemented since 2001. The “new economy view” (Cooper (2004) and (2006)), instead, is based on the idea that the attractiveness of investment in the United States has driven large foreign capital inflows, in particular in the second half of the 90s. The “global savings glut view” (Bernanke (2005)) supports the hypothesis that the main factors behind global imbalances are the high saving rates in the rest of the world. The “investment drought view” (Rajan (2006)) differs from the “global saving glut view” in that low investment rates in the rest of the world, and not high savings, are responsible for the large capital flows in the US. The view that Eichengreen dubs as “Sino-American codependency” includes different explanations, all hinging on the peculiar economic relationship between Asian countries and the US (Dooley et al (2003), (2004), (2007)). This set of explanations focus on the fact that Asian countries have changed their development strategy since the crisis of 1997–8 by reducing both domestic demand and investment rates and by accumulating reserves as a way i) to keep the exchange rate undervalued and ii) to self-insure against private capital flows reversals. Other rationalisations refer to the presence of capital market imperfections in fast growing (both in economic and demographic terms) emerging markets as the key determinant of global imbalances. (Caballero et al (2007), Mendoza et al (2007), Dooley et al. (2007)) Accordingly, I dub them “financial underdevelopment view”. Since developing countries strive to produce marketable assets because of some deep institutional weaknesses and domestic financial frictions limit the extent of domestic financial intermediation, savings are directly or indirectly sent abroad to diversify the risk and to maximise expected returns. The US plays the role of a financial intermediary which gathers such savings and reinvests part of them in high risk investments in the countries where they come from.89

These views are not necessarily in contrast one with each other. Bernanke, for instance, provides an explanation for the occurrence of global imbalances in the late 90s that, I think, is a

89 As noted by Eichengreen (2006a p. 9), this explains the direction of gross capital flows between Asia and US, not the size of the US current account deficits. Some additional explanations are necessary to account for both facts.
combination of a revised “new economy view”, the pure “global savings glut view” and an amended “low US savings rate view”. In the late 90s, the rising US productivity, the development and the adoption of new technologies, together with the US “long-standing advantages such as low political risk, strong property rights, and a good regulatory environment, made the U.S. economy exceptionally attractive to international investors during that period” (Bernanke (2005)). Such US favourable conditions\textsuperscript{90} and the fact that investment opportunities were smaller than savings in the rest of the world led large capital outflows from these countries towards the US (Bernanke (2005) and Rajan (2006)). These latter fuelled a remarkable growth in the US stock markets and a steady appreciation of the US dollar. The latter contributed to deteriorate the trade balance, which was already negative since early 90s. After the Enron scandal, the stock market collapse and the attacks on 9/11, things have profoundly changed. Even though the overall impact on the US current account of the new conditions has not changed, “the transmission mechanism changed” (Bernanke 2005) both within and outside the US. New capital investment waned around the world, monetary policy in many countries was relaxed to provide liquidity to the financial markets stressed by a series of large negative shocks and the real rates of interest fell almost everywhere (leading to the so-called \textit{Greenspan conundrum}). The low real interest rates, taking the place of high stock prices, became the main cause of lower US savings. The market for residential investment boomed because of low mortgage rates: the consequent positive change in the values of the houses offset the negative wealth effects related to the stock-market crash. Such strong gains in housing prices, in turn, led consumers to increase borrowing and spending. Developments in financial intermediation, securitization and financial innovation contributed to this trend since they magnified the impact of wealth gains on consumption.\textsuperscript{91} Furthermore the US government, in order to prevent the economy from falling into a deflationary trap in 2002-2003, increased public-sector expenditures, reduced taxes and worsened the budget deficit: in so doing, it contributed to the deterioration of net domestic savings and, \textit{ceteris paribus}, of the current account.\textsuperscript{92}

Many views, admittedly, put a great emphasis on the US determinants of global imbalances because industrialised countries have been affected in different ways by the same changes in the global economy and in many developing countries. This makes important to look at US specific conditions to understand why the US has been affected the most by the changes in global investment and saving patterns and this is the reason why the “US savings deficiency view”, even

\textsuperscript{90} This view is consistent with Mann(2002) and Cooper (2004).
\textsuperscript{91} See Feldstein (2007) on this aspect.
\textsuperscript{92} Budget deficits are neither the unique nor the main cause of US current account deficits. First they cannot explain global imbalances before 2001. Second, they cannot explain, \textit{per se}, the decrease in US and global interest rates, given the impact would have been the opposite one.
though not capable to explain a global phenomenon, has some merits too.\textsuperscript{93} Bernanke clearly claims: “That inadequate U.S. national saving is the source of the current account deficit must be true at some level; indeed, the statement is almost a tautology. However, linking current-account developments to the decline in saving begs the question of \textit{why} U.S. saving has declined.”(Bernanke 2005). I think the correct approach is to relate this decline to variations in US household behaviour, to modifications in the economic policy in the United States, and to the structural changes and shocks occurred outside the United States, in particular in East Asia.

Focusing on the domestic determinants of current account deficits, \textbf{Bems et al (2007)} investigate which US internal factors were driving forces of the deterioration of the US external balance.\textsuperscript{94} Structural shocks can explain up to 30\% (at 12 quarters horizon) of the deterioration and subsequent reversal of the US trade balance in the 80s, but fail to account for the worsening in the trade balance in the second half of 90s. These findings suggest that external factors may be important to explain the evolution of US current account dynamics over time. Given the timing of the events, Bems and co-authors exclude Chinese reserve accumulation (which started only in 2001) and petrodollars (which became relevant after 1999) as relevant external factors. Since 2001 onwards, productivity improvements and fiscal and monetary policy easing seem to have played an important role in the maintenance and in the growth of the current account deficits.\textsuperscript{95,96}

\textbf{Hunt and Rebucci (2005)} and \textbf{Faruqee et al (2006)} conduct simulations based on multi-country, multi-sector models with nominal rigidities which encompass both typical features of NOEM and factors which relate to capital flows. Hunt and Rebucci (2005) find that productivity is a co-determinant of the US real exchange rate appreciation and the trade balance deterioration in the second half of the 1990s. However, it turns out that a portfolio preference shift in favour of US assets is necessary to give a better account of the data.\textsuperscript{97} Faruqee et al (2006) look at the determinants of global imbalances since early 2000s. They consider the expansionary US fiscal policy, the declining US private savings rates, the increase in the foreign demand for US assets, the productivity growth in emerging Asia, the sluggish productivity growth in Europe and Japan and the growing export competitiveness in emerging Asia. In the baseline scenario, global imbalances

\textsuperscript{93} Several researchers, among which Corsetti and Muller (2006), Backus et al (2005), Erceg et al (2005), argue that the fall in the US savings adds up, yet cannot explain global imbalances and the low interest rates.

\textsuperscript{94} Several separate VAR on US data over the period 1982:2 to 2005:4 are used to identify structural shocks which determine the US business cycle. The analysis shows that a multi-factor productivity positive shock has a negative impact on the current account, an investment-specific technology shock has a relatively small negative impact, fiscal revenue and spending shocks have a negative impact, and a monetary policy shock has a positive and very small impact.

\textsuperscript{95} Oddly, the stock market bubble is a domestic US phenomenon which is not taken into account in their analysis.

\textsuperscript{96} Erceg et al (2005) show that budget deficits have a relatively small effect on the US trade balance and this is in line with a limited role of fiscal factors in making for global imbalances.

\textsuperscript{97} In addition, some uncertainty and some learning about the persistence of the shocks on productivity and portfolio preferences is necessary to explain the actual pattern of the data. This is somehow in line with Engle and Rogers (2006).
can be attributed to a combination of several phenomena, that is exogenous shocks and structural changes both in the US and abroad.

In the attempt to theoretically account for the occurrence and maintenance of global imbalances, Blanchard et al (2005) analyse the effect on global allocations of two separate unexpected shocks, that is an increase in the US relative demand of non-US goods and an increase in the foreign demand of US assets. These shocks entail the same long run real depreciation of the dollar, but very different short run dynamics. The financial shock is characterised by the appreciation of the US dollar in the short run, followed by a far larger subsequent depreciation, whereas the demand shock causes a gradual depreciation of the US currency. None of these two effects alone is able to explain the occurrence and maintenance of global imbalances over the last 15 years. The first cannot account for the increase in the US dollar until 2001. The second cannot explain that part of the current account depreciation which is not a consequence of the appreciation in late 90s. Their combination, in contrast, represents a possible explanation of what has been observed. Crucially, both shocks entail a US dollar depreciation in the long run that remains the long run equilibrium condition of their portfolio model, illustrated in section III.2.1.

These empirical and theoretical findings suggest that the determinants of global imbalances may have switched over time. From this viewpoint, the various contributions focusing respectively on global factors, on the US situation and on emerging markets’ conditions should be seen as complements rather than substitutes. Each of the views I illustrated in section II seems to have some merits and some flaws. In particular, none seems to be valid over the whole period. This point, I believe, is one of the main message one can draw from Bernanke (2005)’ speech. Despite its message being commonly identified with the “global saving glut view”, Bernanke does, in fact, account for diverse and compatible explanations of the US current account dynamics and he claims their relevance has changed over time. One set of explanations can help accounting for the evolution over the period between 1996 and 2000, while another set applies to the years after 2000.

More than one story can be valid for the same period of time, yet diverse stories are necessary for different periods. In a nutshell, the discussion can be summarised as follows. While in the late 90s the attractiveness of the United States as an investment destination was due to the technology boom and its expected effects on productivity, to the depth and sophistication of the country's financial markets and to the international status of the US dollar as vehicle currency, after 2000 the driving forces of the persistent US current account imbalances are the large US

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98 I have not included the “dark matter view” as a proper account of the sources of global imbalances in this section. The reason is twofold. First, Hausmann and Sturzenegger ultimately claim there are no global imbalances. Second, the alleged sources of “dark matter” are present also in other views.

99 This is consistent with Barry Eichengreen (2006a) who argues that several explanations are all parts of a larger story since each of the shocks hitting US and foreign investment and consumption tends to affect the other three.
government deficits and the expansionary monetary policy, the US residential market bubble, the increase in the international commodity prices, the accumulation of international reserves in East Asian and oil-exporting countries, and the persistent exchange rate misalignments associated with a large scale trade liberalisation process.\textsuperscript{100}

V. Looking ahead: plausible scenarios.

Even assuming the forces illustrated in previous subsections are those that created and still sustain global imbalances, some issues remain open. The sustainability of global imbalances requires not only they are an outcome of rational decisions of optimising agents, but also the permanence of such underlying forces. Clearly, if the forces underlying global imbalances are not permanent or their consequences are politically unsustainable, an adjustment process will be likely to take place sooner or later. The pattern of such an adjustment process is the object of this subsection.

Whether global imbalances are sustainable or an adjustment process will materialise ultimately depends on whether the policy and structural changes that led to global imbalances are likely to last. Some researchers are optimist. Dooley and co-authors (2007) claim the Asian hunger for US assets will not abate given that exchange rate manipulation and collateral accumulation remain crucial concerns of the authorities. The international differences in the degree of financial development and the US enduring advantage in intermediating world savings (see Caballero et al (2007)) are also likely to persist. The serious frictions in the financial markets of developing countries (see Mendoza et al (2007)) are unlikely to disappear soon and, similarly, the US may preserve higher long run growth prospects than the rest of the world. Commodity prices are unlikely to fall and this may support persistent capital outflows from the oil exporting countries with limited productive capacity. Finally, saving rates are likely to remain high in fast growing emerging markets at least until domestic political and financial improvements are achieved and the current demographic evolution settles.

On the contrary, pessimist economists argue such forces are not permanent since their relatively long lasting permanence increases the chances of a reversal. The incessant accumulation of foreign reserves by emerging markets’ central banks, for instance, is destined to make harder and harder further hoarding. The growing stock of US external debt is, sooner or later, likely to increase the bonds’ yields and this may worsen the US net investment income stream and reduce the incentives for foreigners to buy US assets. Furthermore, some of these forces may be affected by a variety of exogenous shocks which may prove sufficient to unwind global imbalances. Given the current

\textsuperscript{100} Clarida (2005) takes a similar stance on the composite nature of the sources of global imbalances.
situation is hardly sustainable, pessimists call for a coordinated adjustment strategy which makes sure the adjustment will neither hurt US and global growth, nor create turmoil in the world financial markets.

The adjustment process will have to involve both exchange rate movements and changes in the demand patterns in several countries. A depreciation of the US dollar vis-à-vis the other currencies is warranted: its size and speed, however, are likely to depend on the timing and the coordination of the accompanying policies and on the occurrence of exogenous shocks. Such US dollar depreciation can be brought about by a direct revaluation of the parities at which some currencies peg to the dollar, or it can be the endogenous result of major changes in saving and investment behaviours around the world, or the outcome of clear shifts in the economic policies of some key countries. The adjustment, furthermore, can be forced by the financial side if non-US investors stop directing their savings towards the US and ask larger returns to hold US assets.

The US and world economic prospects differ considerably under these various alternative scenarios. For instance, the speed of the adjustment imposed by a reversal in the financial flows is likely to be higher and more harmful than under other scenarios. This is the reason why, besides understanding where global imbalances are aiming to, it is crucial to be aware of the possible triggering shocks and the consequences associated with the diverse paths of adjustment.

Even accepting the idea that an adjustment process will eventually take place, several questions remain at stake. Is the global economy going to adjust naturally to a new sustainable path without any major reversals? Is the adjustment process going to be smooth and gentle or sudden and disruptive? Which shocks are more likely to occur and which are their consequences on the world economy? Which are the risks linked to the various scenarios? Which are the possible pre-emptive and proactive policies that both reduce the risks and help to deal with the averse consequences of a fast unwinding of global imbalances? I will discuss some of these issues in the following two subsections.

**V.1 Looking back: any reason to worry?**

Looking at past experience, Edwards (2006) tackles the question of which could be the effects of a large reduction in the US external deficit on its own economic activity. Even though no such a large industrial country has ever run persistent current account deficits of the same magnitude, Edwards (2006 and 2005b) analyzes past international evidence on abrupt and significant current account reversals to draw insights for the current situation. He finds that the probability of experiencing a major current account reversal is positively affected by the size of the current account deficits, the deterioration in terms of trade, and the presence of expansionary
monetary policies. These results suggest that the probability of the US experiencing a current account reversal has grown in recent years. Even though the central role of the US in the international monetary system, the size of its financial sector and its level of financial development make the US a country *sui generis*, Edwards concludes that the probability of a reversal has grown over time.

Several other authors\(^{101}\) look at the past to draw insights on the adjustment process of external imbalances. Most of the works distinguish the various reversal episodes according to some criteria: the rate of growth in the adjustment (Crooke et al (2005) and IMF (2007)), the export or import patterns (Sturzenegger et al (2003)), the size of the countries (Edwards (2005)), and the results of a cluster analysis (Algieri and Bracek (2007))\(^{102}\). Their conclusions vary considerably because of changes in the samples, in the statistical and econometric techniques, in the nature and frequency of the data, in the definition of the adjustment, and the like.\(^{103}\) Unsurprisingly, these studies reveal a high diversity in the patterns of adjustment. In general, the adjustment episodes become more likely the larger is the current account deficit. However, not in all circumstances large current account reversals are associated with major economic reduction in GDP growth. In addition, there is no historical precedent of disorderly exchange rate adjustment in developed countries where inflation is under control.\(^{104}\)

**V.2 The good, the bad and the ugly: the possible trajectories of the global imbalances.**

In rough terms, the adjustment process can be gradual and relatively benign (as argued by Blanchard et al. (2005), Helbling et al. (2005), Cavallo and Tille (2006), Faruqee et al. (2006)), but it can also be abrupt and destructive (Roubini and Setser (2005)). The first case has been dubbed the “soft landing” scenario and the second the “hard landing” scenario. I think the scenarios are, in fact, three. The “good” one consists in a natural unwinding of global imbalances with minor effects on the US and world growth. This scenario is unlikely to occur spontaneously but may take place if

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102 Algieri and Bracek (2007) find three groups of adjustment. The first is characterised by a slow down of real GDP and little exchange rate movements. According to event studies and logit estimation, the authors claim this pattern is associated with deficits due to buoyant domestic demand growth; the adjustment occurs during the slowing down phase of the business cycle and entails the unwinding of precedent asset prices growth. The second is characterised by large depreciations without significant changes in the GDP growth. This pattern is associated with deficits due to large overvalued currencies and sluggish growth. The third pattern is characterised by slower growth and exchange rate depreciation and occurs in a crisis-like environment. It is usually associated with an overvalued exchange rate and potential overheating of the economy. These patterns are spread across all types of countries.

103 See Algieri and Bracek (2007) for a review of these issues.

104 See Croke et al. (2005) and Xafa (2007) on this.
governments coordinate their policies. The “bad” scenario corresponds to the “soft landing” with no major negative effects on growth, yet market forces are left to close the alleged global imbalances. Welfare losses may be small and equally distributed across the world, yet some losses will occur. The “ugly” scenario corresponds to the “hard landing” scenario where financial markets, moving fast, incept and accelerate the adjustment process. Losses may be large, badly distributed (both domestically and internationally) and their effects may turn out to last for a while. In what follows I will discuss the analysis and the projections proposed by various researchers.

Obstfeld and Rogoff (2006) consider the global equilibrium implications of an unwinding of the US current account deficit and focus on the role of traded and not traded sectors. They update previous estimates (2000) and argue that the extent of a potential collapse of the dollar has grown with respect to their previous calculations. Focusing on the long run equilibrium, the authors claim that the US current account has to balance and the adjustment process has to be conducive to this condition. Global capital market deepening cannot change this long run requirement; it may provide a modest help to mitigate the dollar decline, yet the extent of the dollar adjustment depends on the determinants of the trade balance, the elasticity of substitution between traded and non-traded goods, and between foreign and domestically-produced traded goods. The flexibility and the degree of integration of both good and factor markets, therefore, are the key determinants of the pace and the extent of the adjustment.

Also Blanchard et al. (2005) maintain that a US real exchange rate depreciation is necessary in equilibrium; the reason is that, in order to keep attracting foreign investments, the larger is the US net IIP, the more depreciated the currency has to be. The adjustment process, however, may vary according to the evolution of the global economic environment. A reversal in the conditions that led to an increase in the relative demand of non-US goods in the US is possible. If US relative growth slows down or if US import elasticity lowers, the current account deficit may improve without a large depreciation of the currency. On the contrary, other shocks to the global economy may induce an even larger adjustment in the exchange rate. Shocks that may seem to support the continuation of the imbalances - such as a further increase in the demand of US assets, or an increase in US interest rates\(^{105}\), or the continuation of Asian pegging to the US dollar -, will ultimately enlarge the extent of the depreciation needed to close the current account balance. In all cases valuation effects will reduce the extent of the adjustment but will not eliminate it. Blanchard and co-authors conclude that a substantial depreciation of the US dollar is ultimately necessary to bring the global economy in equilibrium.

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\(^{105}\) This may reduce the US dollar depreciation in the short term but will postpone and magnify the prospective depreciation, since time makes the overall debt level and the costs of the service grow.
That the adjustment has to balance the current account in the long run, however, is assumed as equilibrium condition and it is not the result of the model. Once GDP growth differentials are taken into account (as, for instance, in Engle and Roger (2006) and Bonatti (2006)), the external deficit does not need go back to 0 in order to keep constant the debt over GDP ratio. Furthermore, Blanchard and co-authors do not consider the consequences of changes in some of the exogenous variables they encompass, such as the US and foreign supply of assets. Some researchers, however, argue that global imbalances come from the differential in the US and foreign growth rates of these variables. Two last reservations regard some of the assumptions at the basis of the calculations on the prospective US dollar depreciation and the characterisation of the rest of the world as an homogenous environment.

Notwithstanding these qualms, the theoretical implications of the model remain plausible and compelling. In particular, the author show that no catastrophic scenario is necessary. Exchange rate depreciation and US contractionary domestic policies may allow some global rebalancing without causing domestic or world havoc. A gradual process of depreciation cum slower debt accumulation is therefore feasible without a meltdown.

Rogoff (2006) argues that “the main driver of the adjustment is likely to be shocks to underlying national savings and investment balances, rather than an autonomous exchange rate shock” (p. 696). Despite in line with the conclusions in his joint work with Maurice Obstfeld (2006), this claims leads to suspect that the lack of physical investment in their model undermines the quantitative predictions about the magnitude of the future exchange rate adjustment. In fact, other strong assumptions make those predictions unlikely to be precise. Engler et al (2007), for instance, show that allowing for endogenous production and sectoral (traded vs. nontraded goods) reallocation of factors dramatically reduces the size of the exchange rate depreciation required to close the current account balance. It is also worth noticing that Rogoff seems to refer more to the vulnerability of US to various shocks and structural changes than to the sustainability, as defined in this work, of the current situation.

In Blanchard et al (2005) and in Obstfeld and Rogoff (2005 and 2006) valuation effects play a limited role. To stabilise the US net IIP, Obstfeld and Rogoff impose that the current account balance has to close instantaneously: valuation effects impact exclusively on the dollar value of the net interest payments and, therefore, matter to a very limited extent. Cavallo and Tille (2006), instead, consider an adjustment scenario in which valuation gains from the depreciation of the US

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106 These variables are X and X* in their paper.
107 It is worth noticing that changes in the relative demand of US assets do not require a shock to investors’ preferences as long as the income and wealth accumulation processes are different across countries.
108 Some assumptions (such as that import-export elasticities calculated around trade balance can be applied to current level, that the return differential on foreign and US asset is zero) are unlikely to hold in practice.
dollar allow to finance ongoing current account deficits. The US net IIP is assumed to remain constant in equilibrium and a gradual depreciation of the dollar produces a valuation effect that “finances” part of the ongoing, though reduced, current account deficits. Even though the US dollar does eventually depreciate to close the current account deficit (and the size of the depreciation does not differ much from Obstfeld and Rogoff’s projections), valuation effects do allow for a smoothed adjustment trajectory over a period of 10 years. The conclusion is that, as the current account will move into balance, adjustment will occur in a smooth fashion and the current account will shrink only gradually. A similar conclusion is reached by Faruque et al (2006), whose baseline scenario predicts that US public and foreign debt will eventually stabilise at high levels and that the dollar will undergo a gradual and innocuous depreciation. Also Calvo and Talvi (2006) expect a smooth landing for the US economy because US assets remain the ultimate destination of the flight-to-quality capital flows which would follow any drastic change in the current global conditions. They argue, on the contrary, that the most vulnerable emerging markets are the most prone to suffer from the capital flow reversals (and the sudden stops) that could materialise if the world savings will contract.

The disruptive consequences of a sudden and abrupt adjustment are analysed by Roubini and Setser (2005) and, among other scenarios, by Faruqee et al (2006). The grim scenario is one in which foreigner investors will stop financing US current account deficits before the policies necessary to guarantee a smooth adjustment get implemented. Such capital flow reversal will cause a fall in US bond prices and an increase in long-term yields. These will go together with a US dollar abrupt depreciation and fears that the latter might percolate to inflation will induce the Federal Reserve to raise the Federal Fund rates. The increase in short and long run interest rates, in turn, will have negative consequences on asset and real estate prices and, thus, will lead to a contraction of the real sectors. In addition to the depressing effects of high interest rates on investment, drastic losses in asset and real estate markets will be transmitted to US consumption via negative wealth effects. The following reduction in the US rate of growth and prospects will have severe repercussions on the rest of the world, whose growth is currently pulled by US imports.

The abrupt change in foreign investors’ willingness to lend to the US might be caused by several events and, in particular, by counter-shocks to the structural changes which have caused

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109 These flight-to-quality inflows may possibly offset the reduction of foreign central banks’ purchases of US bonds.

110 As pointed out by Calvo and Talvi (2006), the situation could be even more serious if the crash will create financial distress in the US and a generalised loss of confidence. In such a case, global liquidity would decrease and interest rates could spark everywhere with damaging effects in the emerging markets.
sustained global imbalances. However, and this is the most concerning scenario, an abrupt decline of foreign investors’ willingness to lend to the US can also derive from the realisation that the US external position is or will soon become unsustainable. In such a case, foreign investors’ portfolios would not be properly balanced and rewarded and their rebalancing could incept the unravelling of global imbalances. This latter scenario is, in my view, in line with the Wile E. Coyote story by Paul Krugman, where investors lately realise their expected returns are excessively high and flee the US.

Paul Krugman (2007) claims that current market values suggest investors’ expectations in the last years have not been consistent with the long run equilibrium values of the US economy. A gradual adjustment would, in theory, be possible if investors gradually adjust their expectations and their portfolios for the likely depreciation of the US dollar: a gradual financial adjustment could smooth the movements in the exchange rate and reduce the size of the overall adjustment. The presence of myopic investors, however, is likely to postpone adjustment until a moment when a smooth landing is not feasible anymore. It follows that the likelihood of a grim scenario depends on the extent capital flows have been driven by incorrect expectations. Krugman finds some evidence that this is likely to have been the case. He argues that, even discounting nominal GDP growth and favourable valuation effects, the US dollar real depreciation required to keep the eventual debt-GDP ratio to a reasonable level remains high: current return differentials reveal that foreign investors are not compensated for the fast prospective depreciation of the dollar. Even though the imperfect substitutability of the US and foreign assets justifies a permanent real return differential in favour of the US, a large expected dollar depreciation requires a return differential against the US that is much higher. In particular, investors from developed countries do not derive from the US assets the same advantages (i.e. liquidity and insurance) that justify emerging markets’ massive investments in the low yield US bonds. Assuming Krugman is right, there is no need of an external shock or a structural change in the conditions which have sustained global imbalances to make them unravel: once investors will find out that their portfolios need rebalancing and that they are flying in mid-air (as Wile E. Coyote), they will start a fast adjustment process.

A key observation in Obstfeld and Rogoff (2006) that goes almost unchallenged is that not all domestic and external shocks to demand and productivity which may ultimately close the imbalances are consistent with a gradual and limited depreciation of the dollar. Faster productivity growth in foreign tradable goods, for instance, may exacerbate the US adjustment problem, while

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111 This would be the case, for instance, if a reduction in the international reserve accumulation process will not not matched by an increase in the foreign private capital inflows or if financial scandals in the US will reduce the appeal of US corporate assets.

112 The global saving glut story, in his view, may contribute to explain why the US real interest rates have remained low even in the face of a growing US external debt, yet they do not account for the low differential in real returns.
faster relative productivity in the non-traded sector may tend to close the US current account imbalance in a smoother way.\textsuperscript{113} The sign, the speed, the global effect and the redistributive impact of the adjustment process depend on two aspects: first, the nature and the extent of the shocks, and, second, the economic features of the various countries.\textsuperscript{114}

From this bird-eye view on the possible adjustment trajectories, a disruptive adjustment appears to be possible, yet not necessary. Only if some of the forces that sustain global imbalances will abate fast or if investors will hastily leave the dollar, the grim scenario is likely to materialise. However, even in such cases, the adjustment may still proceed gradually if appropriate policies are undertaken and if the economy is sufficiently flexible. Accordingly, solving global imbalances and preventing global growth to slow down require coordinated policy interventions which a) reduce the probability certain shocks occur and b) make sure the policies in each country are consistent and effective. Even though the ultimate message of the IMF’s \textit{WEO 2007 April} is that the US dollar depreciation need not be as large as Obstfeld and Rogoff prospect, its conclusions on policy coordination are consistent with the observations above: the more flexible the economies (i.e. factors relocation, competition, free entry, and the like) and the more coordinated the economic policy interventions, the more responsive trade balances will be to real exchange rate modifications and the smaller the ultimate depreciation of the dollar will have to be.

That the adjustment will bring about a depreciation of the US dollar real exchange rate is a view shared by several authors.\textsuperscript{115} This, however, does not and cannot represent the only major change that has to occur. As Blanchard et al (2005) point out, the need of maintaining both the internal and the external balance in each country will ultimately require a global redistribution of savings and expenditures.\textsuperscript{116} Faruqee et al (2006) elaborate the projections of a soft landing scenario in which macroeconomic policies in the various areas are implemented so as to accompany the adjustment process. The various scenarios differ according to which exchange rate regime will be implemented in Emerging Asia. Faruqee and co-authors argue that if these countries maintain the peg to the US dollar they will suffer overheating pressures and, if prices will be allowed to move more freely, higher inflation. Since the appreciation of the real exchange rates of these currencies vis-à-vis the US dollar cannot be dumped on a catastrophic US deflation, some changes will have to take place in these countries too.

\textsuperscript{113} Blanchard et al (2005) arrive to the similar conclusions.
\textsuperscript{114} Exchange rate movements among the various currencies, in addition, may turn out to be relative wide in the presence of real and nominal frictions in goods and factors markets, according to a classical overshooting mechanism.
\textsuperscript{116} I will come back on this while discussing the lessons John Williamson has drawn from the research of John Meade.
Similarly, the IMF (*WEO 2007 April*) concludes that while real exchange rates movements can facilitate the unwinding of external imbalances, policymakers should accompany the exchange rate depreciation with fiscal consolidation and domestic savings increase in the countries in deficit. In this case the prospective adjustment can be smooth and with minor consequences on GDP growth. The rebalancing forces in the surplus countries are, in fact, very delicate. While, historically, a real exchange rate appreciation and an increase in domestic demand have occurred in the presence of large current account surpluses (*IMF (2007)*), little contribution is to be expected in the short and medium term from the countries now experiencing the surpluses (*Edwards (2007)*). Historically, persistent surpluses are hard to be redressed via the reallocation of global GDP growth and usually require large exchange rate movements.

Pessimists argue that once some forces underlying global imbalances will fade, the latter will necessarily unravel. This scenario is plausible, yet it is also possible that other forces will take the place of those fading out. Apparently, this is what happened in 2001 when East Asian countries started accumulating reserves in dollar-denominated assets and, in so doing, compensated the contemporaneous reduction in private capital flows towards the US stock exchange. Similarly, a slowing down in the accumulation of international reserves in the future - which is the most natural outcome of the sustained growth of accumulated reserves – need not incept the unwinding of the imbalances if East Asian central banks’ capital outflows towards the US are substituted by private purchases of US assets.\(^{117}\) For this scenario to happen emerging market economies need to undertake some interventions and reforms; in particular they need to i) develop their domestic financial markets and reduce domestic financial repression, and ii) gradually grant more flexibility to the exchange rate. It follows that the speed at which the political and economic authorities will reform domestic institutions and regulations will determine the extent public financial flows will be substituted by private ones and, thus, will influence the path of the adjustment. This example shows that each of the forces sustaining global imbalances need not be persistent to prevent imbalances from unravelling: it is sufficient that some forces remain and others take the place of those fading. This conclusion, however, is very sensitive to the political interventions established by each of the major players involved in global imbalances.

\(^{117}\) This is consistent with the North-South capital flows model (with diminishing returns, production risk and default risk) in *Dollar and Kraay (2006)* who show China will eventually become a net debtor once domestic frictions will be removed. *Calvo and Talvi (2006)* argue that if a central bank that sterilises reserve hoarding stops accumulating reserves, it simultaneously stop issuing interest-bearing domestic debt. Once such a policy change deprives savers of domestic bonds, they will look at foreign markets to store their savings. This may call for a change in interest rates but the extent depends on the substitutability of the assets. *Cooper (2006)* claims that once Asian private investors will be allowed to export capitals in place of their central banks, they will continue to finance US current account deficits since capitals will flow towards the relatively more productive uses and this will help to maintain the equilibrium.
The uncertainty surrounding adjustment is indeed very large. William Buiter, in his critique (2006) to the “dark matter view”, argues that an adjustment process is to come. He recalls a corollary to Herbert Stein’s Law\textsuperscript{118} due to Rudiger Dornbusch, which can be paraphrased as follows: “Something that can’t go on forever, can go on much longer than you think it will.” However, Buiter recalls also a second corollary which refers to the following adjustment phase: “The speed and magnitude of the eventual turnaround will always take you by surprise.” (2006 p. 13)

VI. The exchange rates and global imbalances.

Any adjustment process is likely to require a mix of policy interventions in the financial and real sectors in almost all countries. Even though the exact nature of this mix determines the extent and direction of the movements of the various economic variables, few researchers deny that a real dollar depreciation is at the horizon. Since central banks around the world are committed to keep inflation low (at least insofar as they are able to control it), a US dollar depreciation is most likely to come through a depreciation of the US nominal effective exchange rate. In addition, as Rajan (2006) points out, the latter has to regard the currencies of all the US relevant trading partners, not just those that are currently floating their currencies against the dollar. For these reasons, the role of the exchange rate in the adjustment process has attracted and still attracts a great deal of attention in the academic and political world.

VI.1 The exchange rate in the adjustment process: channels of transmission.

Exchange rate movements are key in most adjustment scenarios. First, a real depreciation improves, \textit{ceteris paribus}, the competitiveness of US goods and boosts net exports. Second, a real depreciation makes the price of non-traded goods in the US fall relative to traded goods and this leads US consumers to re-allocate part of their expenditure towards non-traded goods. The quantitative importance of these two channels is not clear yet: the impact of exchange rate fluctuations on import and export quantities, on price setting and on overall spending depends on a series of factors which are state and country dependent.\textsuperscript{119} In fact, besides these traditional channels, there is also a third channel through which the exchange rate fluctuations are transmitted to the economy. Given the degree of financial integration has increased (see Lane and Milesi-Ferretti

\textsuperscript{118} The Stein’s Laws says that ”If something cannot go on forever, it will stop”.

\textsuperscript{119} The traditional empirical approach used to predict the impact of exchange rate modifications on exports and imports, the so-called elasticities approach, does not take the state specific nature of the elasticities in due account. In the next sub-section I will come back on this and discuss the criticism McKinnon raises on such method.
and cross-holdings of financial assets across countries have surged since the early 1990s, changes in the exchange rate affect the value of the outstanding stocks of gross assets. The extent of this channel - called valuation effect - depends on the currency leverage of the gross international investment position\(^{120}\), that is the currency composition of country’s assets and liabilities. Clearly, capital gains and losses due to exchange rate movements can either magnify or smooth the adjustment process.\(^{121}\) Those developing countries that did not manage to issue debt in domestic currency (i.e. the so-called “original sin” problem) have historically suffered when the domestic currency was depreciating. On the contrary, the US, that issues debt in domestic currency and buys foreign currency denominated assets, gains from the depreciation of the dollar because the latter decreases the value of the outstanding stocks of foreign liabilities: the depreciation of the dollar produces capital gains for the US and improves its net IIP.\(^{122}\) It is crucial to realise that the valuation channel can be more or less important according to the adjustment process one considers. If, as in Obstfeld and Rogoff (2005, 2006), the overall expected currency depreciation has to close the current account, valuation effects have a limited impact on its magnitude since they have only minor effects on the determinants of current account in the long run. On the contrary, if what matters is the sustainability of the level of the net IIP (as in Cavallo and Tille (2006)), valuation effects help smoothing the adjustment process.

The valuation channel as described above is the consequence of a partial equilibrium analysis. Gross (2006) enlarges the picture to a general equilibrium setting and warns that valuation effects may not necessarily work in this way in all circumstances. For instance, since the exchange rate depreciation has a relatively larger impact on the profits of the firms in the tradable sector, the direct positive valuation impact of the US dollar depreciation on the US net IIP may be offset by the lower value of the US investments in the foreign companies engaged in the tradable sector and the higher value of the foreign investments in the US companies in the same sector.

Ghironi et al (2007) study the valuation channel in a dynamic stochastic general equilibrium model with international equity trading in incomplete asset markets. They conclude that the quantitative importance of this channel in the adjustment of external imbalances depends on features of the international transmission mechanism. In particular, they show that, given a certain

\(^{120}\) The US net IIP is a leveraged portfolio in that it is short in dollar denominated US assets (equity, corporate and government debt, inward direct investment) and it is long in foreign-currency denominated foreign assets (Japanese equity, direct investment in China and Europe, UK gilts, and the like).

\(^{121}\) See Gourinchas and Rey (2007).

\(^{122}\) In fact, there are other factors that affect the US net IIP, such as movements in asset prices, changes in data coverage, capital gains on FDI and the like. See appendix B on this and footnote 172.
value of financial market integration, the size of financial frictions, the substitutability across goods and the persistence of shocks play a crucial role.\textsuperscript{123}

\textbf{VI.2 A difficult paso-doble: the Dollar-Renminbi controversial relationship.}

Part of the debate regarding the real exchange rate adjustments required to redress global imbalances regards the destiny of the Chinese Renminbi, in particular vis-à-vis the US dollar. While some argue that the Chinese authorities should eventually allow the currency to appreciate against several foreign currencies, others support the choice of the authorities of gradually and slowly sequencing the liberalisation of good, capital and exchange rate movements. On the one hand, Chinese authorities are regularly enlarging the number of private institutions allowed to undertake autonomous foreign operations and this increases the probability that greater exchange rate flexibility will be allowed; on the other hand, they have so far kept control of the real exchange rate by pegging the nominal rate, intervening intensively in the market and controlling inflation (by direct price controls and massive sterilisation). Many aspects of such policy conduct have been questioned: its ultimate reasons, its optimality in the long term and the feasibility of its continuation in the future.

It is worth pointing out that global imbalances do not uniquely depend on the US-Chinese exchange rate and their bilateral current account balance. First, the US-China bilateral trade and financial exchanges account only for a limited part (at most 30\%) of the US current account deficits and capital flows (Figure 15). Second, China’s relative size in the world economy has grown since the beginning of the 2000s when the US current account problems were already evident.

\textsuperscript{123} Interestingly, greater international financial integration increases international risk-sharing trough asset markets and valuation changes (which have positive effects on welfare), but this reduces their relative importance in the overall net foreign asset dynamics.
Figure 15. Chinese contribution to US current account balance.
Source: Bureau of Economic Analysis, 2007

Admittedly, however, the impact of China on the US deficits is more complicated. Many emerging market economies which compete with China on foreign good markets have, so far, pegged their currencies to the Chinese Renminbi and, thus, to the Dollar; this has extended the influence of the Dollar-Renminbi exchange rate on the US trade balance. In addition, since the high Chinese growth has caused a steep increase in the demand and in the international price of several commodities (i.e. raw materials, oil and food), this has had a negative impact on the US trade balance and a positive impact on the current accounts of the oil exporting countries.

In order to give a taste of the current debate on the issue and to illustrate the reasons in favour and against a rapid Renminbi appreciation, I will illustrate the contrasting positions of Ronald McKinnon and Nouriel Roubini. Their accounts do not summarise all the various stances in the debate, yet exemplify various concerns and points of view.\textsuperscript{124}

The contributions of \textbf{Ronald Mc Kinnon} on the topic are numerous.\textsuperscript{125} For this reason I will discuss here those I consider his main concerns and observations. China’s relative productivity growth, its large trade surpluses, its (direct or indirect) peg to the US dollar\textsuperscript{126} and its constant

\textsuperscript{124} Several authors have contributed on the debate regarding the misalignment of the US dollar and Renminbi exchange rate. Among those who argue the alleged undervaluation of the Chinese currency is smaller than usually claimed I recall Cheung et al (2007), who focus on refined versions of bilateral and effective exchange rates (via extended behavioural equilibrium exchange rate models), and Frankel and Wei (2007). On the other hand, Coudert and Couharde (2007) argue the Renminbi is indeed undervalued even though an appreciation is unlikely to redress the US trade deficit vis-à-vis China. Devereux and Genberg (2007) reach similar conclusions about the impact of nominal exchange rate devaluations on US-China bilateral trade balances.


\textsuperscript{126} China has fixed its exchange rate at 8.28 Renminbi to the US Dollar since 1994. On July the 21th 2005 the peg to the dollar has been changed to a small and steady appreciation of the Renminbi against a currency basket. Although the composition of the basket has not been made public, many argue the Dollar counts for $\frac{3}{4}$ of the basket.
accumulation of large dollar exchange reserves in the last 7 years have led to a phenomenon that McKinnon calls “China bashing”. The latter consists in a series of US initiatives to push the Chinese authorities to change their policies in a way that is in harmony with US interests. Among such proposals, I recall the strong American pressure on China to speed up the appreciation of the Renminbi, the numerous initiatives of US Congressmen to review or pass bills to reduce the competitiveness of Chinese merchandise, and the more or less explicit US official threats of opening a procedure against China before the WTO. The “China bashing” expression takes after the pressures the US put on Japan in the 80s (i.e. “Japan bashing”) to review its policy stance; these, eventually, led to the massive nominal appreciation of the yen and to the voluntary export restraints in Japan. McKinnon highlights the similarities and differences between China and Japan bashing. In particular, he warns that a Renminbi appreciation need not reduce China’s trade surplus and might create problems, as it already happened in Japan. While most empirical works that calculate the depreciation required to close the current account balance hinge on the elasticities approach to the trade balance, large changes in the nominal exchange rate may have a impact on wealth, FDI's and domestic GDP growth which modifies the partial equilibrium projections of such simplistic approach.

McKinnon points out that if China will allow the Renminbi to appreciate too fast against the US dollar, the very same threat of a large Renminbi appreciation could reduce towards zero those Chinese nominal interest rates which are allowed to move. This is what happened in Japan in the period 1978-1995: an overvalued currency coupled with a zero interest liquidity trap highly contributed to the Japanese “lost decade” (i.e. 1990s). McKinnon wonders about whether a real exchange rate appreciation of the Renminbi forced by a nominal appreciation can be sustained in the long run: “Among financially open economies, nominal exchange rates and national monetary policies are mutually determined. For a discrete nominal exchange rate change to be sustained, it must reflect relative monetary policies expected in the future: relatively tight money and deflation in the appreciated country and relatively easy money with inflation in the country whose currency depreciates.” (2006 p.5) McKinnon argues it is unlikely Chinese authorities will accept the deflationary scenario associated with a large revaluation of the currency.

Frankel and Wei (2007) show that the forward premium on the Renminbi-US dollar exchange rate widened substantially in 2004, in particular after US officials increased pressures on Chinese authorities.

For instance, the expenditure switching effect of a depreciation on the current account can be reduced by a sufficiently large income and wealth effect of opposite sign. Similar considerations are proposed by Cooper (2006) with respect to the general equilibrium effects of a US dollar depreciation against the currencies of surplus countries. Developed countries, such as Japan and Germany, would badly react by increasing domestic savings: this response is a post-Wold War II legacy which gives export performance a crucial importance in driving expectations, investments and business sentiment. A revaluation of the Renminbi, in addition, would incept a systemic adjustment of bilateral parities whose effects are hard to guess and, therefore, hard to recommend. In addition, the revaluation of Asian currencies risks to worsen serious domestic sectoral imbalances.
McKinnon stresses the currency asymmetry associated with the current world “dollar standard”: any international creditor country that cannot lend in its own currency cumulates a currency mismatch that creates the “syndrome of conflicted virtue” (as defined in McKinnon and Schnabl (2004)). In a creditor country, as the stock of dollar claims grows, domestic holders of dollar assets worry about a self-sustaining run into the domestic currency since this would tend to create a valuation effect against them and it would lead to deflation. If this does not happen, on the other hand, foreigners complain that the ongoing trade surpluses are unfair and come from a currency that is kept artificially undervalued. “As runs out of dollars into the domestic currency begin, the government is “conflicted” because appreciation could set in train serious recession and deflation - particularly if the domestic price level was already stable or falling slightly. Nevertheless, foreigners may threaten trade sanctions if the creditor country in question does not allow its currency to appreciate.” (2004 p. 186). 129

In my view, McKinnon makes some sensible points. He is surely right in recalling the relatively larger importance of expenditure switching policies to increase US savings and reduce China’s reliance of export-led growth. Similarly, the scenario of a liquidity trap due to falling prices and a zero lower bound trap (due to negative risk premia and expected appreciation) is sensible. However, his considerations hinge on an important issue which is not discussed much in his contributions, that is the equilibrium level (and trend) of the real Renminbi exchange rate. McKinnon, for instance, argues that if the nominal appreciation of the Renminbi was too high, price deflation in the long term could kick in with disastrous consequences for the Chinese economy. The likelihood of this event, however, depends both on the current differential between the actual and the equilibrium exchange rate, and on the expected appreciation of the equilibrium rate in the future. 130 If the appreciation during the adjustment process is not too far from the equilibrium appreciation which accompanies China’s development, the initial appreciation need not bring in deflation. Eventually, it could even be accompanied by moderately higher inflation if further real appreciation is needed. In addition, the Chinese low inflation and interest rates depend on the sterilization policy and price controls that are currently implemented. If both were removed, inflation and interest rates could grow in the short run and this would make more unlikely a deflationary/lower bound trap. McKinnon suggests that the accumulation of foreign reserves by the Chinese central bank may well not be substituted by private demand for US assets in a context of expected appreciation and this

129 This was not the situation when the countries at the centre of the system (i.e. Britain in the 19th century and US in the 20th) were lending in their own currencies. This observation goes against “the Bretton Woods II” hypothesis I will discuss in section X.
130 The relative high Chinese productivity growth is likely to determine a steady real appreciation of the currency according to a Balassa-Samuelson effect.
urges to maintain the peg. However, since the relatively low domestic interest rates in China depend on the incomplete sterilization policy, it could be argued that the preservation of the peg cum sterilisation interventions weakens the domestic banking system and this urges to allow a gradual appreciation of the Chinese currency.

**Nouriel Roubini (2007)** strongly opposes to McKinnon’s reasoning, even though the name of the Stanford based economist is mentioned only twice in Roubini’s work. Roubini argues China should allow its currency to appreciate significantly, and should move to a regime of more flexible exchange rates on the basis of a prudential cost-benefit analysis. First, even though expenditure switching policies may prove important to adjust global imbalances, exchange rate movements have effects on current accounts in the direction suggested by traditional elasticities analysis. Second, while Roubini agrees on the nature of the risks connected with an appreciation of the Renminbi, the occurrence of a scenario of over-appreciation of the Renminbi is judged unlikely: insofar as China’s productivity grows relatively to the world one, the Chinese equilibrium exchange rate has to in fact appreciate in the medium-long period. Third, the risks connected with keeping the exchange rate fixed get larger the longer the necessary appreciation is postponed. The significant market pressure for a currency appreciation - driven by the increasingly large Chinese trade and current account surpluses with additional pressure resulting from the massive amounts of foreign direct investment (FDI) and hot money flowing into China –, brought about a massive reserve hoarding. The accumulation of foreign exchange reserves (running at staggering figures of about $250 billion per year in 2005 and 2006) and the limited (70%) central bank’s sterilization of these purchases, in their turn, have caused domestic credit to boost: this makes more and more likely the occurrence of credit and asset bubbles, and risks to push the already overheated Chinese economy. In addition, if Chinese net exports keep on growing at current rates, protectionist policies in Western countries will gain further legitimacy. The Chinese authorities themselves recently admitted that the composition of domestic aggregate demand is imbalanced because net exports and real investments are the only driving forces of domestic growth whereas private consumption is residual. Roubini also warns that, if the Renminbi nominal exchange rate is not allowed to appreciate, there is not only the risk of an eventual surge in Chinese inflation but (if Chinese domestic inflation remains artificially repressed) also of a global world deflation.

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131 Calvo and Talvi (2006) argue the contrary. See footnote 117.
132 Cooper (2006) advances three proposals about what China could do instead of revaluing the currency. One is reducing controls on foreign capital flows. Another is reducing import tariffs so as to increase imports and reduce trade surpluses. The third is switching to institution building policies (such as the resolution of commercial banks weaknesses and undercapitalization) which may permit further exchange rate flexibility and the relaxation of capital controls. Interestingly, some of these considerations are at odds both with McKinnon’s and with Roubini’s observations despite from different angles.
133 Notice that this observation goes against the “Revived Bretton Woods system” hypothesis I will discuss in section X.
VI.3 Is it just an exchange rate issue? External and internal balance.

In previous sections I have discussed the complementarity between exchange rate and demand switching policies. I come back on this issue here and focus on John Williamson (2006), which reviews the contribution of Meade on external imbalances. In Meade’s analysis the internal and external balance is to be simultaneously met: both exchange rate and domestic absorption can be manipulated so as to reach such composite equilibrium. Meades’ lesson matters today because it focuses on those concerns which make coordinating the adjustment process so contentious and controversial. The issue is about how to distribute the necessary improvement in the US current account position in “deteriorations” over the rest of the world. Since countries always aim to achieve the internal balance, one cannot engineer a solution which does not fully address internal concerns. Williamson proposes some natural principles that could guide the allocation of those current account deteriorations that are necessary to bring about global balances. First, “classical forces of thrift and productivity” need be considered. If a country can increase its inter-temporal welfare by boosting investment (given expected high returns) or reducing savings (given current consumption is repressed), then it has to do so. Second, Keynesian considerations of effective demand matter too. This suggests to avoid a cut to the trade balance surplus of a country which has no other means to stimulate demand for its own goods. The third issue refers to growth. If growth suffers because export demand falls after a revaluation or an overvaluation induced by a Dutch disease, the adjustment has to be limited. The fourth element is that the speed of change of the adjustment process has to vary across countries: the historically inherited net investment positions and the past track of current account records require variation in the contribution given by the diverse country to the global adjustment process.

Interestingly, Williamson clarifies the original meaning of export-led growth strategies and argues against the systematic manipulation of the exchange rate. He points out that an “export-led growth strategy originally meant not discriminating against exports, so as to use export expansion rather than import substitution to solve the balance of payments constraint. A successful policy of export-led growth typically resulted in the international capital markets being willing to lend to the country in question. [...] Now one is told that the answer is to run an export surplus. This may have

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134 The Salter-Swan diagram describes the principal elements of this approach.
135 Williamson briefly discusses the implications of applying this fourfold approach to the oil exporting countries, Japan, China and the newly industrialised Asian economies (i.e. Taiwan Hong Kong, Korea and Singapore), Germany, and Switzerland. As suggested by Meade, some mix of exchange rate adjustment and expenditure changes (both quantitative and qualitative) is required in all cases. In a nutshell, Williamson supports country-specific expansionary demand policies and exchange rate revaluations in countries which run surpluses. The exact variations in the exchange rate, the tax rate and the government spending will depend on trade patterns, public debt levels, domestic monetary policy, stage of development, expected duration of the shocks, and past economic performance.
been necessary in order to re-establish confidence after the (1997 Asian) crisis and build safeguards against a repetition. And it certainly increases demand, at least for tradables. What it neglects is the supply-side. A current account surplus involves investing a part of savings in low-yielding US Treasury bills (or some other low-yielding foreign asset). This preempts resources that might have been invested or consumed at home, and in that way boosted either growth or living standards or both. To ignore this aspect is as foolish as it was to ignore the danger that an excessive deficit financed by short-term inflows would precipitate a crisis.” (2006 p.8)

While many researchers merely treat internal balance as one of the several determinants in diverse adjustment scenarios, Williamson takes an original stance and looks at the internal consequences of the continuation of global imbalances. In particular, he notices, the persistence of the current trend is likely to generate noxious effects on the internal balance of several emerging markets and this fact indicates a reversal is likely to take place sooner or later. This exercise is original and shows that a change in the policy conduct of several Asian countries might come because it is their own interest to rebalance growth, not because the US is in trouble or “Asia bashing” is effective. This point is key if one adopts the concept of sustainability I adopt in this work.

VII. The global imbalances debate: its impact on theory and policy.

VII.1 In search of a new theory?

To be sure, the evolution of the global economic environment is going to help ascertaining the merits of the various conceptualisations of the forces that led to and have maintained the current situation. However, the impact of the debate on the economic theory is already clear. The new open economy macroeconomic models developed in the 90s have been challenged by other conceptualisations of current economic conditions. While in NOEM models capital flows are mainly treated as the residual component of countries’ balance of payments and they are driven by trade-related decisions, the recent global experience suggests that capital flows might be attributed a relatively more important and independent role.\footnote{This observation is consistent with the empirical findings in Bergin (2006). By estimating a rather general two country NOEM model, he finds a high correlation between the current account movements and the deviations of interest rates from the UIP condition. He interprets this as a sign that current account movements could reflect financial shocks, rather than savings and investment decisions.} Accordingly, these latter started playing a pivotal role in recent international macroeconomic models.
In fact, that capital flows are crucial to explain small emerging market business cycles and crises had been recognised long ago\textsuperscript{137}: emerging markets have typically suffered i) the exogenous in- and out-flows of capital (as discussed in the literature devoted to sudden stops and capital reversals) and ii) the vicious interactions of such financial flows with their financial and institutional imperfections. The novelty in the current debate is that financial flows are now considered as a key determinant of the economic and financial conditions of advanced countries and regions.\textsuperscript{138} Bernanke’s (2005) account of global imbalances is clear: “Rather, the U.S. trade balance is the tail of the dog; for the most part, it has been passively determined by foreign and domestic incomes, asset prices, interest rates, and exchange rates, which are themselves the products of more fundamental driving forces”.

As an example of how this difference in perspective may matter, I recall the two different approaches recently used to calculate the required US dollar exchange rate variation to close global imbalances. One approach sets the required depreciation as that necessary to drive the current account into balance (as in Obstfeld and Rogoff (2006)); since valuation effects have a limited impact on current account balances, they do not significantly affect the adjustment process. The other approach sets the required depreciation as that necessary to keep the net investment position of the debtor country at a fixed and sustainable level (as in Cavallo and Tille (2006)); valuation effects matter and contribute to smooth the required adjustment of the exchange rate.\textsuperscript{139}

Krugman (2007)’s recent warnings revolve around this point: since financial imbalances take much less time to unwind than trade-related current account imbalances\textsuperscript{140}, a tension between the two may arise according to the nature and the source of the shocks that redress global imbalances. In other words, since real and financial markets differ, financial shocks affecting the economic stability of a country or region may have different implications than trade-related shocks. This highlights the importance of understanding the role of financial flows in shaping economic outcomes.\textsuperscript{141}

\begin{itemize}
\item \textsuperscript{137} See, for instance, the volume of the Journal of Economic Theory (2004), dedicated to the macroeconomics implications of capital flows in a global economy. “The main features of the wave of financial crises that hit emerging markets since the Mexican crash of 1994 posed a serious challenge for conventional open-economy models of business cycles and current-account determination. Emerging markets crises featured the so-called “sudden stop” phenomenon, characterized by a sudden reversal of capital inflows and the current account, a large recession in domestic production and absorption, and collapses in real asset prices and in the relative prices of nontradable and tradable goods. These stylized facts are seriously at odds with the predictions of both conventional open economy models with nominal rigidities, in which devaluations are expansionary because they shift the terms of trade in favour of the country that devalues its currency, and standard neoclassical dynamic equilibrium models, in which the current account is modelled as an efficient vehicle for consumption smoothing, risk sharing, and arbitraging of the returns of capital across countries. Another set of important issues, as typified by the South East Asian Crisis, relates to contagion—economic crisis from one country seems to spread rapidly to others. These crisis-spillovers also pose a serious challenge to conventional dynamic economic models.” (Bansal et al 2004)
\item \textsuperscript{138} In fact, the issue is not new to international macroeconomists. The so-called transfer problem has spurred several contributions in the 80s and early 90s. See, for instance, Kouri (1983), Sachs and Wyplosz (1984), Branson (1985) and, more recently, Tamborini (1992).
\item \textsuperscript{139} The empirical literature addressing the problem of estimating the correct equilibrium exchange rate also encompasses a third approach, called the behavioural exchange rate equilibrium approach. In sum, these models calculate deviations of real exchange rate from extended versions of (absolute and relative) PPP conditions. (See Cheung et al (2007)).
\item \textsuperscript{140} See also Mann (2002 p.140) on this.
\end{itemize}
size and the patterns of the international capital flows are likely to have a strong impact on trade and current account balances.

Such recent development in economic modelling is due to several controversial phenomena, more or less related to the global imbalances issue, which have characterised the last 7 years:

- housing market bubbles in many developed countries,
- a steady growth of international commodity prices,
- a rapid reduction of external debt in many developing countries\(^{141}\),
- two large swings in the external value of the US Dollar and alleged exchange rate misalignments,
- relatively low international interest rates\(^{142}\),
- a significant reduction of risk premia (in several markets and countries),
- a rapid growth of cross-country gross capital flows,
- a marked and widespread reduction in the volatility of GDP and inflation\(^{143}\),
- the achievement of relatively low inflation rates in all developed economies and in most developing countries,
- an improvement in the level of financial development in several developing countries,
- a steady accumulation of large dollar denominated exchange rate reserves,
- an increase in the number and in the size of the sovereign wealth funds,
- the development of new sophisticated financial instruments and a massive resort to securitization and asset-backed financial instruments,
- the surge in the number of private equity funds and hedge funds.

These issues should not be seen and treated as separate; they do not only reflect diverse growth strategies (i.e. export-led versus investment-led), but also depend on the different levels of development across countries (Caballero (2006) and Dooley et al. (2007)). These latter, in their turn, reveal and come from substantial differences in a) the degree of financial development, b) demographic trends, c) national saving and investment patterns, d) the extent of government intervention in the economy, e) the degree of capital account liberalisation, f) the structure of property rights, and g) the respect of the rule of law.

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\(^{141}\) This has been accompanied by the rapid increase in the level of domestic public debt.

\(^{142}\) The low level of the US long-term interest rates since 2002 has been dubbed the Greenspan’s \textit{conundrum}.

\(^{143}\) This phenomenon is usually identified as the “great moderation”.
Criticisms towards new open economy macroeconomic models should be balanced against a few other considerations. First, new open economy macroeconomic models have not been developed to describe the interaction of numerous, big and fast-growing emerging countries with large and developed countries. Second, these models were not meant to describe the general equilibrium effects stemming from the interaction between a large series of domestic financial constraints and market failures and some profound changes in the international financial architecture. While it is reasonable to question the reliability of the projections based on these models, it is misleading to claim they are ill-conceived or outright wrong because they cannot account for all the peculiar features of the global economy. Certainly, however, further research in international macroeconomic modelling area is warranted. In this direction the attempts of integrating portfolio choice into a DSGE model seem promising. See for instance Evans and Hnatkovska (2006a, 2006b), Devereux and Sutherland (2006a, 2006b, 2006c) and Tille and van Wincoop (2007).

VII.2 Related policy and political issues.

Several fellows at the Peterson Institute for International economics\(^{144}\) have forcefully emphasised that global imbalances are strictly linked to other political important issues, such as international trade and investment policies.

VII.2.1 The unpleasant rise of trade protectionism.

It is a simple political economy consideration that exporters and import competing producers increase the pressure on the government to obtain protection when their countries record repeated and large current account deficits. Therefore, it is clear that global imbalances, which by definition reflect unbalanced trade patterns, have made protectionist pressures mount in several advanced countries. Although refrained by WTO rules and other political considerations, the governments in these countries find it harder and harder to disregard the requests of protection by several anxious domestic lobbies: this clearly appears from the numerous speeches and the restrictive bill proposals put forward by US Congressmen and European leaders.\(^{145}\) Faruqee et al (2006b) examine the macroeconomic implications of a global shift to protectionist policies in a dynamic general equilibrium model with four regional blocs (i.e. US, Asia, Eu and Japan, rest of the world).\(^{146}\) Trade measures turn out to be more expensive and ineffective means to correct global imbalances than other policy interventions. While the outcome of the analysis is unsurprising, the

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\(^{144}\) Such as Fred Bergsten, William Cline and Morris Goldstein

\(^{145}\) See The Economist (2007).

\(^{146}\) They look at uniform and discriminatory tariffs followed by tariff retaliation.
very same research is telling: protectionist pressures have grown so high that showing the inefficiency of a set of unilateral trade restrictions appears a warranted exercise.

The unwinding of global imbalances is also able to affect the success (or failure) of the Doha round of trade negotiations since the adjustment of few bilateral exchange rates could open the way to the multilateral reduction of tariff and non-tariff barriers. A constructive trade agreement in the Doha round, in turn, could implicitly include some exchange rate realignments and could also shape global trade in a way that favours the closing of the US current account imbalances.

Similarly, the rapid increase in commodity and food prices during 2006 and 2007 is likely to affect both global imbalances and Doha negotiations. China is recently having serious problems in keeping inflation under control and this could force the authorities to appreciate the currency vis-à-vis the dollar. The future pattern of the international prices of food, however, will depend both on national agricultural policies and on the results of the Doha negotiations. This is another example of how trade negotiations, exchange rate adjustments and global imbalances are related issues.

The much debated problem of the correct Dollar-Renminbi exchange rate is politically extremely controversial exactly because of its impact on international trade relationships. As noticed by Goldstein (2006), even though the US administration has unofficially complained for the Chinese practice of massively intervening in the foreign exchange markets - notwithstanding the large sterilised interventions China implemented in 2006 - , the Bush administration has always refrained from labelling China as a “currency manipulator”. The US Treasury department missed this opportunity in its 2005 and 2006 Reports, in the Strategic Economic Dialogue in May 2007 and in the Treasury May 2007 report to Congress. The reason why currency manipulation is a crucial aspect of the global imbalances debate is its potential impact on the already strong protectionist pressures growing in Europe and, even more, in the US. A declaration by the US Treasury (and even more, under the new Decision on Bilateral Surveillance over Members’ Policies, by the IMF) whereby China is indicted to manipulate its currency, would open the way for the US administration to file a case against China before the WTO. The claim would be that exchange rate interventions amount to an export subsidy.

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147 Both the European Union and the United States are to review their agricultural policies in the next few months.

148 In fact, the real effective exchange rate of the Renminbi has moderately appreciated since 2005: nonetheless it is still depreciated with respect to 2001. The nominal Renminbi-US dollar has also appreciated by about 10% since June 2005. The exchange rate has fallen from 8.28 Renminbi per dollar to 7.43. (Rate of the 21st November 2007)

149 This is a US-China economic forum born at the end of 2006.

150 A US declaration in this direction would be very important since it could give momentum to the IMF new surveillance scheme, modified in June 2007 with the revision of the 1977 Decision on Bilateral Surveillance. I will come back on this in the section VII.2.3.

151 This was suggested by the Chairman of the Federal Reserve, Ben Bernanke, in a speech given in Beijing at the time of the first Strategic Economic Dialogue. See Bernanke (2006) and Hufbauer et al (2006).
One could reasonably argue that the Chinese current account surpluses vis-à-vis the US are just a modest portion of US deficits (Figure 15). In fact, many maintain that US should push hard for a change in China’s approach to foreign exchange rate interventions not because the alleged misalignment of the Renminbi is per se responsible of the US deficits, but because China represents a key competitive benchmark for other Asian countries. A consistent appreciation of the Renminbi would probably also lead to the appreciation of the currencies which track the Chinese one.  

Such a rise of trade protectionism casts serious doubts on the political sustainability of the current situation. This reinforces the claim that global imbalances are not sustainable since their persistence contributes to make trade protectionism flourish.

VII.2.2 The unpleasant rise of financial protectionism.

Even though much of the debate has focused on the political consequences of the China-bashing rhetoric on trade protectionism, another politically sensitive form of protectionism is on the rise. I refer to the opposition, in the US and other developed countries, to state-backed FDI inflows from developing countries directed towards the acquisition of large domestic companies. The authorities of many Asian and oil exporting countries have recently expanded or newly established sovereign wealth funds with the ultimate goal of diversifying the allocation of their large stocks of international reserves. According to Morgan Stanley, sovereign wealth funds in 2007 reached about $2.500 billion and this figure is likely to increase to $5.000 billion by 2010 and $12.000 billion by 2015. The typology of sovereign investors is much broader: besides sovereign wealth funds, there is also a large range of sovereign foreign investors which includes stabilization funds (devoted to risk diversification and to prevent the Dutch disease problem), sovereign private equity funds (which act as more aggressive investment vehicles), state-owned or state-backed enterprises (which undertake foreign acquisitions for business related reasons).

While most of the already existing sovereign funds have played a minor role in foreign capital markets because of their little involvement in management stakes, new and more aggressive sovereign funds gather little favour and raise major concerns abroad. European and US policymakers, for instance, argue that strategically important companies (in particular in the

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152 The call for a Chinese currency reform has not to be confused with a call for rapid capital account liberalisation. Chinese banks risk to suffer much from a too fast liberalisation process.

153 See Ziemba (2007) for the classification of the sovereign funds proposed in this paragraph.


156 Such as Singapore’s Temasek Foreign assets (1974), Qatar Investment Authority (2005) and several investment vehicles in Dubai.
communication, transport and energy sectors) risk to be purchased by sovereign funds belonging to hostile and market unfriendly foreign governments. It would be paradoxical, in their view, that the long process of privatisation of domestically publicly owned companies will produce foreign publicly owned companies.\textsuperscript{157} So far, the degree of discontent has varied between US and UK (pointing to reciprocity and transparency) and EU (stressing the benefits of local ownership); on the whole, however, discontent and concerns have considerably grown.\textsuperscript{158}

From a mere economic point of view ownerships does not matter as long as the management of the companies receives the mandate of maximising profits and the value of the firms. However, delicate political issues may arise even when this is the case: lobbying pressures by foreigners and possible tax-based bail-outs of large foreign-owned companies are two examples of the sensitive political issues brought about by the new wave of international financial integration and the growth of sovereign investors.

Some have argued that the activities of the sovereign wealth funds should be regulated so that they cannot act directly, yet only through national intermediary asset managers and private investment funds. These latter, however, have been involved in the financial turmoil burst in August 2007 after the collapse of the sub-prime mortgage and CDOs markets. The question at the moment is whether these financial companies are sufficiently reliable to assume the delicate task of intermediating large foreign sovereign funds.

As a matter of fact, most sovereign investors are little transparent, both from the financial and the governance perspective. One the one hand, since discriminating between domestic and foreign investors could be neither efficient nor sufficient, many argue that the most transparent funds should be favoured. Investment exporting countries, on the other hand, oppose such proposals and ask that investment laws and government scrutiny in the investment receiving countries will be, in their turn, transparent and non-discriminatory.\textsuperscript{159} There seems to be some room for international coordination under the umbrella of the IMF or the BIS.

Without taking an explicit position on the sovereign funds debate, Cooper (2006) claims that even though foreigners will certainly own more of the US capital stock in the future, this will not produce any serious transfer of capital ownership. In fact, the US has several layers of financial assets above capital stock: this implies that, according to his calculation, foreigners could at most

\textsuperscript{157} See Summers (2007).
\textsuperscript{158} In 2007, the US Congress enacted the Foreign Investment and National Security Act to revise the legal framework so as to define the circumstances for government scrutiny over foreign acquisitions. The focus of the Act is not too broad and focuses on foreign acquisitions by entities controlled by foreign government, establishing control over US companies and raising security concerns.
\textsuperscript{159} The European case is emblematic. While most partners agree on the need of some form of control over foreign sovereign investors’ acquisitions, many governments are concerned that unilateral decisions could exacerbate the traditional European propensity to create the so called national or continental “champions”.

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own the 10% of overall US physical capital. Even admitting this is true\textsuperscript{160}, western policymakers worry more about foreign strategic acquisitions than about a widespread joint-ownership of minor companies.

The political debate on the issue is alive while little economic research has been done. It seems, however that a conclusion similar to that drawn for trade protectionism could be valid: global imbalances are unlikely to be sustainable if their persistence makes financial protectionism rise.

\textbf{VII.2.3 The IMF and global imbalances: reforms and recommendations.}

The lack of international agreement on the channels through which the global adjustment will have to take place (i.e. demand switches vs. exchange rate modifications) is mirrored in the \textit{impasse} shown by the IMF in recent years: its Managing Director rejected for the IMF the role of global umpire for exchange rate policies and the Multilateral Consultations started with limited ambitions. In this subsection I will briefly illustrate the IMF stance and I will divide the account in two parts. The first refers (VII.2.3.1) to the changes in the IMF activities and the IMF policy recommendations (the so-called IMFC Strategy) to address imbalances. The second subsection (VII.2.3.2) deals with the economic analysis the IMF has put forward in its WEO issues.\textsuperscript{161}

\textbf{VII.2.3.1 Revision of the 1977 Decision on Bilateral Surveillance and the Multilateral consultation initiative.}

The IMF has gone through two important operational changes in recent years. The first is the adoption of a new \textit{Decision on Bilateral Surveillance over Members' Policies}, which is part of its bilateral surveillance scheme. The second is the institution of the first \textit{Multilateral Consultation} on global imbalances between US, Japan, EU area, China and Saudi Arabia.

In June 2007, the Executive Board of the IMF adopted a new Decision on Bilateral Surveillance over Members' Policies which repeals the 1977 Decision on Surveillance Over Exchange Rate Policies.\textsuperscript{162} The new Decision is meant to update the practice of bilateral surveillance, to clarify the exchange rate policies countries should avoid and to allow the evaluation of individual economic policies in light of global concerns. In particular, the new Decision introduces a new overarching organising principle of surveillance, that is the concept of external stability. The latter refers to “a balance of payments position that does not, and is not likely to, give

\textsuperscript{160} See Eichengreen (2006b) for a contrarian view.
\textsuperscript{161} I look at the WEO issues because, besides being authoritative, they represent the most important tool of the IMF multilateral surveillance scheme.
\textsuperscript{162} Both of the Decisions have been designed to implement the bilateral surveillance under the article IV of the IMF’s \textit{Article of Agreements}. 
rise to disruptive exchange rate movements”. A balance of payments position in line with external stability is one in which, given the level and the structure of the net external asset position of the country, a) its “underlying” current account (i.e. the current account stripped of temporary factors) is in line with its equilibrium and with a zero output gap, and b) the capital and financial account is in order. Independently from the underlying current account position, to be in order the capital and financial account position has not to create risks of sudden and abrupt shifts in capital flows. This concept of external stability refers to both the current account and the capital and financial account of the balance of payments. The latter component was excluded in the 1977 Decision on Surveillance Over Exchange Rate Policies, which focused exclusively on specific aspects of exchange rate policies, and this prevented so far the IMF to assess and to discuss with the country whether the level and the structure of its external balance sheet was vulnerable or even conducive to large swings in capital flows. It follows that, even though the IMF has been given neither the mandate nor the jurisdiction on international capital flows, it has now gained the possibility of assessing the compatibility of domestic economic policies of its members with the observed pattern of net and gross capital flows. Another important novelty of the Decision on Bilateral Surveillance over Members’ Policies is the adoption of clearer criteria for the identification of exchange rate “fundamental misalignments“\textsuperscript{163} and currency manipulations\textsuperscript{164}. The 1977 Decision had a rather narrow scope and required IMF’s members to abstain from pursuing exchange rate policies aimed at gaining an unfair competitive advantage over other members; the new Decision, though not imposing new obligations to IMF’s members, requires them to avoid any exchange rate policy that results in external instability, regardless of its purpose.

Even though the new Decision is mainly directed to make sure that each member of the IMF undertakes exchange rate, monetary and fiscal polices that are consistent with its own external stability, the Decision gives new ammunitions\textsuperscript{165} to the IMF to demand prompt and extensive policy interventions to the countries which are most involved in global imbalances and whose past and current policies are of concern to the international community.

\textsuperscript{163} A (real effective) exchange rate is fundamentally misaligned if the underlying current account is significantly far from its equilibrium level.

\textsuperscript{164} A member allegedly manipulates its currency if it engages in policies aimed at setting the exchange rate (either moving it or preventing it from moving) at a level that is fundamentally misaligned (i.e. undervalued) with the purpose of gaining a competitive advantage and increasing net exports.

\textsuperscript{165} The Decision identifies seven economic developments that may signal the need for the IMF to review the consistency of the domestic policies of some of its members with the principles of the Decision and, eventually, to initiate a discussion with them. One of them is the presence of large and prolonged current account deficits or surpluses. The remaining developments are: i) fundamental exchange rate misalignments, ii) large-scale intervention in one direction in the exchange market, iii) the introduction or the prolonged maintenance of restrictions on, or incentives for, current payments and capital flows, iv) unsustainable or excessively risky (official or quasi-official) borrowing, v) large external sector vulnerabilities, arising from private capital flows, and vi) the pursuit of monetary and other financial policies that provide abnormal encouragement or discouragement to capital flows.
The Multilateral Consultation on global imbalances, instead, is an original initiative of the IMF (based on the Fund’s mandate\footnote{Article 4 section 3a of the Article of Agreement.}) which, by making countries talk closely on the issue, offsets the limited IMF capabilities of dealing with multilateral problems. The Multilateral Consultation initiatives are part of the Medium-Term Strategy to reform the IMF\footnote{Its implementation has been proposed by the Managing Director Rodrigo De Rato in June 2006.} and are meant to become a key means to enhance the effectiveness of IMF multilateral surveillance and to complement bilateral surveillance. The first Multilateral Consultation, which has been initiated in June 2006 by the then Managing Director of the IMF Rodrigo de Rato, has focused on “facilitating the resolution of global imbalances while sustaining robust global growth”. China, the Euro area, Japan, Saudi Arabia, and the United States accepted the invitation to cooperate and, after a series of bilateral and multilateral meetings, the participants and the IMF staff issued a joint report on April 14, 2007. The latter had been discussed and welcomed by the IMFC, then published and publicly released. According to a paper prepared by the IMF Staff to review the initiative (IMF (2007b)) and to the IMFC assessment of the joint report, all participants have taken, since April 2007, some steps in line with the IMFC strategy. Nonetheless, it is early to say whether the Consultation has indeed changed the pace and the quality of the adjustment process.

Although the Multilateral Consultation initiative has been lauded by those international economists and political scientists content with any new multilateral effort to address global problems, the Staff report (IMF (2007b)) reveals a few interesting shortcomings of this new method. First, the participants to the Consultation have simply agreed to voluntary participate to a “highly informal and confidential” consultation.\footnote{Only the April report has been submitted and discussed by the IMFC and the Executive Board and the content of the Consultation has not been made public.} Second, while there was consensus between the parties on the opportunity of a joint approach to address imbalances, “there was no support for ‘grand policy coordination’. Participants emphasized that national policies were driven primarily by domestic requirements, although a positive impact on global imbalances was a welcome additional benefit. The direct and indirect spillovers from policy action by others were generally seen as positive …. However, such spillovers were not considered to be especially large, partly reflecting participants’ assessment that the immediate risks from the imbalances were moderate. Consequently, the focus should be on ensuring the broad direction of policies across countries was appropriate, rather than striving for coordinated fine-tuning.” (IMF (2007b) p. 9) Third, given the Executive Board and the IMFC had already deployed a broad strategy to address imbalances\footnote{The latter was made public with the September 2006 IMFC Communiquè and reiterated afterwards.}, the Multilateral Consultation merely focused on “how best to accelerate policy action rather than on the design of the strategy itself, ensuring that the Consultations remained complementary to bilateral
surveillance.” (p. 13) Fourth, participants saw global imbalances as a fundamentally medium-term problem and, accordingly, favoured a gradualist policy strategy. (p. 8)

Since the Multilateral Consultation is a new instrument of multilateral surveillance that is meant to i) focus on systemically important macroeconomic issues, ii) foster cooperation, and iii) build consensus. It offers few new ammunition to the IMF to address global imbalances and to demand those changes in the national policies that would allow a proper collective management of the adjustment process. It follows that, all in all, the countries participating to the Consultation did not accept a true coordinating role of the IMF and, probably, consented to discuss the issue as a confidence building means and a way of tampering the mounting protectionist pressures.

VII.2.3.2 WEO Analysis and policy recommendations.

A gradual and smooth solution to global imbalances certainly requires the coordination of national domestic policies. The individual adjustment efforts need to be consistent with each other for a global recession to be avoided. The importance of policy coordination and the global nature of the problems regarding global imbalances have urged the IMF to take the lead in analysing the nature of the problems and in the promotion of a cooperative approach.

Accordingly, since 2005 the IMF has released a series of studies on global imbalances and some dedicated chapters of its World Economic Outlook (WEO) issues. The WEO 2005 (IMF 2005), for instance, emphasises that, notwithstanding the beneficial effects of the increasingly global economic transactions, globalization has brought about new challenges and risks to the world and the individual countries. The simulations of the IMF’s new multicountry Global Economic Model (GEM), in fact, reveal that trade openness, competition, financial integration and financial development may facilitate global rebalancing only as long as global financial conditions remain benign. Large imbalances, in effects, increase the individual and global exposure to financial market disturbances. The reason is that the larger the international investment positions grow, the higher are the risks associated with unexpected changes in investors’ preferences. Deeper financial integration, as shown by what occurred to some emerging markets in the past, makes countries more vulnerable to changes in investors’ sentiment and expectations.

170 “Formally, they are part of the Fund’s multilateral surveillance responsibilities, and are not intended to provide oversight over members’ observance of their obligations under Article IV, which is the role of bilateral Article IV consultations. MCs are intended to build on and complement bilateral surveillance, focusing less on diagnosing appropriate actions in each country, and more on addressing multilateral issues with the objective of building consensus around policy responses to issues of systemic or regional importance” (IMF (2007b) p.12).
In the WEO 2007 April, the IMF completes the analysis on the possible adjustment patterns and focuses on the role of the real exchange rates in the process of adjusting external imbalances.\textsuperscript{171} The analysis reaches two main conclusions. First, movements of real exchange rates can facilitate the smooth unwinding of external imbalances because a real depreciation of the dollar reduces the costs (in terms of GDP growth) that are associated with the reversal of the current account deficits. Second, in light of refined estimates on the responses of trade volumes to changes in the relative prices\textsuperscript{172} and given trade volumes have become more reactive to changes in relative international prices, the real depreciation of the US dollar is likely to be smaller than usually claimed. In sum these conclusions are moderately optimistic: the US dollar depreciation is an inevitable outcome, yet it need be neither large nor fast.

Notwithstanding its several merits, I believe this analysis is to be taken with caution; the size and the composition of the sample, in particular, may strongly influence the results. Half (i.e. 6 out of 13) of the large and persistent deficits recorded in advanced countries, in fact, are still going on\textsuperscript{173}: this reduces the number of reversal episodes, following large and persistent imbalances, that can be used for the econometric analysis. In addition, the chapter does not put sufficient emphasis to the large number of contemporaneous imbalance episodes that are currently going on. Moreover, even though in Box 3.2 (p.97) of the WEO it is claimed that there are no major differences among different classes of reversal episodes\textsuperscript{174} (that is between ‘normal’ imbalances and large and persistent imbalances\textsuperscript{175}), the reversal episodes that follow large and persistent imbalances in advanced countries are too few to check the equality of the patterns. Furthermore, the contractionary and expansionary deficit reversals in advanced countries have occurred in very distinct periods: contractionary episodes took place in the 70s and 80s whereas expansionary episodes in the 80s and 90s. This suggests that the choice of enlarging the sample to the two decades before the 80s is controversial. Since most of conclusions of the chapter are based on

\textsuperscript{171}The chapter revises the experiences of countries which have gone through large and sustained current account reversals (i.e. large corrections from deficits to surpluses, and vice versa, defined as swings in the current account balance of at least 2.5 percent of GDP and at least 50 percent of the initial current account imbalance that are sustained for at least five years) and the identification of the episodes of large and persistent imbalances (i.e. a deficit/surplus amounting to more than 2 percent of GDP for more than five years).

\textsuperscript{172}The study argues that both large differences in response across sectors (aggregation bias) and the fact that imports embody domestically produced intermediate products (vertical integration bias), tend to bias the standard estimates of exchange rate elasticities. Mann (2004) suggests other refinements to estimate trade income elasticities so as to keep into account the “new economy services” and the impact on foreign growth of the increased international tradability of such services. These extensions imply a reduction in the speed of opening of the CA deficits, yet they do not guarantee the trajectory is sustainable.

\textsuperscript{173}According to the analysis, since the 60s there have been 20 large and persistent episodes of current account imbalances in advanced economies (13 of which are deficits), 24 episodes in emerging markets (16 deficits) and 5 in oil exporting countries (0 deficits). Of these, those which are still going on are 11 in advanced economies (6 deficits), 7 in emerging markets (4 deficits) and 3 in oil exporting countries.

\textsuperscript{174}Reversals of large and persistent surpluses, instead, do differ from reversals of normal size and duration.

\textsuperscript{175}7 out of 42 are deficit reversal episodes refer to large and sustained deficits and 2 out of 36 surplus reversal episodes refer to large and sustained surpluses.
episodes taking place in the 60s (when the exchange rate arrangements and the stage of development of the countries were different) and referring to relatively small and not persistent imbalances, the empirical findings of the chapter have to be interpreted with a grain of salt.\footnote{Since the chapter does not address the issue of why large and persistent imbalances are generated and why they revert, in addition, the estimates may also be affected by an endogeneity problem.}

Finally, even though the study claims that private credit and stock market growth were higher than usual during the 13 episodes of large and persistent deficits, the analysis does not focus on the reversal episodes associated to the fall out of financial market bubbles. This happened, for instance, in Finland and Sweden in 1991. Given the difficult state of the US real estate markets, I think this is an interesting aspect that deserves further investigation.

Already in 2004, the IMFC did informally invite its members to take the necessary steps to redress global imbalances. The lack of enforcing power however did not produce concrete changes in national policies. Later on, in 2006, the IMFC developed a more elaborated strategy and demanded a more active participation of its members. Such strategy is twofold. On the one hand, the US authorities should rebalance internal spending - by improving the primary fiscal consolidation and supporting the growth of private savings - and the surplus countries should raise domestic expenditures in a way consistent with their current absorption capacity.\footnote{It has to be noted that there is no reference to foster financial development, that is at the basis of some conceptualisations of global imbalances. Similarly, there is no discussion about capital account liberalisation in the emerging markets.} EU and Japan, on the contrary, should put in place growth–enhancing reforms so as to increase domestic demand and investments. On the other hand, the US dollar should depreciate against the currencies of the countries with the largest current account surpluses: this change would improve the US net investment position via a significant valuation effect and, more importantly, it would contribute to increase global absorption of US produced goods and services. In addition, members should try to remove obstacles to international trade and to the reallocation of resources so as to ease and moderate the dislocation in economic activity that is likely to follow the adjustment. The IMFC argues that, short of these changes, the world will undergo serious difficulties; the longer the necessary policy measures will be postponed, the more likely a disorderly adjustment of asset prices, including a sharp depreciation of the US dollar, will occur.

Given the WEO is not only the outcome of in-house IMF research but is one official tool of its multilateral surveillance, I believe the timing of the exchange rate analysis (i.e. April 2007) reflects the fact that the IMF tried, as long as possible, not to be involved in the hazardous dispute on the appropriate levels of the bilateral exchange rates. As discussed in subsection VI.2, the alleged misalignment in the Dollar-Renminbi exchange rate has been one of the most delicate
political issue in the last years. If this deduction is correct, China’s growth has already produced a change in the praxis of the IMF: the latter has refrained from supporting the US concerns.

VIII. The other side of the US coin: international reserve accumulation.

Fast growing Asian countries and oil producers started accumulating large foreign reserves in 1999-2000. Higgins and Klitgaard (2004) analyse such pattern and show that central banks in Asia have accounted for almost 80 percent of the increase in global reserves over the period 1999-2003. Since then, the pace of accumulation has accelerated. Notably, while Asian private investors tend, on net, to move capital flows within the region, central banks direct their funds outside it. This explains why reserve purchases in Emerging Asia and Japan have exceeded their saving surpluses. (Figure 16) Dollar reserve purchases in 2003 financed around 80% of the US current account deficit and, over the period from 1995 to 2003, dollar reserve purchases financed almost half of the cumulative US current account deficit (Figure 16).

![Figure 16. Balance of payments flows in Asia and Official flows in the US. (1995-2003)](source: Higgins and Klitgaard (2004).)

These stylised facts led many researchers to study what drives reserve accumulation, how costly the process is and how far it can go. Aizenmann and Lee (2007), Ranciere and Jeanne (2006) and Wyplosz (2007) look at the reasons why emerging markets accumulate large reserves. Aizenmann and Lee (2007) test precautionary and mercantilist motives in accounting for the hoarding of international reserves. They find that the variables related to mercantilist motive are statistically significant in the estimations, but help explaining only a small part of actual reserve accumulation. The empirical results are more in line with a precautionary demand of reserves. This

178 From the end of 1999 to end 2003, the roughly $1.2 trillion increase in global reserves can be attributed to $582 billion purchased by developing countries in Asia and $375 billion purchased by Japan. Non-Asian countries that have built up large reserve holdings since 1999 include Brazil, Mexico, and Russia
is consistent with the idea that the high individual and aggregate uncertainty in emerging markets requires large precautionary savings. In this light, reserve accumulation is a self-insurance mechanism against the adverse consequences of possible sudden stops, capital flights and bank troubles. Even though exchange rate hoarding entails some costs in the medium run, Aizenmann and Lee (2007) argue that net welfare gains come from the cautionary management of international reserves.

There is a widespread agreement that a precautionary motive is behind the accumulation of foreign reserves. However, it remains controversial which is the adequate and optimal level of reserves consistent with such a motive. For a long while, in the literature, a ratio of international reserves over three months of imports equal or above 1 has been considered an adequate benchmark. However, as clearly appears in Figure 17, reserves have far exceeded this level in recent years.

In countries with current account surpluses, in fact, imports are not the major issue of concern. Capital flows are far more important. Accordingly, precautionary reserves are more likely to grow together with the level of the short-term external debt, whose roll-over requires a constant stream of capital inflows.179 Accordingly, the so-called Guidotti-Greenspan-Fisher rule suggests that reserves should be at least equal to the level of short-term external debt. Wyplosz (2007) and others, however, argue that there is little theoretical reason to look only at short-term debt: given capital outflows may generate shortages of financing well beyond what is required to roll-over the short-term debt that falls due, indebted countries should insure for the overall level of liabilities. It turns out that most countries have accumulated reserves in a way consistent with such interpretation of

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179 Short-term debt needs to be frequently rolled over; in periods of limited financial flows, countries strive to do so.
the self-insurance motive.\textsuperscript{180} In addition, oil and commodity exporting countries typically accumulate reserves to avoid the negative impact of the \textit{dutch disease problem}: this represents a different precautionary motive that has to do with the size and speed of the annual capital inflows rather than with the level of accumulated liabilities.

Dooley and co-authors\textsuperscript{181} argue that countries willing to receive foreign private flows need accumulate some collateral and this is the ultimate role of foreign reserves.\textsuperscript{182} Following a standard method to calculate the amount of collateral associated with a certain amount of FDIs\textsuperscript{183}, they find, in many emerging markets, a close correspondence between the level and the growth of reserves and the collateral that would be necessary to insure the gross amount of FDI inflows. The analysis is consistent with the persistent and large US current account deficits, with the ability of the US to borrow at low interest rates and with the willingness of foreign investors (i.e. central banks and fiscal authorities) to purchase US low yield assets. The results hold for the whole group of emerging markets and for China alone (Figure 19).

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fdi_collateral_reserves.png}
\caption{FDIs Book value and Market to Market, estimated collateral and reserves stocks. (Billion $). Source: Dooley et al (2007)}
\end{figure}

Given Chinese reserves have overcome $1.3 trillion in 2007, Cina is now ahead of Japan. Does this development represents a problem? Notwithstanding the plausible precautionary advantages that come from holding reserves, such an activity is costly. The costs of reserve...

\begin{footnotesize}
\begin{itemize}
\item See Figure 6 for some examples.
\item See, for instance, Dooley et al (2004b) and (2007).
\item See Roubini and Setser (2005)’s criticism in footnote 58.
\item This is the result of the multiplication of the potential volatility of the underlying asset over a period of time by a measure of the credit risk of the counterparty.
\end{itemize}
\end{footnotesize}
hoarding are diverse. The so-called fiscal cost is the difference between the returns on the assets held as reserves and the cost of the interests paid on sterilisation bonds. The overall cost of holding reserves, however, may be larger than this if one considers that external reserves often come from external borrowing. Thus, the difference between the cost of borrowing and the return on reserves is another possible measure of total costs. Finally, the difference between the returns on the reserves and the returns on other alternative domestic investment opportunities represents the social (opportunity) cost of reserves. Besides these direct costs, sterilisation that accompanies the accumulation of reserves tends to negatively affect domestic banks, which are forced to purchase low-yield central banks bonds. This hinders the strengthening of the domestic financial system in emerging markets and, indirectly, adds up to the costs of hoarding reserves.

These considerations indicate that reserve hoarding has a natural limit and cannot proceed forever at current rates. This is another reason to believe that global imbalances are likely to unwind in the future, at least unless new forces stand in for the fading ones.

**IX. Oil and commodity prices.**

The growth of large emerging markets and the military events occurred after 9/11 have contributed to push up the commodity prices since 2002. The real growth (deflated by US CPI) of oil and commodity prices boosted (Figure 20). The real price of oil, in late 2007, has reached values close to those recorded after the shock in 1979.

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184 “The increase in the private sector’s foreign liability matches the increase in the Central Bank’s foreign assets. Short-term borrowing abroad does not enhance the private sector’s overall capacity to invest.” (Rodrick 2006 p. 259).
The contribution of higher oil prices to the current account imbalances is key and it is the object of the analysis of the IMF WEO 2006. Together with the oil price, in effects, the value of oil exports has doubled in 2005 in the sample of countries (Figure 21); conversely, the oil bill has increased in US and other industrial countries. In the US, one-half (or about 1% of GDP) of the deterioration in the current account in 2005 and 2006 can be attributed to the higher price of oil. On the contrary, imports in oil exporting countries have risen only marginally since domestic consumption has remained quiet and government expenditures have moved only gradually.\textsuperscript{185} Interestingly, imports in oil producing countries have gradually stirred towards countries other than the advanced ones: this implies that higher oil revenues have, both directly and indirectly, widened the US current account deficits.

![Current account and oil trade balance](image)

Figure 21. Current account and oil trade balances (in % of GDP). Selected countries and regions. Source: IMF (WEO 2006) fig 2.5

A natural question to ask is how much this situation is similar to what happened at the time of the two oil shocks in the 70s. One important aspect differentiates these two periods: in the 70s petrodollars were exported via official reserve accumulation and bank deposits, whereas now capital outflows are also characterised by high portfolio investment flows and tend to be directed towards marketable financial assets. In some cases, these flows are prepayments of external debt accounts, in others they are purchases of US securities and portfolios investments (Figure 22). Since

\textsuperscript{185} The main reason is that they are more cautious in additional spending, probably because of past waste.
this change in the patterns and composition of capital flows has contributed to keep the US interest rates low, it has also contributed to the maintenance of global imbalances.\textsuperscript{186}

![Figure 22. Fuel Exporters' Cumulative Current Account Balances and Capital Flows (Billions of 2005 U.S. dollars)](source: IMF WEO (2006) fig 2.3)

Given the size of oil exporters’ current account surpluses (often above 15 percent of GDP), it is not unreasonable to expect a reversal process. If, as it seems, most of the increase in the oil price is permanent, the increase in net wealth and permanent income in the oil exporting countries should eventually be matched by an increase in spending. The process, however, is likely to be very gradual and limited in the medium-term given the inflationary consequences of oil price shocks have been contained in most oil importing countries. The adjustment of global current account imbalances, instead, requires a large increase in the absorption of oil-exporting countries. Some argue that oil exporters could use oil revenues to boost social expenditures (such as education and infrastructures), which could enhance their limited domestic production capacity and improve living standards.\textsuperscript{187} So far, government expenditures and private investments have not changed much in these countries.

A recent work of the IMF Staff (IMF 2007c) discusses the role of special fiscal institutions\textsuperscript{188} in fiscal management in oil producing countries. On average, governments in these countries use the additional fiscal oil revenues in a way that does not increase imports and,

\textsuperscript{186} A throughout analysis on the differences between the 70s and the 2000s is offered by Blanchard and Gali (2007). They argue recent oil shocks did not have an impact on developed economies similar to what occurred in the 70s because oil is now used much less intensively, central banks have improved their control over inflation and the economies got much more flexible over time.

\textsuperscript{187} Limited government effectiveness, however, casts doubts on the efficient use of such additional resources.

\textsuperscript{188} The study looks at oil funds, fiscal rules and fiscal responsibility legislation and budgetary oil prices.
therefore, that does not contribute to close the imbalances. The surge in oil revenues, in addition, has boosted net domestic wealth and enriched the sovereign oil funds. While these latter may help governments to run solid fiscal policies and to sustain the aggregate demand, as in Norway, this is less likely to occur in many oil-exporting countries.\textsuperscript{189} If the pattern of adjustment of global imbalances depends on fiscal behaviour of some oil-exporting countries, then additional political and institutional factors play a crucial role in determining the sustainability of global imbalances. Not only, as anticipated earlier, global imbalances and financial protectionism in advanced countries become closely related, but also the economic and institutional development of oil exporting countries may turn out to affect their spending and investment behaviour.


In this section I briefly illustrate two extreme views about the current state of the international financial architecture, that is the so-called “Bretton Woods II” view and the “Bretton Woods, reversed” view. The assessment of the current international monetary system is directly related to the various accounts of global imbalances illustrated earlier. In a nutshell, these alternative views of the international monetary system differ in the choice of which set of the countries represent the core of the international system: Dooley, Folkerts-Landau and Garber (2003) focus on China, Asia and US, whereas Rose (2006) on the remaining developed and developing countries.

Dooley, Folkerts-Landau and Garber (2003) argue that the current international monetary system operates like the Bretton Woods system. First, many countries limit the fluctuations of the exchange rate of their currencies against the dollar and maintain undervalued exchange rates in order to promote exports. Second, China and other emerging markets accumulate foreign reserves as a collateral to attract FDIs from more developed countries. Third, the US represents the main source of global spending and its assets work as a means to hoard international reserves. All this makes the current situation an equilibrium condition of global opposite forces; it resembles the international monetary arrangement that accompanied global growth after the World War II.

Criticism to such view is multifaceted. First, China and other fast growing economies export to many countries, not just to the US: the focus on the Sino-American codependence, therefore, is too narrow. Second, foreign reserves accumulation started in early 2000s, while the US FDIs in

\textsuperscript{189} Many of them have in fact encountered serious difficulties to impose clear and rigid operational rules to these funds, in particular when extra-budgetary spending had been allowed. More generally, it turns out that well-designed fiscal institutions help to support sound fiscal policies only provided the appropriate institutional frameworks are in place and political authorities are committed to valuable goals. (IMF 2007c) This is in line with the literature which puts emphasis on institutions (i.e. governance) and policies.
China were abundant already in early 90s. Third, as Barry Eichengreen (2004) points out, the parallel with Bretton Woods is fragile because, in the years since the end of World War II until the collapse of Bretton Woods system, the US was running current account surpluses and large capital outflows. Fourth, the Bretton Woods fixed exchange rate arrangements stemmed from an explicit and official agreement while the current situation is characterised by unilateral pegs around allegedly misaligned values. This difference has profound implications for the robustness of the two arrangements. If even a coordinated group as the Gold Pool failed to cooperate, it is unlikely that policy coordination will be realised between the various fast growing countries; in fact, they share very limited common interests, if not contrasting goals. The reasons why each emerging country could unilaterally break the peg to the dollar have already been discussed: one reason is that the continuous sterilization of foreign reserves is becoming increasingly difficult and costly; another is the flourishing of the sovereign wealth funds; finally, export-led growth strategies have boosted western protectionism and each country has an incentive to prevent that protectionist measures are taken against its own exports. In addition, since there is the risk that the fragility of the banking system and the dependence of the economy on exports will reduce growth once domestic economic liberalisation will take place, each of these countries has strong incentives to adjust growth strategies in an uncoordinated manner.

A radically different view on the international monetary system is proposed by Rose (2006). He argues that a new international monetary system has emerged in the 90s. Such a system diverges from Bretton Woods in several aspects. While the Bretton Woods system was hinging on governments’ commitment to fix their exchange rates to the US dollar and to gold, the new system is characterised by a growing number of independent and transparent central banks adopting inflation targeting monetary policy frameworks and floating exchange rate regimes. In addition, while an explicit international agreement on the ‘rules of the game’ and on international monetary cooperation was present in Bretton Woods, it is absent nowadays. Such new international system, therefore, looks diametrically opposite to the old one: this is why Rose dubs it as the “Bretton Woods, reversed” system. Table 1 summarises the main differences between the two systems.

Rose also argues this new “spontaneous” architecture does not have obvious international costs and shows more resilience and stability than the former. He concludes from this that the current situation is solid. I would argue that the resilience of inflation targeting regimes Rose finds is, in fact, not informative about the resilience of the current international monetary system. While

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190 Sovereign funds have started targeting politically contentious foreign companies and US notes are destined to attract lower funds. The appreciation of emerging markets’ currencies against the dollar, in addition, increases the purchasing power of these sovereign funds abroad.

191 Inflation targeters have lower exchange rate volatility, less frequent sudden stops of capital flows, similar current account and international reserve patterns to those of countries that do not target inflation.
the destiny of exchange rate and monetary regimes go hand in hand in the case of fixed exchange rate regimes, they do not in case of flexible exchange rates. In an inflation targeting framework the exchange rate is free to move as long as its fluctuations do not impact on the expected rate of inflation. This means that, as long as the central bank keeps inflation under control, we can observe stable monetary policy regimes and large swings in the international exchange rate parities.

<table>
<thead>
<tr>
<th></th>
<th>Bretton Woods</th>
<th>Inflation targeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regime durability</td>
<td>Low</td>
</tr>
<tr>
<td>2</td>
<td>Exchange rate regime</td>
<td>Fixed</td>
</tr>
<tr>
<td>3</td>
<td>Focus on monetary policy</td>
<td>Partly International</td>
</tr>
<tr>
<td>4</td>
<td>Intermediate target</td>
<td>Exchange rate</td>
</tr>
<tr>
<td>5</td>
<td>Capital mobility</td>
<td>Controlled</td>
</tr>
<tr>
<td>6</td>
<td>Capacity for current account imbalances</td>
<td>Limited</td>
</tr>
<tr>
<td>7</td>
<td>System Design</td>
<td>Planned</td>
</tr>
<tr>
<td>8</td>
<td>International cooperation</td>
<td>Necessary</td>
</tr>
<tr>
<td>9</td>
<td>Role of IMF</td>
<td>Key in principle</td>
</tr>
<tr>
<td>10</td>
<td>Role of Gold</td>
<td>Key in principle</td>
</tr>
<tr>
<td>11</td>
<td>Role of US as Center country</td>
<td>Key in practice</td>
</tr>
<tr>
<td>12</td>
<td>Key Members</td>
<td>Essentially large and Northen</td>
</tr>
<tr>
<td>13</td>
<td>Central banks</td>
<td>Dependent, Unaccountable</td>
</tr>
<tr>
<td>14</td>
<td>Transparency</td>
<td>Low</td>
</tr>
<tr>
<td>15</td>
<td>Alignment with academics</td>
<td>Worrisome</td>
</tr>
</tbody>
</table>

Table 1. Features of the Bretton Woods and Reversed Bretton Woods. Source: Rose (2006) Table 3.

Roses focuses on flexible exchange rate regimes and inflation targeting countries. In doing so he neglects the role played in the current international arrangements by those countries that adopt fixed exchange rate regimes. Since global imbalances have grown also thanks to the behaviour of Asian and oil-exporting countries, the “Bretton Woods reversed system” is not as general and comprehensive as Rose claims. It is, at most, a sub-system which accounts for some global phenomena such as the great moderation, yet does not contribute much to understand issues as the global imbalances.

**XI. Concluding remarks.**

In this work I have reviewed the debate on the origins, the sustaining forces and the prospective scenarios of global imbalances. Several are the rationalisations offered to explain the current global conditions: some are compatible with each other and some in stark conflict. Each explanation, in fact, refers to a subset of a long series of different aspects that, to varying degrees, might have played a role in the evolution of global imbalances. Among them, I recall the US lax public policies, the US profligate private behaviour, the global saving glut, the global investment
drought, the attractiveness of US investment opportunities, the intrinsic services provided by US assets, the cross-country heterogeneity in the degree of financial development, the prolonged misalignment of several bilateral exchange rates, the avid hunger of emerging markets for US Treasury bonds and foreign reserves, and the persistent increase in international commodity prices. I have discussed the similarities and the contradictions among the rationalizations focusing on some of these factors and I have extended the analysis to those contributions that are not explicitly focused on global imbalances but on strictly related issues.

The main conclusion I draw from this review is that not all explanations are reasonable or consistent with the data, yet many are plausible and fit the events for, at least, limited periods of time. In particular, I think it is useful to distinguish three periods: the first from mid-90s to 2000s, the second from 2000 to 2002, and the third from 2002 onwards. In the first period, the new economy approach is, in my view, the most reasonable explanation of the large capital inflows in the US. In the second period, the cross-country heterogeneity in the degree of financial development view and the global saving glut cum investment drought are, instead, the most plausible rationalisations. During the last 5 years, finally, several factors have contributed to the maintenance and expansion of the imbalances: the lax US fiscal and monetary policies, the US real estate bubble, the rapid growth of international oil prices, the rapid accumulation of foreign reserve (in the form of US Treasury bills) in Asia and in oil-producing countries, the large cross-country heterogeneity in the degree of financial development, and the over-optimistic expectations of the investors over US future rates of growth.

Large is the disagreement on what is going to happen in the future: will global imbalances grow further, will they last as they are, or will they unwind? The various projections are in sharp contrast with each other, not only because they build on different assumptions regarding the forces underlying global imbalances, but also because there is great uncertainty about the likelihood that certain long lasting patterns (such as foreign international reserve accumulation or positive differentials in the US-foreign returns) will continue or revert in the future.

Some researchers emphasise the fact that exogenous shocks and a worsening of investors’ sentiment may make global imbalances unravel. This, in their view, proves that the current situation is unsustainable. Other researchers, instead, claim these shocks are unlikely to occur and, therefore, the situation will probably last and remain sustainable.

Even though I agree that some of these shocks are likely to happen in the future, I sustain that this says little on the sustainability of global imbalances. The definition of sustainability I borrow from Mann (2002), in fact, requires that, to be defined as unsustainable, a situation generates some economic force of its own that affects its trajectory. The fact that there is a set of
foreign exogenous shocks that are likely to unravel global imbalances has to do more with the vulnerability than with the sustainability of the current situation. The sustainability of global imbalances has to be assessed in terms of whether the situation itself has generated or is likely to generate the seeds of its own destruction. While many contributions assume that either something will change or that nothing will change, the endogeneity of the changes is not often analysed in sufficient detail.

In this perspective I think the further expansion of global imbalances is indeed unsustainable. First, the accumulation of large foreign reserves by several emerging markets might have produced large fiscal and social costs and entailed risks that grow with the level of the reserves: in this case, foreign reserves could have already reached their maximum level and their growth could be contained by developing countries’ authorities. Similarly, the US negative external position might have become so large to entail a substantial increase in the risk premia required by foreign investors to finance the new and the accumulated US current account deficits. It is also possible that the future US growth will be reduced either because of persistent exchange rate misalignments or because the depreciation of the dollar will urge the Federal Reserve Bank to raise the interest rates to prevent inflation from picking up. Ceteris paribus, the increase in the cost of borrowing and the slowing down of the US economy may speed the accumulation of debt up to the point that some form of policy interventions will be needed to contain the further growth of debt. The flourishing of sovereign wealth funds around the world, in addition, has boosted a new wave of financial protectionism, which accompanies more traditional forms of trade protectionism fed by the large and persistent trade imbalances recorded in several developed countries. The threat of future protectionist measures, if not the measures themselves, makes more likely that domestic policies in developing and developed countries will be adjusted in the next future. Notably, in all these examples, the possible policy reactions of developed and developing authorities to the persistence of global imbalances would be endogenously determined by the size and duration of the imbalances. It follows that these cases are examples of why the current situation is likely to have grown to a point that makes in itself unsustainable its further expansion.

Incidentally, most signs indicate some adjustment is already under way. Given the financial turmoil since August 2007, the US real estate markets are under stress, interbank liquidity has shrunk, and US and global growth rates are expected to slow down considerably. The abrupt changes in the housing and credit markets are shocks that, according to some, could eventually unwind the imbalances. This would prove, in light of the observations above, that global imbalances, though persistent, are a vulnerable and fragile equilibrium. The resilience of global imbalances to such shocks, on the contrary, would say little about the sustainability of the
imbalances. In light of these examples, further research in the direction of improving our understanding on the issues of the sustainability and the vulnerability of large and persistent external imbalances seems warranted.

The recent US current account deficits have been unprecedented. The consequences on global growth of an abrupt adjustment could, in the worst case scenario, be unprecedented too. Policymakers and international organisations need to prevent this scenario from taking place and this suggests that international policy coordination will become fashionable again. This represents a challenge both for the IMF and for the restricted groups of policy coordination, such as the G7/G8. Hitherto while the former has lacked the tools to stir national policies, the second ones did not give sufficient voice and power to the countries most involved in the global imbalances problem. Most likely, the names and the positions of the countries sitting at the bargaining table in the future will be very different from those involved in the policy coordination efforts of only few decades ago.

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Appendix A. The evolution of the US net international investment position.

In this appendix I reproduce part of the revised historical data on the US IIP which the BEA released on June the 15th 2007, following up the tradition, initiated in June 2005, of publishing the revised data and the components of the change.

The first table reports the changes in the IIP from 2005 and 2006. Besides financial flows (i.e. changes related to the balance of payments), BEA provides estimates of the changes due to capital gains, exchange rate fluctuations and other changes including variations in coverage, capital gains and losses of direct investment affiliates, and other adjustments to the value of assets and liabilities. The first evident fact is that the exchange rate valuation effects on the foreign owned US assets are negligible while they are large for US-owned assets abroad. This is due to the fact that the US, contrary to developing countries, obtain financial flows in its own currency (i.e. US dollar) and invest abroad in foreign currency. The currency mismatch typical of the countries afflicted by the so-called “original sin” problem does not apply to the US.

The second table, instead, focuses on the same revised historical data for the net IIP (not its individual items) on a year by year basis. Tables A.2 and A.3 show, respectively, the annual and cumulated changes in the US IIP when FDI are calculated at current costs. Figure 3 in the text refers to these calculations. Tables A.4 and A.5, instead, show, respectively, the annual and cumulated changes in the US IIP when FDI are calculated at market value. They do not differ much even though, once FDIs are evaluated at market value, the net IIP of the US slightly improves. As mentioned in the text, the relative contribution of the various sources of change differs across time. In the aggregate measures, however, the relative importance of “other changes” suggests that statistical issues are really important and may radically change the overall picture one can get. The limited cumulated effect of the exchange rate is not surprising. In figure A.1 I plot the end of year change in the nominal effective exchange rate of the US dollar as calculated by the IMF, with the percentage change in the net IIP (data coming from table A.3). Admittedly, the trade weights used to calculated the effective exchange rate differ from the relative weights of each class of liabilities denominated in foreign currency. Nonetheless, the two series go hand in hand. This tentative exercise shows that exchange rate led valuation effects are rather volatile and do not have a clear trend over a long period of time.

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193 As discussed in the text, the market value evaluation made by the BEA is subject to some criticism by Hausmann and Sturzenegger (2006) who argue it does insufficiently takes into account the relative growth differential in the stock markets of different countries.

194 Given the IIP is always negative, there are no sign switches. A negative number means an improvement in the IIP and a negative change in the NEER means a US dollar nominal depreciation.

195 See Lane and Shambaugh (2007) on this.
<table>
<thead>
<tr>
<th>Type of investment</th>
<th>Position, 2005</th>
<th>Financial flows (a)</th>
<th>Price changes (b)</th>
<th>Exchange-rate changes (c)</th>
<th>Other changes (d)</th>
<th>Total (a+b+c+d)</th>
<th>Position, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net international investment position of the United States</strong></td>
<td></td>
<td>2,238,359</td>
<td>-833,183</td>
<td>347,585</td>
<td>220,653</td>
<td>-36,325</td>
<td>-301,270</td>
</tr>
<tr>
<td><strong>U.S.-owned assets abroad</strong></td>
<td>11,576,336</td>
<td>2,178,654</td>
<td>13,754,990</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. official reserve assets</td>
<td>188,043</td>
<td>-2,374</td>
<td>31,123</td>
<td>3,092</td>
<td>-31</td>
<td>31,810</td>
<td>219,853</td>
</tr>
<tr>
<td>Gold</td>
<td>134,175</td>
<td>0</td>
<td>31,123</td>
<td></td>
<td>-31</td>
<td>31,092</td>
<td>165,267</td>
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<td>Special drawing rights</td>
<td>8,210</td>
<td>223</td>
<td></td>
<td>437</td>
<td>0</td>
<td>660</td>
<td>8,870</td>
</tr>
<tr>
<td>Reserve position in the International Monetary Fund</td>
<td>8,036</td>
<td>-3,331</td>
<td></td>
<td>335</td>
<td>0</td>
<td>-2,996</td>
<td>5,040</td>
</tr>
<tr>
<td>Foreign currencies</td>
<td>37,622</td>
<td>734</td>
<td></td>
<td>2,320</td>
<td>0</td>
<td>3,054</td>
<td>40,676</td>
</tr>
<tr>
<td>U.S. Government assets, other than official reserve assets</td>
<td>77,523</td>
<td>-5,346</td>
<td></td>
<td></td>
<td>12</td>
<td>-5,334</td>
<td>72,189</td>
</tr>
<tr>
<td>U.S. credits and other long-term assets</td>
<td>76,960</td>
<td>-5,337</td>
<td></td>
<td></td>
<td>12</td>
<td>-5,325</td>
<td>71,635</td>
</tr>
<tr>
<td>Repayable in dollars</td>
<td>76,687</td>
<td>-5,337</td>
<td></td>
<td></td>
<td>12</td>
<td>-5,325</td>
<td>71,362</td>
</tr>
<tr>
<td>Other</td>
<td>273</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>273</td>
</tr>
<tr>
<td>U.S. foreign currency holdings and U.S. short-term assets</td>
<td>563</td>
<td>-9</td>
<td></td>
<td></td>
<td></td>
<td>-9</td>
<td>554</td>
</tr>
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<td>U.S. private assets</td>
<td>10,120,741</td>
<td>1,062,896</td>
<td>644,786</td>
<td>265,511</td>
<td>131,450</td>
<td>2,104,643</td>
<td>12,225,384</td>
</tr>
<tr>
<td>Direct investment at current cost</td>
<td>2,535,188</td>
<td>235,385</td>
<td>46,009</td>
<td>39,188</td>
<td>-124</td>
<td>320,431</td>
<td>2,855,619</td>
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<tr>
<td>Foreign securities</td>
<td>4,345,884</td>
<td>289,422</td>
<td>598,777</td>
<td>198,181</td>
<td></td>
<td>1,086,380</td>
<td>5,432,264</td>
</tr>
<tr>
<td>Bonds</td>
<td>1,028,179</td>
<td>150,884</td>
<td>-12,032</td>
<td>13,727</td>
<td>0</td>
<td>152,579</td>
<td>1,180,758</td>
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<td>Corporate stocks</td>
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<td>138,555</td>
<td>610,809</td>
<td>184,454</td>
<td>0</td>
<td>933,801</td>
<td>4,251,506</td>
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<td>U.S. claims on unaffiliated foreigners reported by U.S. nonbanking concerns</td>
<td>734,034</td>
<td>83,531</td>
<td></td>
<td>13,075</td>
<td>17,824</td>
<td>114,430</td>
<td>848,464</td>
</tr>
<tr>
<td>U.S. claims reported by U.S. banks, not included elsewhere</td>
<td>2,505,635</td>
<td>454,585</td>
<td></td>
<td></td>
<td>15,067</td>
<td>113,750</td>
<td>583,402</td>
</tr>
<tr>
<td><strong>Foreign-owned assets in the US</strong></td>
<td>13,814,695</td>
<td>2,479,924</td>
<td>16,294,619</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Government securities</td>
<td>1,725,193</td>
<td>380,734</td>
<td>-8,563</td>
<td></td>
<td>7,332</td>
<td>379,503</td>
<td>2,104,696</td>
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<td>U.S. Treasury securities</td>
<td>1,340,598</td>
<td>189,181</td>
<td>-8,600</td>
<td></td>
<td>-411</td>
<td>180,170</td>
<td>1,520,768</td>
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<td>Other</td>
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<td>191,555</td>
<td>37</td>
<td></td>
<td>7,743</td>
<td>199,333</td>
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<td>Other U.S. Government liabilities</td>
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<td>3,133</td>
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<td></td>
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<td>18,999</td>
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<tr>
<td>U.S. liabilities reported by U.S. banks, not included elsewhere</td>
<td>296,647</td>
<td>22,040</td>
<td></td>
<td></td>
<td>-22,000</td>
<td>40</td>
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<td>Other foreign official assets</td>
<td>268,586</td>
<td>34,397</td>
<td>29,403</td>
<td></td>
<td>17,437</td>
<td>81,197</td>
<td>349,783</td>
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<td>Other foreign assets</td>
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<td>1,419,333</td>
<td>307,484</td>
<td>47,950</td>
<td>194,769</td>
<td>1,969,536</td>
<td>12,345,825</td>
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<td>180,580</td>
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<td>3,916</td>
<td>14,190</td>
<td>231,181</td>
<td>2,099,426</td>
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<td>4,352,998</td>
<td>591,951</td>
<td>284,222</td>
<td>25,419</td>
<td>-26,054</td>
<td>875,538</td>
<td>5,228,536</td>
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<td>Corporate and other bonds</td>
<td>2,243,135</td>
<td>449,194</td>
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<td>25,419</td>
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<td>2,535,790</td>
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<td></td>
<td></td>
<td>0</td>
<td>12,571</td>
</tr>
<tr>
<td>U.S. liabilities to unaffiliated foreigners reported by U.S. nonbanking concerns</td>
<td>557,840</td>
<td>235,769</td>
<td></td>
<td>9,605</td>
<td>-62,849</td>
<td>182,525</td>
<td>740,365</td>
</tr>
<tr>
<td>U.S. liabilities reported by U.S. banks, not included elsewhere</td>
<td>2,601,707</td>
<td>434,393</td>
<td></td>
<td>9,010</td>
<td>273,868</td>
<td>717,271</td>
<td>3,318,978</td>
</tr>
<tr>
<td><strong>Memoranda:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct investment abroad at market value</td>
<td>3,570,252</td>
<td>235,385</td>
<td>393,709</td>
<td>179,732</td>
<td>-1,221</td>
<td>807,578</td>
<td>4,377,830</td>
</tr>
<tr>
<td>Direct investment in the US at market value</td>
<td>2,806,029</td>
<td>180,580</td>
<td>226,483</td>
<td></td>
<td>9,387</td>
<td>416,450</td>
<td>3,222,479</td>
</tr>
</tbody>
</table>

Table A1. Changes in the IIP between 2005 and 2006

Source: Bureau of Economic Analysis, Table 1 IIP of the US at Yearend, 2005 and 2006. Million $

106 Changes in coverage, capital gains-losses of direct investment affiliates, other adjustments to the value of assets and liabilities.
<table>
<thead>
<tr>
<th>Year</th>
<th>Position Beginning</th>
<th>Changes in position</th>
<th>Valuation adjustments</th>
<th>Total</th>
<th>Position Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Financial flows</td>
<td>Price changes</td>
<td>Exchange-rate changes</td>
<td>Other changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-178,470)</td>
<td>-49,545</td>
<td>-38,017</td>
<td>-5,747</td>
</tr>
<tr>
<td>1990</td>
<td>-259,506</td>
<td>-60,337</td>
<td>-26,636</td>
<td>43,845</td>
<td>57,287</td>
</tr>
<tr>
<td>1994</td>
<td>-323,397</td>
<td>-86,298</td>
<td>-93,308</td>
<td>17,221</td>
<td>27,320</td>
</tr>
<tr>
<td>1996</td>
<td>-495,055</td>
<td>-221,334</td>
<td>-44,200</td>
<td>-140,151</td>
<td>80,058</td>
</tr>
<tr>
<td>1997</td>
<td>-820,682</td>
<td>-69,740</td>
<td>-148,130</td>
<td>31,100</td>
<td>112,094</td>
</tr>
<tr>
<td>2001</td>
<td>-1,381,196</td>
<td>-400,243</td>
<td>-116,115</td>
<td>-111,724</td>
<td>89,848</td>
</tr>
<tr>
<td>2003</td>
<td>-2,088,008</td>
<td>-538,928</td>
<td>13,204</td>
<td>275,829</td>
<td>197,542</td>
</tr>
<tr>
<td>2004</td>
<td>-2,140,361</td>
<td>-556,742</td>
<td>64,827</td>
<td>194,037</td>
<td>143,845</td>
</tr>
<tr>
<td>2006</td>
<td>-2,238,359</td>
<td>-833,183</td>
<td>347,585</td>
<td>220,653</td>
<td>-36,325</td>
</tr>
</tbody>
</table>

Source: BEA, 15th June 2007
### Table A.4 Components of Changes in the Net International Investment Position With Direct Investment at market value, 1989-2006 Million $

<table>
<thead>
<tr>
<th>Year</th>
<th>Position Beginning</th>
<th>Position Ending</th>
<th>Changes in position</th>
<th>Attributable to</th>
<th>Valuation adjustments</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>-164,495</td>
<td>-95,789</td>
<td>-2,839</td>
<td>-95,789</td>
<td>4,643</td>
<td>41,242</td>
</tr>
<tr>
<td>1993</td>
<td>-452,305</td>
<td>-292,716</td>
<td>-2,839</td>
<td>-292,716</td>
<td>21,969</td>
<td>118,780</td>
</tr>
<tr>
<td>1996</td>
<td>-305,836</td>
<td>-137,687</td>
<td>-2,839</td>
<td>-137,687</td>
<td>65,387</td>
<td>-62,300</td>
</tr>
<tr>
<td>1997</td>
<td>-360,024</td>
<td>-221,334</td>
<td>-2,839</td>
<td>-221,334</td>
<td>58,320</td>
<td>-62,994</td>
</tr>
<tr>
<td>2000</td>
<td>-1,037,437</td>
<td>-486,373</td>
<td>-2,839</td>
<td>-486,373</td>
<td>79,681</td>
<td>-1,518,017</td>
</tr>
<tr>
<td>2001</td>
<td>-1,581,007</td>
<td>-400,243</td>
<td>-2,839</td>
<td>-400,243</td>
<td>17,671</td>
<td>-1,598,678</td>
</tr>
<tr>
<td>2002</td>
<td>-2,339,448</td>
<td>-503,167</td>
<td>-2,839</td>
<td>-503,167</td>
<td>121,521</td>
<td>-1,864,068</td>
</tr>
<tr>
<td>2003</td>
<td>-2,454,328</td>
<td>-538,928</td>
<td>-2,839</td>
<td>-538,928</td>
<td>240,782</td>
<td>-2,157,846</td>
</tr>
<tr>
<td>2004</td>
<td>-2,339,582</td>
<td>-556,742</td>
<td>-2,839</td>
<td>-556,742</td>
<td>71,857</td>
<td>-2,296,718</td>
</tr>
<tr>
<td>2006</td>
<td>-2,141,079</td>
<td>-833,183</td>
<td>-2,839</td>
<td>-833,183</td>
<td>608</td>
<td>-2,140,471</td>
</tr>
</tbody>
</table>

Source: BEA, 15th June 2007


<table>
<thead>
<tr>
<th>Year</th>
<th>Position Beginning 1989</th>
<th>Position Ending 2006</th>
<th>Changes in position</th>
<th>Attributable to</th>
<th>Valuation adjustments</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>-164,495</td>
<td>-95,789</td>
<td>-2,839</td>
<td>-95,789</td>
<td>4,643</td>
<td>41,242</td>
</tr>
<tr>
<td>1993</td>
<td>-452,305</td>
<td>-292,716</td>
<td>-2,839</td>
<td>-292,716</td>
<td>21,969</td>
<td>118,780</td>
</tr>
<tr>
<td>1996</td>
<td>-305,836</td>
<td>-137,687</td>
<td>-2,839</td>
<td>-137,687</td>
<td>65,387</td>
<td>-62,300</td>
</tr>
<tr>
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<td>-221,334</td>
<td>-2,839</td>
<td>-221,334</td>
<td>58,320</td>
<td>-62,994</td>
</tr>
<tr>
<td>2000</td>
<td>-1,037,437</td>
<td>-486,373</td>
<td>-2,839</td>
<td>-486,373</td>
<td>79,681</td>
<td>-1,518,017</td>
</tr>
<tr>
<td>2001</td>
<td>-1,581,007</td>
<td>-400,243</td>
<td>-2,839</td>
<td>-400,243</td>
<td>17,671</td>
<td>-1,598,678</td>
</tr>
<tr>
<td>2002</td>
<td>-2,339,448</td>
<td>-503,167</td>
<td>-2,839</td>
<td>-503,167</td>
<td>121,521</td>
<td>-1,864,068</td>
</tr>
<tr>
<td>2003</td>
<td>-2,454,328</td>
<td>-538,928</td>
<td>-2,839</td>
<td>-538,928</td>
<td>240,782</td>
<td>-2,157,846</td>
</tr>
<tr>
<td>2004</td>
<td>-2,339,582</td>
<td>-556,742</td>
<td>-2,839</td>
<td>-556,742</td>
<td>71,857</td>
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<td>-833,183</td>
<td>-2,839</td>
<td>-833,183</td>
<td>608</td>
<td>-2,140,471</td>
</tr>
</tbody>
</table>

Source: BEA, 15th June 2007
Appendix B. Current account balances: a comparison.

Figure B.1 reveals that, in 2005, the US position is not far different from other countries running deficits.

Similarly, it is not the only advanced (or emerging) country to have run persistent deficits over time. Figure B.2 shows the current account balances (as a % of domestic GDP) for a sample of
countries over the period 1980-2006. As discussed in the main text, these graphs do not allow to perceive the incidence of the relative size of the US in the global economy.

Figure B.2 Current account balance in selected countries (% GDP)
Source: IMF, WEO 2007 dataset
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