



EUROPEAN CENTRAL BANK

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A FRAMEWORK FOR ASSESSING GLOBAL IMBALANCES

by Thierry Bracke, Matthieu Bussière,
Michael Fidora and Roland Straub



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ABSTRACT

In this paper, we take a systematic look at global imbalances. First, we provide a definition of the phenomenon, and relate global imbalances to widening external positions of systemically important economies that reflect distortions or entail risks for the global economy. Second, we provide an operational content to this definition by measuring trends in external imbalances over the past decade and putting these in a historical perspective. We argue that three main features set today's situation apart from past episodes of growing external imbalances: (i) the emergence of new players, in particular emerging market economies such as China and India, which are quickly catching up with the advanced economies; (ii) an unprecedented wave of financial globalisation, with more integrated global financial markets and increasing opportunities for international portfolio diversification, also characterised by considerable asymmetries in the level of market completeness across countries; and (iii) the favourable global macroeconomic and financial environment, with record high global growth rates in recent years, low financial market volatility and easy global financing conditions over a long time period of time, running at least until the summer of 2007. Finally, we provide an analytical overview of the fundamental causes and drivers of global imbalances. The central argument is that the increase in imbalances has been driven by a unique combination of *structural* and *cyclical* determinants.

Key words: global imbalances, current account, incomplete financial globalisation, structural factors, cyclical factors.

JEL: F2, F32, F33, F41.

NON-TECHNICAL SUMMARY

Global imbalances have been a key issue in international policy discussions over recent years. Since the International Monetary Fund/World Bank annual meetings in Dubai in September 2003, the IMF and the G7 have repeatedly pointed to risks from the imbalances and have designed a policy strategy to facilitate a smooth unwinding.

More recently, in the course of 2007, concerns over global imbalances have been partly attenuated, as the current account imbalance of the main deficit country, the United States, has started to correct, partly in response to the turmoil in the sub-prime mortgage market. Nevertheless, the size of these imbalances remains large, and a further widening of external positions can be observed across a range of countries, including in the main surplus country, China. The imbalances therefore remain a central item at policy meetings.

The understanding of global imbalances has evolved over recent years. Initial analysis and discussions centred on the current account deficit of the United States. Attention then broadened to include developments in the main surplus countries, first and foremost Asian economies and oil-exporting countries. Also, the focus on current account positions was complemented by a focus on the domestic and financial imbalances in the economies concerned.

Despite considerable advances in the analytical understanding of global imbalances, several questions remain open. Opinions are still split over whether, when and how these imbalances will adjust. It is unclear how long they can be sustained. It is unclear whether their adjustment will be orderly and gradual or instead be coupled with macroeconomic and financial instability.

With so many open questions, this paper aims to take a more systematic look at global imbalances. It first offers a definition of global imbalances and puts them into perspective. We define global imbalances as “external positions

of systemically important economies that reflect distortions or entail risks for the global economy”. The definition has three components. It refers to *external positions*, encompassing current account positions as well as financial positions; it refers to *systemically important economies*, including both the deficit side (e.g. the United States) and the surplus side (e.g. Asia, oil exporters); and it refers to *distortions and risks*, so as to distinguish imbalanced from balanced positions. Distortions can be defined as deviations from the flexible price/perfect competition world; they can be induced by policy choices or private sector decisions. Risks refer to the macroeconomic and financial implications, both under a scenario of unwinding (risk of disorderly unfolding, as manifested for instance in the financial market turmoil of summer 2007) and under a scenario of further increasing imbalances (risk of a protectionist backlash, as manifested for instance in the limited progress made under the Doha round of trade negotiations).

The paper then provides an operational content to this definition by measuring trends in external imbalances over the past decade and putting these in a historical perspective. Current account indicators point to widening external positions since the mid-1990s, with an acceleration in the most recent years. The absolute value of current account positions as a percentage of global GDP has doubled since the mid-1990s. Global deficits are increasingly concentrated in a single country, the United States, which now absorbs around 75% of world net savings. Current account balances have also become highly persistent, with only a few large countries switching between deficit and surplus positions over the past ten years.

Gross international financial positions have built up even more rapidly than current account positions. The evolution of *net* foreign asset positions largely mirrors that of current account positions, with some differences due to valuation effects (in particular for the United States). *Gross* asset positions, however, have increased at a much faster pace, reflecting intensifying

global financial integration. Although emerging market economies in aggregate do not account for a substantial share of total gross foreign assets, they account for a very large share of the build-up in international reserve assets.

Potential distortions and risks have increased in tandem with the widening external positions. There is indeed ample evidence that the current pattern of global imbalances is not entirely the result of freely operating market forces, but also of policy interventions (large, persistent and unidirectional interventions in foreign exchange markets; persistent deviations of fiscal policy from long-run equilibria; lack of flexible labour, product and financial markets). Risks relate mainly to a scenario of unwinding imbalances (potential macroeconomic and financial disruption) but are relevant also under a scenario of continuously high imbalances (potential increase in protectionist pressures).

We argue that three main features set today's situation apart from past episodes of growing external imbalances: (i) the emergence of new players, in particular emerging market economies such as China and India, which are quickly catching up with the advanced economies; (ii) an unprecedented wave of financial globalisation, with more integrated global financial markets and increasing opportunities for international portfolio diversification, also characterised by considerable asymmetries in the level of market completeness across countries; and (iii) the favourable global macroeconomic and financial environment, with record high global growth rates in recent years, low financial market volatility and easy global financing conditions over a long time period of time, running at least until the summer of 2007.

Finally, the paper provides an analytical overview of the fundamental causes and drivers of global imbalances. The central argument is that the increase in imbalances has been driven by a unique combination of structural and cyclical determinants. Structural changes in the global economy have allowed a widening of external positions that may be sustainable

in the medium term. These structural changes have been supplemented by cyclical or policy-induced factors that highlight short-run risks and create the possibility of a sudden, disorderly unwinding of global imbalances.

The *structural* determinants of global imbalances relate mainly to the incomplete process of financial globalisation, which is linked to the lower stage of financial development in some regions of the world. Financial market imperfections in fast-growing emerging economies combined with the rapid process of financial globalisation has had an impact on the magnitude and the direction of capital flows at the global level, with capital flowing from emerging to industrial economies. The effects of financial market imperfections on capital flows are further amplified by the differential impact of business cycle moderation and by the specific ability of the US financial markets to insure households against idiosyncratic risks. The equilibrium generated by these structural factors cannot last forever but is sustainable in the short and medium term.

Cyclical factors have further fuelled this structural process of widening external positions. These factors relate to saving/investment patterns in the private sector (in the United States, for instance, accelerating private consumption due to a productivity-induced increase in US permanent income and due to wealth effects from rapid asset price increases) and the public sector ("twin" deficits in the United States). If market participants start to question the sustainability of these patterns, an overshooting can happen and a disorderly unwinding of global economic imbalances is possible.

The framework provided in this paper, based on a clear distinction being drawn between structural and cyclical drivers, can therefore provide a concrete operational tool for policy-makers to monitor developments in global imbalances.

I INTRODUCTION¹

Global imbalances have been a key issue in international policy discussions over recent years. Since the International Monetary Fund/World Bank annual meetings in Dubai in September 2003, the IMF and the G7 have repeatedly pointed to risks from the imbalances and have designed a policy strategy to facilitate a smooth unwinding. When the IMF designed its multilateral consultation process as a new global surveillance tool in 2006, global imbalances were selected as the first topic to be addressed, resulting in a detailed policy agenda for the major economies. The President of the European Central Bank (ECB) has mentioned these risks in his introductory statement to each of the Bank's monthly press conferences since November 2003, and they have been discussed in various issues of the ECB's Financial Stability Review.

More recently, in the course of 2007, concerns over global imbalances have been partly attenuated, as the current account imbalance of the main deficit country, the United States, has started to correct in response to the turmoil in the sub-prime mortgage market. Nevertheless, the size of these imbalances remains large, and a further widening of external positions can be observed across a range of countries, including in the main surplus country, China. The imbalances therefore remain a central item at policy meetings.

The understanding of global imbalances has evolved over recent years. Initial analysis and discussions centred on the current account deficit of the United States. Attention then broadened to include developments in the main surplus countries, first and foremost Asian economies and oil-exporting countries. Also, the focus on current account positions was complemented by a focus on the domestic and financial imbalances in the economies concerned.

Despite considerable advances in the analytical understanding of global imbalances, several questions remain open. Opinions are still split

over whether, when and how these imbalances will adjust. It is unclear how long they can be sustained. It is unclear whether their adjustment will be orderly and gradual or instead be coupled with macroeconomic and financial instability. More broadly, the imbalances figure prominently in political and societal debates over job losses, outsourcing, currency manipulation and possible protectionist measures.

With so many open questions, this paper aims to take a more systematic look at global imbalances. It first offers a definition of global imbalances and puts them into perspective (Section 2). We define global imbalances as “external positions of systemically important economies that reflect distortions or entail risks for the global economy”. The definition has three components. It refers to *external positions*, encompassing current account positions as well as financial positions; it refers to *systemically important economies*, including both the deficit side (e.g. the United States) and the surplus side (e.g. Asia, oil exporters); and it refers to *distortions and risks*, so as to distinguish imbalanced from balanced positions. Distortions can be defined as deviations from the flexible price/perfect competition world; they can be induced by policy choices or private sector decisions. Risks refer to the macroeconomic and financial implications, both under a scenario of unwinding (risk of disorderly unfolding, as manifested for instance in the financial market turmoil of summer 2007) and under a scenario of further increasing imbalances (risk of a protectionist backlash, as manifested for instance in the limited progress made under the Doha round of trade negotiations).

¹ The project of this paper was initiated by C. Thimann and received many substantive comments in the preparation process from M. Fratzscher. The authors would like to thank L. Bini Smaghi, L. Dedola, G. Korteweg, F. Moss, C. Nordquist, G. Pineau and the members of the General Council of the ECB and International Relations Committee of the European System of Central Banks as well as an anonymous referee for very helpful comments. We also would like to thank for very stimulating discussions at different stages of the project A. Brender, M. Chinn, F. Perri, F. Pisani, J. Pisani-Ferry and F. Warnock.

The paper then provides an operational content to this definition by measuring trends in external imbalances over the past decade and putting these in a historical perspective (Section 3). Current account indicators point to widening external positions since the mid-1990s, with an acceleration in the most recent years. The absolute value of current account positions as a percentage of global GDP has doubled since the mid-1990s. Global deficits are increasingly concentrated in a single country, the United States, which now absorbs around 75% of world net savings. Current account balances have also become highly persistent, with only a few large countries switching between deficit and surplus positions over the past ten years.

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Potential distortions and risks have increased in tandem with the widening external positions. There is indeed ample evidence that the current pattern of global imbalances is not entirely the result of freely operating market forces, but also of policy interventions (large, persistent and unidirectional interventions in foreign exchange markets; persistent deviations of fiscal policy from long-run equilibria; lack of flexible labour, product and financial markets). Risks relate mainly to a scenario of unwinding imbalances (potential macroeconomic and financial disruption) but are relevant also under a scenario of continuously high imbalances (potential increase in protectionist pressures).

We argue that three main features set today's situation apart from past episodes of growing

external imbalances: (i) the emergence of new players, in particular emerging market economies such as China and India, which are quickly catching up with the advanced economies; (ii) an unprecedented wave of financial globalisation, with more integrated global financial markets and increasing opportunities for international portfolio diversification, also characterised by considerable asymmetries in the level of market completeness across countries; and (iii) the favourable global macroeconomic and financial environment, with record high global growth rates in recent years, low financial market volatility and easy global financing conditions over a long time period of time, running at least until the summer of 2007.

Finally, the paper provides an analytical overview of the fundamental causes and drivers of global imbalances (Section 4). The central argument is that the increase in imbalances has been driven by a unique combination of structural and cyclical determinants. Structural changes in the global economy have allowed a widening of external positions that may be sustainable in the medium term. These structural changes have been supplemented by cyclical or policy-induced factors that highlight short-run risks and create the possibility of a sudden, disorderly unwinding of global imbalances.

The *structural* determinants of global imbalances relate mainly to the incomplete process of financial globalisation, which is linked to the lower stage of financial development in some regions of the world. Financial market imperfections in fast-growing emerging economies combined with the rapid process of financial globalisation has had an impact on the magnitude and the direction of capital flows at the global level, with capital flowing from emerging to industrial economies. The effects of financial market imperfections on capital flows are further amplified by the differential impact of business cycle moderation and by the specific ability of the US financial markets to insure households against idiosyncratic risks. The equilibrium generated by these structural factors cannot last forever but is sustainable in the short and medium term.

Cyclical factors have further fuelled this structural process of widening external positions. These factors relate to saving/investment patterns in the private sector (in the United States, for instance, accelerating private consumption due to a productivity-induced increase in US permanent income and due to wealth effects from rapid asset price increases) and the public sector (“twin” deficits in the United States). If market participants start to question the sustainability of these patterns, an overshooting can happen and a disorderly unwinding of global economic imbalances is possible.

The framework provided in this paper, based on a clear distinction between structural and cyclical drivers, can provide a concrete operational tool for policy-makers to monitor developments in global imbalances. By way of illustration, applying the framework to 2007, one may note that developments over the year were driven mainly by changes in cyclical factors. During the first half of the year, real economy developments – a rotation of global demand – helped to bring about a broad stabilisation of imbalances, especially in the United States, although not in China. Later in the year, financial market turmoil intensified this rebalancing of global demand, which could lead to a somewhat more rapid adjustment of imbalances. However, with structural drivers remaining largely in place, a very pronounced reduction in the imbalances remained, as of autumn 2007, relatively unlikely.

2 DEFINING GLOBAL IMBALANCES

External imbalances are a central theme in international economics and a powerful driver of change in economic history. Under the gold standard, trade balance adjustment was typically very slow and costly for deficit countries, which triggered a search for a better international monetary system. During the interwar period, growing imbalances ended in a dismantling of international free trade and monetary arrangements, adding to geopolitical tensions in the run-up to the Second World War. In the early 1970s, tensions over external imbalances caused of a fundamental overhaul of the international monetary system, marking the end of the Bretton Woods system. In the 1980s, widening current account positions led to intensive international coordination with concrete policy commitments under the G5/G7 Plaza (1985) and Louvre (1987) agreements focusing on exchange rates. In the 1990s, external imbalances in emerging economies were a key source of concern, with a series of financial crises sweeping across nearly all large emerging economies.

Today, the world again faces large external imbalances. Aggregate current account positions as a share of global output are twice as large as in the mid-1980s. Gross foreign asset positions have increased fourfold since this period, while *net* foreign asset positions have increased threefold. Reserve accumulation has reached a never-seen pace in the past decade, a seeming paradox in a world of increasingly freely floating exchange rates. The fundamental operation of the international monetary system is again under discussion, and the strategic role of the IMF within that system is being debated. Discussions that were confined to economic policy circles have moved to broader political and societal levels, through debates over job losses, outsourcing, currency manipulation, and possible protectionist measures.

2.1 FEATURES OF TODAY'S IMBALANCES

Current external imbalances have appeared in a fundamentally new economic landscape with three key features. First, the global economy

includes new players that were once at the periphery of global trade and financial flows. Ten years ago, the global economic sphere was not truly global. It was limited largely to a tripolar world consisting of the United States, Europe and Japan. Emerging markets were largely peripheral areas of production and in some cases exotic niches for financial investors. Economic liberalisation and post-cold war political transformation have removed borders between the centre and the periphery. Falling transportation costs, the growing use of information technology and deepening financial markets have reduced spatial and temporal distances. The slicing up of production chains has allowed emerging economies to specialise in specific parts of the value-added ladder.

Second, intensifying financial links have altered the character of globalisation. Ten years ago, international financial flows, at least in the emerging world, were largely the counterpart of trade flows. Today, financial globalisation has prompted a strong increase in gross financial flows. Gross international asset positions rose above global GDP in the early 2000s and are now around 1.3 times as large. This surge in international portfolios was made possible by a strong rise in overall financial wealth, coupled with a secular decline in investors' home bias and accelerated by financial innovation.

Third, the growing imbalances occurred in a phase of improving macroeconomic and financial conditions, with record high economic growth and record low financial market volatility. Ten years ago, the global macroeconomic environment was still surrounded by considerable uncertainty. High business cycle volatility, financial crises in emerging markets (Asia, Russia, Brazil, Turkey), instability in pockets of the developed industrial financial markets (Long-Term Capital Management) and concerns about inflation still plagued the global economy. From 2004 to at least until early 2007 the global macroeconomic environment looked very stable, with global economic growth around 5% per annum over the period 2004-07. Business cycle volatility decreased, at least among the industrial countries.

Inflation was tame in spite of the strong growth environment. Financial market volatility and risk aversion were at record lows. Having said that, a number of market corrections (for example in May 2006 and February 2007) as well as the financial market turmoil that started in August 2007 signalled that markets considered some re-pricing of risk necessary. Still, emerging markets appear to have been more resilient to financial turmoil in the mid-2000s than a decade earlier.

The emergence of new players, the deepening financial globalisation and the stable macroeconomic environment complicate the assessment of imbalances. Large imbalances could be seen as an equilibrium, market-driven outcome in a world operating under a new paradigm. The sustainability of external imbalances becomes hard to measure, as traditional metrics of sustainability may not apply in an era of enhanced financial integration. Imbalances could be argued to be a side effect of stronger global growth, whose benefits strongly outweigh the costs.

2.2 TWIN MOTIVES TO MONITOR TRENDS IN GLOBAL IMBALANCES

A good understanding and close monitoring of global imbalances are important for two reasons. First, large and protracted external imbalances can be linked to *distortions* in economic decision-making, especially to the extent that such imbalances deviate from the levels at which they would be in a world with full price flexibility and perfect competition. Such deviations may be caused by public policies or private sector decisions. One example could be the unprecedented pace of reserve accumulation – an anachronism in an era with a never-seen share of currencies with floating exchange rate and central banks targeting inflation – which may create distortions in asset prices. Excessively easy global liquidity conditions may fuel unwarranted risk taking and lead to bubbles in global asset markets. Exchange rate pegging on the part of some emerging economies with large imbalances may lead to sustained deviations from equilibrium. These policy choices may have an impact on private sector decisions and

on financial market prices, including on the returns on assets held by reserve accumulators.

Second, external imbalances entail *risks*, both under a scenario of unwinding (disruptive macroeconomic developments) and under a scenario of further increasing imbalances (protectionist pressures). An unwinding is likely to affect all areas of the global economy, given the unprecedented scale and unique geographical reach of the imbalances. The large stock of international financial portfolios increases the potential fall-out from large asset price changes. Financial transmission channels have become very important, as illustrated in February 2007, when a shock in a “remote” segment of the global financial markets (Shanghai’s stock market) propagated to the entire spectrum of global financial markets, or in July-August 2007, when tensions in a specific sub-segment of the US financial markets (mortgage loans) triggered a generalised re-pricing of risk across nearly all asset classes. But risks may also appear if the external imbalances continue at present levels. For instance, the persistence of imbalances may have induced markets to take a complacent view of these imbalances and to take excessively risky investment positions. Also, the existence of imbalanced trade flows intensifies calls for protectionist responses. In 2005 and 2006, 27 separate pieces of anti-China trade legislation were introduced in the US Congress. Even if the probability of concrete measures may seem small, there is a broader risk of the ongoing trade liberalisation process coming to a halt, as exemplified by the ongoing difficulties in the Doha round negotiations.

These issues also matter for the euro area, even though the euro area’s current account is at present broadly balanced. The current phase of further growing or even constant external imbalances has a tangible impact on the European economy (including the euro area, the European Union and the other European countries).² This effect takes place through shifts

2 This effect may actually be asymmetric across countries, in particular because some European countries run a large current account surplus (e.g. Switzerland) and others a deficit (as is the case for many of the new EU Member States from Central and Eastern Europe). Substantial heterogeneity can also be found within the euro area, but we do not tackle this issue here.



in trade patterns, enhanced competitive pressure, as well as rapid changes in industrial structures and in the job markets. Globalisation forces also have a profound impact on inflation and on financial developments in Europe. In the event of an unwinding, the euro area would again be directly concerned, as potential disruptions to global economic activity and financial markets would clearly spill over to the euro area.

2.3 A DEFINITION OF GLOBAL IMBALANCES

The notion of global imbalances is often used but rarely defined. This stands in contrast to the concept of an internal imbalance, which is typically operationalised in terms of full employment and the absence of inflationary pressures. External balances have not yet received a similarly careful definition in the economic literature. The concept is usually left vague and seems to fluctuate between one extreme view (that any external position different from zero is an imbalance) and another (that any external position, no matter how large, reflects a balance, as long as it is driven by private sector forces – what is commonly referred to as the Lawson doctrine).

At the outset, it would seem that one can define global imbalances simply as “widening current account deficits or surpluses”. This notion seemed to underpin the early work on global imbalances, in particular in the late 1990s and early 2000s, when the academic and policy community focused mainly on understanding the drivers and sustainability of the US current account deficit. While such a definition would be convenient, the focus on current account deficits or surpluses does not do full justice to the phenomenon of global imbalances. In particular, it misses out the important financial dimension of imbalances, as captured for instance by gross and net international capital flows and the build-up of international investment positions. Also, a focus on widening deficits or surpluses is not helpful in assessing whether trends are “unbalanced” or “balanced”. The concept of imbalances suggests that positions are not in line with their long-run equilibrium value. Therefore, a definition

of imbalances should arguably contain some element to assess the “unbalanced” versus “balanced” nature of the external positions.

With these considerations in mind, we define global imbalances as:

External positions of systemically important economies that reflect distortions or entail risks for the global economy.

The definition includes several elements:

- “External positions”: this refers not only to current account balances but also to financial positions. This is crucial in view of financial globalisation, which implies that the financial dimension is more than the current account dimension with an inverted sign.
- “Systemically important economies”: these are economies whose macroeconomic and financial developments may have a significant impact on the global economy. While the concept of systemic importance is not fully unambiguous, it is useful because it contains the notion that economies participate in global goods and financial markets, and that may have a global impact either because of their size or because of other factors (e.g. important financial centres, key regional players).³
- “Reflect distortions”: the build-up of external positions may (partly) reflect distortions, i.e. deviations from the equilibria that would prevail in an environment of full price flexibility and perfect competition. The distortions can be introduced by economic policies, for instance fixed exchange rate policies, structural policies (e.g. lack of economic flexibility), or macroeconomic policies (e.g. public saving policy-induced distortions in private saving decisions or the influence of cartels on oil prices).

³ The list of systemically important countries may change over time. For instance, Thailand appeared to be systemically relevant at the onset of the 1997 Asian crisis although it accounted for a very small share of world output (less than 1%).

- “Entail risks for the global economy”: the existence of external positions may pose risks for the global economy, both under a scenario of unwinding (risk of disorderly unfolding with disruptions to macroeconomic and financial stability) and a scenario of further increasing imbalances (risk of a protectionist backlash).

The reference to distortions and risks captures the extent to which external positions are unbalanced, as opposed to balanced. These two notions are particularly helpful from a policy viewpoint. Our definition is tailored to a policy-maker’s perspective, as it relates to the two potential sources of welfare loss from global imbalances.

One aspect that is not included in our definition is the concept of sustainability. This is a deliberate choice, because measuring equilibrium external positions is notoriously difficult, largely judgemental, and hugely dependant on the time horizon used. All the same, even though one may not need sustainability to define imbalances, the notion may be useful as an underlying principle to organise an assessment of the main drivers of imbalances. Therefore, our discussion of the drivers of imbalances in Section 4 is underpinned by a distinction between structural factors behind current global imbalances – which imply a certain degree of sustainability over the medium term – and cyclical factors – which imply a potential element of unsustainability over the near term.

Our definition is sufficiently broad to encompass a number of angles from which global imbalances have been analysed over the last few years. Until 2003, the main focus was on current account positions of large economies. Around 2004, the focus shifted to imbalances in the international monetary system, as academics and policy-makers increasingly turned to more fundamental explanations for the imbalances. They found such explanations in the set-up and functioning of the international monetary system (Bretton Woods II view of Dooley, Garber and Folkerts-Landau, 2003). In 2005, attention shifted to imbalances in domestic saving and investment, with an emphasis on high savings and low investment outside the United States as key drivers of

global imbalances. In 2006, economists started to formulate integrated theories on the financial aspects of global imbalances, focusing on trends in the supply of and demand for financial assets as drivers of imbalances (Caballero et al., 2006, Mendoza et al., 2007).

2.4 A QUANTITATIVE GLIMPSE AT GLOBAL IMBALANCES SINCE 1870

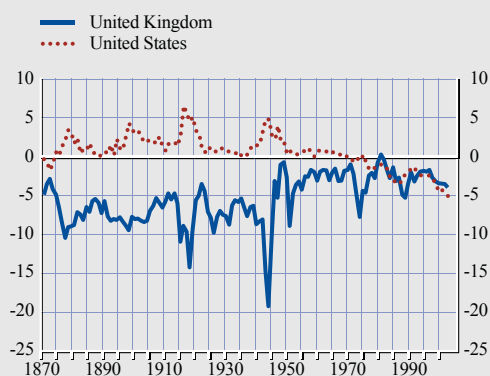
Although the current level of global current account positions seems to have risen to unprecedented levels, the issue of global imbalances is not new. A bird’s eye view of trade balances (Chart 1) suggests that past imbalances have been significant. This section considers historical examples of global imbalances in order to bring the current situation into perspective.

Although history never fully repeats itself (since technological advances are made, communication facilities are improved and legal frameworks change), some valuable lessons can be learnt from the past. The objective here is not to review the individual developments taking place in each country, but to highlight two main aspects of global imbalances.⁴

4 A more detailed historical perspective on global imbalances is provided for instance in Brender and Pisani (2007) or in Meissner and Taylor (2006).

Chart 1 Trade balances since 1870

(as a percentage of GDP)



Source: World Financial Data.

Table 1 Past episodes of global imbalances

Era	Region		Orderly unwinding for	
	Creditor	Debtor	Creditors	Debtors
Gold Standard (<1914)	Advanced	Emerging	Yes	Yes
Bretton Woods	None	None	Yes	Yes
1970s	Emerging	Emerging	No	No
1980s	Advanced	Advanced	Some	Yes
1990s	Advanced	Emerging	Yes	No
2000s	Emerging	Advanced	?	?

A synthetic view of past global imbalance episodes suggests substantial diversity across historical events (Table 1). Like any synthetic table, it is subject to caveats, as it implies summarising complex developments in one cell; however, it has the advantage of providing an overview. One key lesson to draw from the table is the diversity of the situations. In some periods, capital flowed from advanced economies to emerging markets. This was the case for instance during the gold standard period preceding the First World War, when the United Kingdom funded the “emerging markets” of that time (the United States, Canada, India and Australia). It was also the case during the 1990s, when emerging market economies (mostly in Asia and Latin America, but also Russia) borrowed from advanced countries. By contrast, some episodes have seen financial flows taking place mostly among emerging markets, or among advanced economies (see also the box below). For instance, during the late 1970s oil-exporting countries were running sizeable current account surpluses, while Latin American countries were building up significant external debt positions.

Another lesson from past global imbalance episodes is that not all of them unravelled in a disorderly fashion. During the gold standard period for instance, countries that were borrowing from the United Kingdom did not have difficulty in repaying their debt.⁵ Although the end of the Bretton Woods system was seen as a collapse (Bordo and Eichengreen, 1993), it did not map into a debt crisis and was not accompanied by a collapse of output.⁶ Among the cases in which some countries were negatively affected by the unwinding, there is also a lot of diversity. In some

situations the debtor countries went through a period of capital drought and severe output decline, as in many emerging market countries in the 1990s (as a result of the 1995 “Tequila” crisis, the 1997 Asian crisis or the 1998 Russian crisis). Yet, in other instances, creditor countries were actually more severely affected than debtor countries. This was for instance the case of the US deficit episode of the 1980s, which corrected during the second half of the 1980s without recessionary effects in the United States, whereas the main countries accounting for the corresponding surpluses, Japan and Germany, went through a significant economic slowdown.⁷

Overall, the current situation is not exceptional by historical standards as there have been episodes of global imbalances before. As many of these episodes unravelled in a relatively orderly fashion, this bodes well for the present case. However, the current situation has unprecedented features in that, for the first time,⁸ emerging economies are actually transferring net savings to advanced economies, which calls for a careful monitoring of the situation.

5 The view defended here is that the event which precipitated the end of the gold standard was actually the World War I, i.e. an exogenous political event, rather than a collapse of the system due to inherent unsustainability. In addition, the gold standard era also witnessed some partial defaults, such as on the part of Russia, which had substantial economic and social effects, in particular in France.

6 If one sees the end of the Bretton Woods system as a disorderly adjustment, then this represents a unique case of disorderly unwinding *without* a build-up of global imbalances, given that the United States did not run substantial deficits at the time.

7 Both economies were very dependent on their external sector and were affected by the reduction in US imports, while other factors also played a role (in the case of Germany the slowdown can also be partly attributed to the side effects of unification).

8 For the first time since the late nineteenth century. This does not preclude other episodes going further back in time.

Box

A REVIEW OF PAST EPISODES OF GLOBAL IMBALANCES¹**The gold standard era (until 1914)**

The gold standard era, at least in the period preceding the First World War, was characterised by relatively high mobility of capital across countries, together with significant stability in exchange rates. This feature of the world financial system greatly facilitated a large flow of investment from industrial countries (mostly the United Kingdom but also France) to the (then) emerging markets, such as the United States, Canada, Australia or India. The main difference between this and the current situation is that flows are now running in the other direction, from poor to rich countries.

The Bretton Woods era

While the Bretton Woods system also relied on fixed exchange rates, it differed from the gold standard as strong restrictions existed on cross-border capital flows. In fact, the Bretton Woods system did not allow large transfers of net savings between countries through trade. In this system, a country running a large trade deficit would normally, in agreement with the IMF, engineer a devaluation of its currency in order to regain competitiveness and reduce the deficit. The Bretton Woods system arrangement was ended through the exhaustion of international reserves in the anchor country.

The oil shocks of the 1970s

In the 1970s, a major terms of trade shock occurred in the world economy, implying a net transfer of resources from oil-importing countries to oil producers. By definition, for the oil-exporting countries to run a surplus, other countries had to run a deficit, and Latin American countries accounted for part of this. The unravelling of this situation started with a rise in interest rates in the United States, which substantially added to the burden of Latin American countries, whose external debt was at floating interest rates. The reduction in absorption among Latin American countries, but also some advanced economies, in the late-1970s and mid 1980s also had significant impact on the oil-exporting countries (Saudi Arabia actually ran a current account *deficit* in the mid 1980s).

The widening and correction of the US deficit in the 1980s

The main counterparts of the rise in the US deficit in the early 1980s were advanced economies (Japan, Germany and the Netherlands). The second part of the 1980s saw a relatively orderly unwinding of global imbalances, accompanied by a gradual depreciation of the US dollar, supported by—among other things—low interest rates in Japan. However, one could partly (and indirectly) attribute the recession in Japan in the 1990s to the resolution of the US deficits in the 1980s, as the low interest rates in Japan contributed to the build-up of a financial bubble in Japanese financial assets, whose bursting had a marked deflationary effect in the 1990s.

¹ A detailed account and very informative discussion of these past episodes of global imbalances can be found in Brender and Pisani (2007).

The emerging markets crises of the 1980s and 1990s

In the 1980s and 1990s, many emerging markets were affected by severe financial debt crises, which had sizeable real effects (with output losses sometimes amounting to 20% of GDP). One particular aspect of these crises is that they corresponded to the classical case of (relatively) rich lenders investing in poorer debtor countries. It is an understatement to say that most of these episodes ended in a disorderly fashion for the debtors. For the creditors, by contrast, the losses were relatively contained (which can be partly related to the currency composition of the debt and the associated valuation gains and losses). This example suggests that even when capital flows are from rich to poor countries a disorderly unwinding is still possible.

3 MEASURING GLOBAL IMBALANCES

Although the strong increase in the US current account deficit has become one of the main international policy issues in recent years, the topic of global imbalances is not new. Indeed, economic history provides numerous examples of large transfers of net savings between countries or regions which at the time raised the question of the sustainability of the imbalance.

Two natural questions emerge from such historical comparisons: first, to what extent are current developments comparable to these past events, and second, what lessons can be learnt from past adjustment episodes. Answering these questions is challenging given the difficulty of measuring global imbalances; it is not possible to summarise global imbalances in a single index.⁹

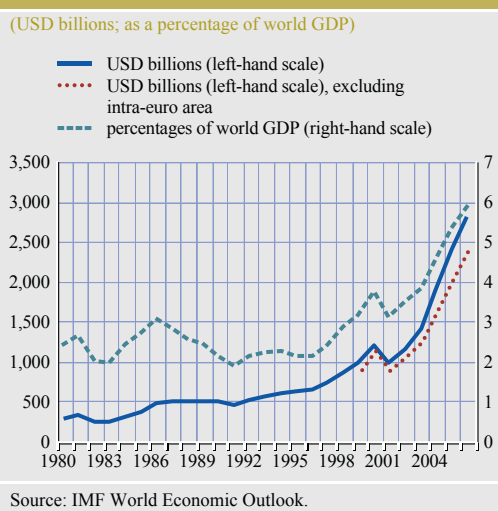
Accordingly, this section provides a range of indicators, covering four specific aspects of global imbalances: (i) the dispersion of current account positions across countries, (ii) measures of imbalances on the financial side (focusing on gross and net foreign asset positions), (iii) a set of indirect measures of the economic distortions behind global imbalances, and (iv) some estimates of the associated risks. While these indicators have been used in the past for different applications, this is the first time they have appeared together in the context of global imbalances.

3.1 STATISTICAL MEASURES OF WORLD CURRENT ACCOUNT POSITIONS

The extent of global imbalances can be gauged by looking at the distribution of current account positions over time, focusing on (i) the magnitude of absolute current account balances, (ii) their concentration across countries, and (iii) their persistence over time.

The absolute value of current account positions indicates not only an increase in global imbalances over time, but also an acceleration in recent years, both in value terms and as a percentage of world GDP (Chart 2).¹⁰

Chart 2 Sum of current account balances in the world



Whereas this index remained broadly stable during the 1980s and the first part of the 1990s (between 2% and 3% of world GDP), it rose to nearly 4% in 2000. After a small decrease in 2001,¹¹ it increased at a faster pace thereafter, to reach well above 5% in just four years.¹² Scaling current account balances with world GDP allows in particular global growth to be controlled for: a given country could indeed run a current account deficit permanently (in value terms) and be in a perfectly sustainable situation, as long as the absolute value of this deficit is below its growth rate. As a final comment on this statistical measure, one can note that aggregating the absolute value

⁹ An additional difficulty stems from the fact that official statistics may imperfectly reflect the true magnitude of global imbalances. In particular, the puzzling link between the US income account and foreign direct investment (FDI) stocks has attracted a lot of attention (Hausmann and Sturzenegger, 2005). A potential explanation for this puzzle is related to the role of multinational companies' transfer prices and to tax arbitrage across countries. This paper does not tackle the issue of statistical measurement problems.

¹⁰ This measure is also used by the IMF in its G7 surveillance note (9 February 2007).

¹¹ In 2001 the US current account deficit fell below USD 390 billion, from USD 415 billion in 2000. The deceleration in US domestic output growth in 2001 (to 0.8%) and the accompanying deceleration in the growth rate of domestic demand may explain in particular weak US imports in that year (they fell, in real terms, by 2.7% year on year). The euro area current account deficit also fell markedly in 2001. In addition, the surpluses of several countries decreased noticeably in 2001 (this includes China, Canada, Japan and several Asian emerging markets).

¹² The small decrease that took place in 2001 may have been partly related to lower oil prices, which reduced the current account surplus of oil-exporting countries, and to lower output growth in the United States.

of global current account positions could lead to double accounting, as any given deficit should by definition be matched by a corresponding surplus. An alternative definition could then consist in dividing the measure plotted on Chart 2 by two. While this would affect the level of the variable, it obviously would not change its growth rate over time: by this standard, the build-up of global imbalances over time has been very substantial. Finally, one may also point out that the creation of the euro area in 1999 reduces somewhat the extent of global imbalances. When intra-euro area trade is subtracted from total current account balances, the index represented in Chart 2 is nearly 16% lower. However, this does not affect the trend.

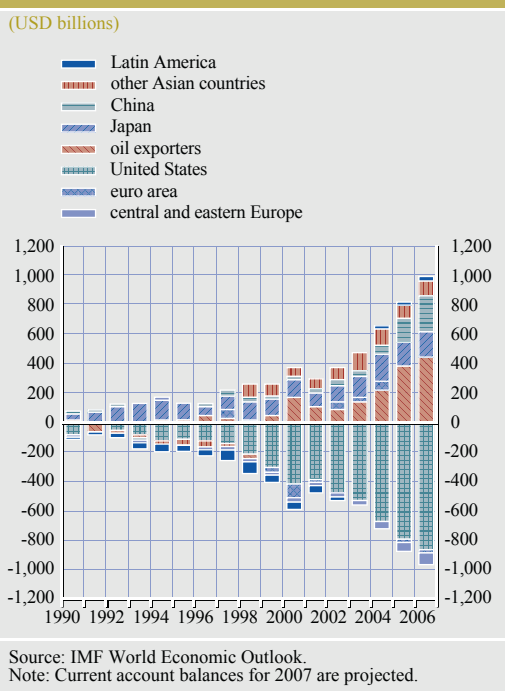
However, this aggregate measure hides large differences across countries and regions (Chart 3). In particular, the strong increase in the US current account deficit (which roughly doubled from slightly above USD 400 billion in 2000 to over USD 800 billion in 2006) constitutes one of the key factors behind the rising concerns about global imbalances. The main counterparts of the

US deficit are very substantial surpluses in China and oil-exporting countries, such that the issue of global imbalances is now considered a “shared responsibility” of the international community.

Taking a longer-run perspective, several countries have experienced noticeable changes in their current account balances (see Table 2, which includes only the 50 largest economies in the world). This is in particular the case of Saudi Arabia, which switched from having the largest deficit as a percentage of GDP in 1985 to having the largest surplus in 2005. Several emerging markets also moved from a large deficit in the early 1980s to a surplus in later years. Some industrial countries ran sizeable deficits for most of this period (e.g. Australia), which could suggest that persistent deficits are not necessarily unsustainable, while others ran mostly surpluses throughout the period. This is in particular the case of Japan and of the Netherlands, whose current account surpluses have been between 6% and 9% of GDP for a considerable period of time. It is also noticeable that in 2005, the group of nine countries whose current account was above 9% of GDP included six emerging market economies (the three advanced countries were Switzerland, Norway and Singapore); it also included the majority of the oil-exporting countries (five out of nine). Historically, the group of countries with a current account surplus above 9% of GDP has never been as large. This already indicates the high dispersion of current account balances on the surplus side, which is addressed in more detail below.

The pattern of current account imbalances is also changing in another important respect: while current account deficits are increasingly concentrated in a single country (the United States), current account surpluses are spread across a number of economies. Whereas the statistical measure presented in Chart 2 suggests that current account positions in the world are widening, another issue is whether this process is shared equally across countries or is confined to a few, large economies. Inference on the degree of dispersion can be gained by considering the following statistical measures:

Chart 3 Current account balances, key economic regions



$$S^{surpluses} = 1 / \sum_{\forall i, s.t. CA_i > 0} \left(\frac{\overline{CA_i}}{\sum_{\forall i} \overline{CA_i}} \right)^2,$$

$$S^{deficits} = 1 / \sum_{\forall i, s.t. CA_i < 0} \left(\frac{\overline{CA_i}}{\sum_{\forall i} \overline{CA_i}} \right)^2$$

with CA_i indicating the current account in (US dollar) nominal terms and $\overline{CA_i}$ its absolute value.

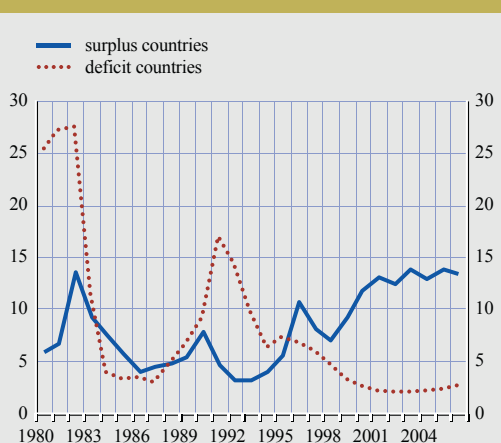
An increase in these indices denotes a greater dispersion across countries and a decrease denotes a concentration in smaller number of countries. The index “ $S^{surpluses}$ ” is computed only for surplus countries and the index “ $S^{deficits}$ ” only for deficit countries. If there are N countries, this measure is bounded between 1 (a single country accounts for the total, i.e. concentration has reached its maximum) and N (the countries have equal shares of the total, i.e. dispersion has reached its maximum).

Table 2 Current account balances – major economy groupings

as a percentage of GDP						
	1985		1995		2005	2006
Deficits above 9% of GDP						
Saudi Arabia	-12.5	Malaysia	-9.7	New Zealand	-9.0	-8.8
Greece	-12.3	Thailand	-7.9			
Poland	-10.3					
Deficits between 6% and 9% of GDP						
Chile	-8.6	Hong Kong	-6.3	Turkey	-6.3	-8.0
New Zealand	-7.3			United States	-6.4	-6.5
				Australia	-5.8	-5.4
Deficits between 3% and 6% of GDP						
Australia	-5.3	Israel	-5.3	South Africa	-3.8	-6.4
Egypt	-4.8	Australia	-5.2			
Denmark	-4.6	New Zealand	-5.0			
Ireland	-4.5	Colombia	-5.0			
Thailand	-4.0	Saudi Arabia	-3.7			
Colombia	-3.9	Ukraine	-3.1			
China	-3.8	Indonesia	-3.0			
Surpluses between 3% and 6% of GDP						
Japan	3.8	Sweden	3.4	Denmark	3.6	2.0
Israel	4.0	Norway	3.5	Egypt	3.2	0.8
South Africa	4.1	Iran	3.7	Japan	3.6	3.9
Switzerland	4.3	Finland	4.1	Taiwan	4.6	7.1
Norway	4.9	United Arab Emirates	5.1			
Venezuela	6.0	Belgium	5.6			
Surpluses between 6% and 9% of GDP						
Netherlands	7.2	Netherlands	6.2	China	7.2	9.1
Hong Kong	7.5	Switzerland	6.8	Sweden	7.0	7.4
				Iran	7.4	6.7
Surpluses above 9% of GDP						
Taiwan	14.5	Singapore	17.1	Russia	10.9	9.8
United Arab Emirates	25.3			Hong Kong	11.4	10.2
				Switzerland	16.8	18.5
				United Arab Emirates	15.8	16.3
				Malaysia	15.2	15.8
				Norway	15.5	16.7
				Venezuela	17.8	15.0
				Singapore	24.5	27.5
				Saudi Arabia	29.3	27.4

Source: IMF World Economic Outlook. This table only considers the world's 50 largest economies. Euro area countries are reported individually only until 1999.

Chart 4 Average dispersion of current account balance



Source: IMF World Economic Outlook.
Note: An increase denotes higher dispersion/lower concentration.

Since 1980 the dispersion of current account positions has changed considerably, with noticeable differences between deficit countries and surplus countries (Chart 4). The magnitude of global deficits is overwhelmingly accounted for by the United States, which in 2005 absorbed over two-thirds of world net savings.¹³ In fact, the concentration of world deficits in a single country (the United States) has considerably increased over time. The dotted (red) line in Chart 4, representing the degree of dispersion for the countries running a deficit, falls over time, indicating greater concentration in a single country. In 1985, for instance, when the United States registered what was at the time a record high deficit, it accounted for 54% of world deficits. In 1990 this proportion had fallen to only 25%. The figure is now around 75% if one considers the euro area as an aggregate (and 63% otherwise, as intra-euro area deficits are added up to the total, therefore increasing the denominator).

Turning to current account surpluses, the dispersion of current account balances has actually *increased* over time: the blue line on Chart 4 has risen since the early 1990s (from around 5 to nearly 15 now), implying also that more countries account for world surpluses now than in the mid-1980s. This means that

the surpluses that mirror the US deficit are in a larger number of countries than before. In 2005, five countries accounted for 50% of world surpluses (Japan, China, Germany, Saudi Arabia and Russia, noting that Germany's surplus is part of the euro area's overall balanced external position). In 1985, three countries only accounted for 50% of world surpluses (Japan, Germany and the Netherlands).

A rising number of countries accounting for world surpluses has the advantage of spreading risks across a larger number of players; however, it may also make the resolution of global imbalances more difficult. Indeed, it may introduce a problem of coordination across the regions responsible for the imbalances. For instance, in the 1980s, the US deficit was largely accounted for – on a bilateral basis – by Germany (8.2%) and Japan (33.5%), which made international negotiations, especially in a G7 context, relatively easier. By contrast, surplus countries now include developed economies, emerging markets in Asia (primarily China, 26.3%) and Latin America (Mexico, 6.3%), as well as oil-exporting countries (Saudi Arabia, 2.7% only). The heterogeneity of these countries also implies a broader set of adjustment mechanisms, as reflected in the IMF's multilateral consultation.

Finally, one can also observe a strong persistence of current account balances since the mid-1990s. The individual current account positions shown in Chart 3 reveal that the main economic regions mostly run increasing surpluses or increasing deficits, but rarely switch from one to the other. One exception is the euro

¹³ This figure rises to 75% when the euro area is considered as an aggregate. In Chart 3 (which goes back to 1990) the euro area is considered as a single country. In Charts 2 and 4, which go further back in time, the euro area countries are considered individually to make the comparison possible. This makes an important difference, as the euro area as a whole runs a current account position close to balance, whereas some of its individual countries run large surpluses (4.1 % of GDP for Germany and 6.3% for the Netherlands) or deficits (7.4% for Spain, above 9% for Portugal and 7.8% for Greece). It is noticeable that, also within the euro area, the current account balances of the member countries widened during the 1990s and early 2000s, although a full analysis of this pattern is beyond the scope of the present study.

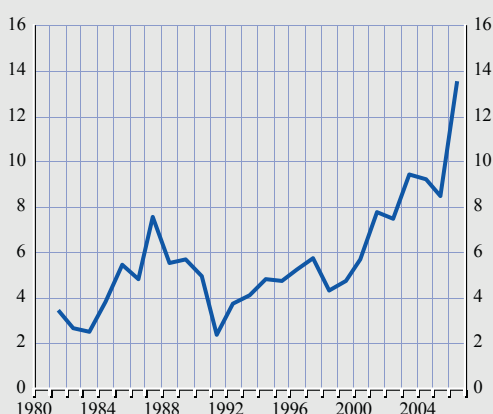
area, which switched from a moderate deficit to a moderate surplus in 2002, and back to a moderate deficit in 2005. Since 1980 the United States has run a surplus only in 1991.

The persistence of current account positions can be assessed by looking at the following measure (using the same notation as in the dispersion indicators described above):

$$S_{persistence,t} = \frac{1}{2} \sum_{\forall i} abs \left[\left(\frac{CA_i}{\sum_{\forall i} CA_i} \right)_t - \left(\frac{CA_i}{\sum_{\forall i} CA_i} \right)_{t-1} \right]$$

This measure is bounded between 0 and 1, with 0 indicating maximum persistence and 1 maximum volatility. Following this definition, an increase reflects higher volatility, or lower persistence; it is therefore convenient to take the inverse of $S_{persistence}$ and plot it against time (Chart 5). Throughout the 1990s and early 2000s, persistence actually increased over time, implying that the same countries persistently ran similar deficits (e.g. in the case of the United States) or surpluses (e.g. oil-exporting countries or China). For 2006, the persistence indicator shows a very high increase, mainly because the US deficit did not increase as much as in previous years.

Chart 5 Average persistence of global current account balances



Source: IMF World Economic Outlook.
Note: An increase denotes higher persistence.

3.2 STATISTICAL MEASURES OF NET FOREIGN ASSETS POSITIONS

The evolution of net foreign asset positions in recent years partly mirrors that of current account positions (Chart 6). In particular, the magnitude of world net foreign positions has increased significantly since the late 1990s, and the United States has the highest liabilities in the world (more than 5% of world GDP). However, marked differences can also be noted. First, the magnitude of US net liabilities has actually decreased since 2002 (owing to the depreciation of the US dollar and valuation changes, often attributed to the “dark matter” puzzle of possibly unaccounted assets, see Hausmann and Sturzenegger, 2005). Also, the United States accounts for a relatively small share of total net foreign liabilities in the world (slightly over one-third) compared with its share in current account deficits (75%). This comparatively lower level of net foreign liabilities may partly attenuate the risk of a disorderly adjustment; however, the factors that explained this discrepancy in the past may unravel in the future. In particular, one should not take for granted that foreign investors will be willing to accumulate low-interest-bearing US assets eternally.

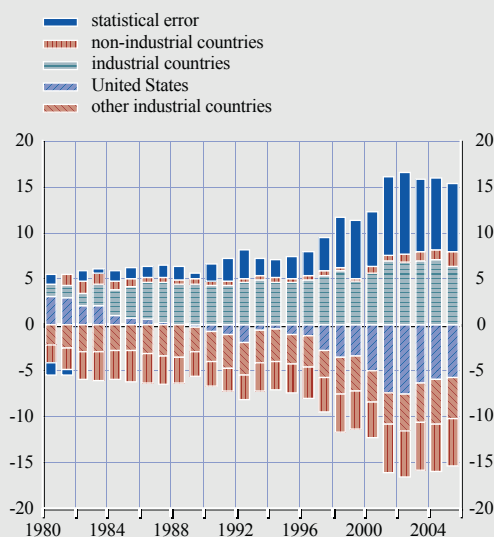
Another key difference between net foreign asset positions and current account positions is that while emerging markets account for the largest share of the increase in current account surpluses, they do not seem to contribute to the rise in net foreign assets (Chart 6).¹⁴ In fact, non-industrial countries now account for about one-third of net foreign liabilities.

Further, looking at gross foreign assets (Chart 7), emerging markets account for a very small part (less than 10%) of the total. This, again, may require a reassessment of the role of emerging markets in the unfolding of global imbalances, as they actually account for a much

¹⁴ However, net errors and omissions are sizeable for net foreign assets and could be partly allocated to emerging markets, where statistical reporting is generally perceived to be less accurate than in advanced economies. In addition, one important source of statistical discrepancies might be the valuation of FDI positions in non-listed companies.

Chart 6 Net foreign asset positions

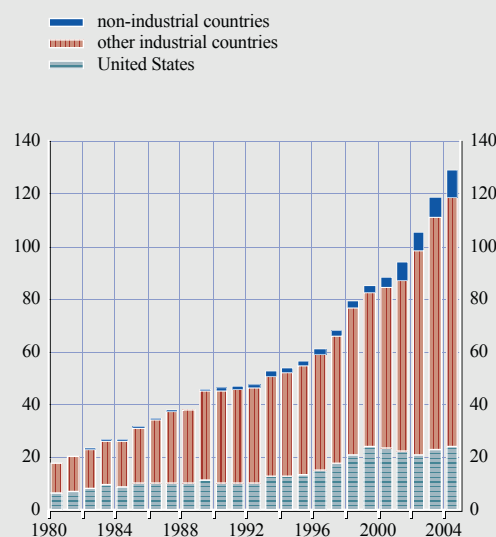
(as a percentage of world GDP)



Source: IMF World Economic Outlook.
Note: The category "other industrial" on the liability side refers to industrial countries excluding the United States.

Chart 7 Gross foreign asset positions

(as a percentage of world GDP)



Source: IMF World Economic Outlook.
Note: The category "other industrial" refers to industrial countries excluding the US.

smaller proportion of net and gross foreign asset positions than suggested by recent current account balances.

A detailed list of the world's largest debtors and creditors in 2005 reveals a relatively mixed

pattern (Table 3). On the net foreign liabilities side, the three largest "countries" are all industrial (the United States, the euro area and Australia). However, Brazil and Mexico rank fourth and fifth respectively, with cumulated net foreign liabilities (above USD 600 billion)

Table 3 Largest external debtors and creditors

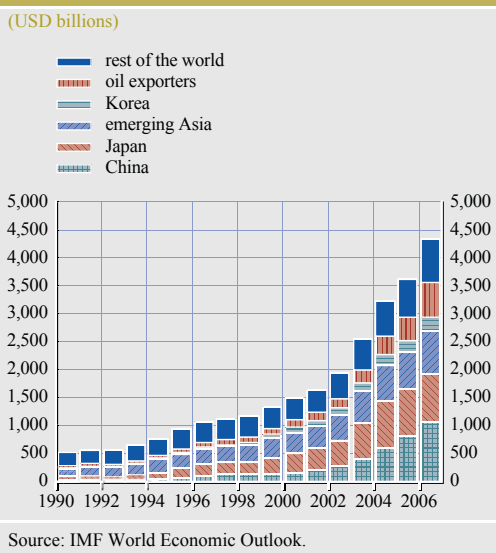
15 largest debtors				15 largest creditors			
Country	USD bn	% GDP		Country	USD bn	% GDP	
1 United States	-2,546	-20		1 Japan	1,532	34	
2 Euro area	-1,009	-10		2 Switzerland	363	99	
3 Australia	-389	-55		3 China	287	13	
4 Mexico	-349	-45		4 Saudi Arabia	119	38	
5 Brazil	-329	-41		5 Singapore	105	89	
6 United Kingdom	-294	-13		6 Algeria	43	42	
7 Turkey	-169	-47		7 Venezuela	37	28	
8 Canada	-151	-13		8 Iran	36	19	
9 Poland	-124	-41		9 Libya	34	88	
10 Indonesia	-106	-38		10 Argentina	19	10	
11 South Korea	-95	-12		11 Syria	13	49	
12 Hungary	-94	-86		12 Botswana	8	78	
13 New Zealand	-92	-85		13 Nigeria	8	8	
14 Sweden	-87	-24		14 Bahrain	7	55	
15 Thailand	-58	-34		15 Oman	5	15	

Source: IMF World Economic Outlook.
Note: The euro area is here considered as a single entity.

larger than China's net foreign assets (USD 287 billion). On the assets side, the five largest creditors actually include several industrial countries (noticeably Japan and Switzerland, Singapore being perhaps a special case due to its size and role as a financial centre). This means that emerging market economies are currently accumulating net foreign assets through current account surpluses in flow terms, but many of them still remain net debtors on a stock basis. Another implication is that the United States accounts for a much smaller proportion of world net foreign liabilities (around 37%) than its share of world net current account deficits (75%). This discrepancy is partly due to the fact that many emerging markets, such as Brazil and Mexico, currently record current account positions close to balance, whereas they still hold net debtor positions (thus increasing the denominator when it comes to measuring the share of the United States in total world net debtor positions). In addition, the particular dynamics of the US net international investment position have played a crucial role, as the sum of past current account deficits notoriously exceeds in absolute value the level of the country's net liabilities. The difference between the two measures is accounted for both by the high returns earned on US assets abroad and the low interest on paid US liabilities to foreigners. These factors may, however, not persist indefinitely (in fact, the US income account moved from a surplus to a deficit in 2006).

Finally, another noteworthy fact is that gross asset positions (Chart 7) have increased at a much faster pace than net positions.¹⁵ Between 1995 and 2006 gross foreign assets in the world increased from 55% to 130% of world GDP, whereas *net* foreign assets rose only from 7% to 15% over the same period. In other words, the increase in financial flows across countries has been relatively balanced, since they have been matched by offsetting financial flows. This is consistent with a higher degree of financial integration and risk-sharing and a lower home bias, and in turn suggests that cross-border capital flows have taken place not so much to participate in a transfer of net saving across

Chart 8 Foreign exchange reserves



countries as to spread risk and/or allocate resources more efficiently.

Although emerging markets as an aggregate do not account for a substantial share of (total) gross foreign assets, they contribute to a very substantial part of the build-up in international reserve assets (Chart 8). Total reserve assets have in particular reached nearly USD 1 trillion in China, mainly reflecting a fixed exchange rate policy amid a rising current account surplus.

3.3 INDICATORS OF DISTORTIONS

External positions do not always reflect optimising behaviour of private agents. They may also be the result of distortions in the functioning of global goods and financial markets. The presence of distortions is a source of concern as it represents a net welfare loss to

15 Lane and Milesi-Ferretti (2005) also note, based on a "Grubel-Lloyd" index, that (since the late 1980s) "the growth in gross asset trade has been more dramatic than the increased dispersion in net positions". The Grubel-Lloyd index is defined as $1 - \frac{|A-L|}{(A+L)}$, where A and L stand for assets and liabilities respectively: this index is therefore bounded between 0 (if asset trade occurs solely to finance net positions) and 1 (if the net position is zero and only gross cross-border asset trade takes place). For further detail see Milesi-Ferretti and Lane (2005) p. 3 and Fig. 4, p. 34.

the global economy. Economic distortions can arise in different contexts and take various forms. We focus here on four key distorting factors that may have an impact on the build-up and persistence of external imbalances: (i) foreign exchange interventions, (ii) macroeconomic and structural policies, (iii) the role of governments in shaping and developing domestic financial markets and (iv) international regulatory barriers (to trade in goods but also to financial flows).

3.3.1 FOREIGN EXCHANGE INTERVENTIONS

A first type of distortion relates to interventions in foreign exchange markets. Unlike floating exchange rates, which are determined by market forces, fixed or pegged exchange rates result from government decisions to keep the currency at a predetermined level. While a fixed rate is not a distortion per se, it may become one if the exchange rate is persistently maintained at a level that does not reflect economic fundamentals. One indication of such a distortion is the occurrence of large, one-sided and prolonged interventions in foreign exchange markets, leading to a large and persistent build-up of foreign exchange reserves. Since the early 2000s the rapid growth of reserves in some regions of the world (particularly among Asian emerging markets, Chart 7) can be considered an indirect measure of this. This indirect evidence is backed up by estimates of currency undervaluation with regard to fundamental or equilibrium exchange rate levels. In the case of China, academic estimates of the degree of undervaluation of the renminbi vary noticeably across studies but tend to be substantial.¹⁶ This suggests that the distortions to global trade patterns are indeed very considerable. In addition, keeping a pegged exchange rate has other drawbacks for China, as monetary policy is constrained by this external objective and cannot fully address domestic objectives.

3.3.2 DISTORTIONS ARISING FROM MACROECONOMIC OR STRUCTURAL POLICIES

A second type of distortion may arise from macroeconomic or structural policies and their impact on the current account. Examples of such distortions can for instance be found in

the role of fiscal policy. It is well documented that changes in the fiscal position tend to have an impact on the current account deficit. In the case of the United States, for instance, part of the widening current account deficit in the early 2000s can be ascribed to the widening fiscal deficit (“twin deficit” relationship), even though estimates of the precise magnitude of that relationship vary. What is less often invoked, but potentially also crucial, is that the design of fiscal policy (e.g. taxation regimes) may also affect saving/investment decisions of private agents and significantly affect the allocation of resources, both domestically and internationally.¹⁷ Governments also have a role to play in implementing structural reforms aimed at enhancing long-term output growth. This particular type of measure has been regularly tackled at G7 meetings and in the IMF multilateral consultation for the euro area and Japan. Indeed, distortions affecting the goods, labour and financial markets have a strong impact on potential output, which in turn affects current account prospects.

3.3.3 THE ROLE OF GOVERNMENTS IN FINANCIAL MARKETS

A third distortion may relate to governments’ contribution – or lack thereof – to shaping and developing domestic financial markets. For many emerging market economies (China, for instance, but also oil-exporting countries), the underdevelopment of their financial markets may have a substantial impact on saving and investment patterns, and hence on current account positions. The presence of such distortions can be interpreted as part of the heritage from a former economic system which is gradually being phased out as the country moves towards a free market economy. Section 4 will return to the issue of missing assets in some of the emerging economies.

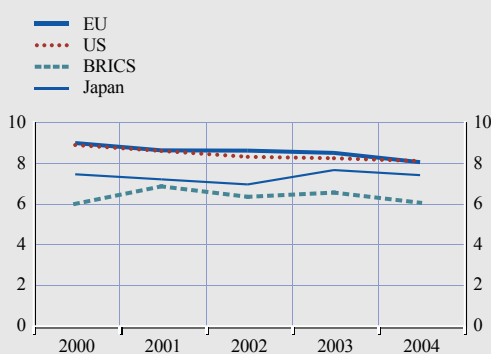
¹⁶ On average across studies, the degree of undervaluation is estimated to be around 30%, but this hides significant heterogeneity across the different estimates. In addition, the papers estimated the degree of undervaluation using very different methods.

¹⁷ The level of domestic corporate taxes can, for example, affect the incentives for local entrepreneurs to invest abroad through subsidiaries, which in turn may affect the composition of the current account and the level of cross-border financial flows.

3.3.4 INTERNATIONAL REGULATORY BARRIERS

The fourth type of distortion stems from international regulatory barriers. Several indicators of protectionism,¹⁸ for instance indicators of non-tariff regulatory measures relating to trade, indicate that restrictions have remained substantial in recent years in key world economies (Chart 9). Indices of foreign capital market restrictions also indicate that such barriers increased somewhat in the United States, Japan and the euro area since 2000 (Chart 10).

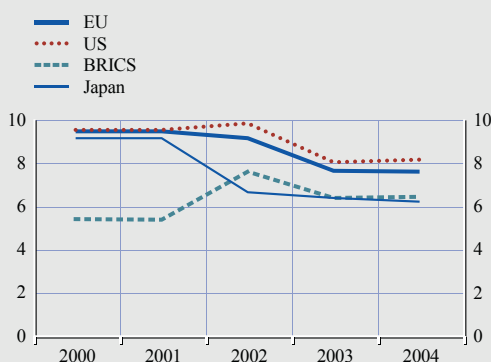
Chart 9 Index of regulatory trade barriers



Sources: The Fraser Institute (Gwartney et al., 2006) and ECB calculations.

Note: A higher score represents a higher degree of freedom to trade. Acronyms refer to the European Union (EU), the United States (US) and the aggregate of Brazil, Russia, India, China and South Africa (BRICS).

Chart 10 Capital account liberalisation index



Sources: The Fraser Institute (Gwartney et al., 2006) and ECB calculations.

Note: A higher number denotes less protectionism. Acronyms refer to the European Union (EU), the United States (US) and the aggregate of Brazil, Russia, India, China and South Africa (BRICS).

The role of international production cartels can also be mentioned in this context. The Organization of the Petroleum Exporting Countries (OPEC) is probably the most prominent international cartel. The 12-country organisation (which includes Iraq, Indonesia, Iran, Kuwait, Libya, Angola, Algeria, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates and Venezuela) accounts for over 40% of world production of oil and is still able to considerably influence oil prices, although its market power has somewhat decreased since the late 1970s due to increased production in other regions of the world, such as Commonwealth of Independent States (CIS) countries and the North Sea oilfields.

The level of distortions resulting from regulation can also be indirectly gauged through estimates of the welfare gains that may result from their removal. For instance, in a survey report on the effects of liberalising world agricultural trade, the US Congressional Budget Office (2005) concludes that “the likely total annual economic benefit to the world in 2015 from efficiency gains and investment growth that would result from full agricultural liberalization from 2005 through 2010 is in the range of roughly \$50 billion to \$185 billion (measured in 2001 dollars), or 0.1 percent to 0.4 percent of the value of world output of all goods and services. Expanding the analysis to include the effects of liberalization on the rate of productivity growth can raise the estimates by amounts ranging from 50 percent to more than 100%, depending on the study”.

3.4 INDICATORS OF RISKS

External positions may also entail risks for the global economy irrespective of whether they originate from distortions or not. Clearly, the presence of distortions may represent a source of additional risk for economic agents. However, even if external positions are due only

¹⁸ As protectionism is also a risk, Section 3.4 returns to protectionism as one of the key risks arising from global imbalances.

to optimising behaviour of private agents, risks may arise. The Lawson doctrine, which holds that current account imbalances should not be of concern to policy-makers when they result from the free decisions of private agents, may not hold in all circumstances. It has been challenged – for instance, during the Asian crisis – by the suggestion that significant risks can arise even in the absence of distortions. We consider in this section two main sources of risks: those relating to sharp movements in real output, in exchange rates and in asset prices, and those relating to a protectionist backlash. This section also concludes with a discussion of the relationship between risks and distortions.

3.4.1 THE DISORDERLY ADJUSTMENT SCENARIO

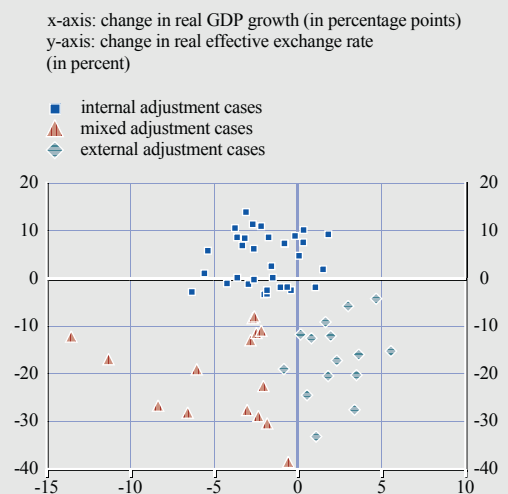
A first type of risk relates to the potential for a disorderly unwinding of external positions. Countries running large current account deficits run the risk of a disorderly adjustment, for example through a drop in domestic growth, as in the emerging market crises of the 1980s and 1990s. One key characteristic of this risk is that it belongs to the category of risks of “low probability, high impact” events (Kohn, 2004). More importantly, global imbalances not only present a risk to the economies concerned but constitute a systemic risk to the global economy as a whole.

This risk of a disorderly unwinding can in turn be broken down into two main elements: sharp asset price movements and a substantial drop in output. Although the probability of a disorderly unwinding of global imbalances is relatively low, the potential impact is so large that policy action may be imperative. A recent special issue of the IMF’s World Economic Outlook concluded in particular, on the basis of simulations using the IMF’s Global Economy Model (GEM), that this scenario could imply a loss in real output – compared with the baseline case – equal to more than 5 percentage points of GDP in the United States, 6 percentage points in emerging Asia and around 5 percentage points in the euro area and Japan. Another key feature of the “disruptive scenario” identified by the IMF is the sharp depreciation of the dollar (by 20%

in real effective terms). However, this remains well within values put forward by academic research (see e.g. Blanchard and Giavazzi, 2004, or Obstfeld and Rogoff, 2005).

Empirical regularities from past deficit adjustments confirm the negative impact of an unwinding of current account deficits on asset prices and output. Various authors, starting with Milesi-Ferretti and Razin (2000) and Freund (2005), have found that such adjustments have on average been accompanied by a slowdown in real GDP growth and currency depreciations in the deficit countries. At the same time, these average trends mask an important degree of dispersion across episodes. Algieri and Bracke (2007) find that adjustment episodes can usefully be classified in three groups. In a first group, representing roughly half of the cases, the adjustments were mainly internal, involving slowing real GDP growth but not much movement in real exchange rates. In a second group, in which adjustment was external, representing a quarter of the cases, the exchange rate recorded a depreciation while growth accelerated. In a third group, comprising the remaining quarter of the cases, there was a crisis-like combination of a sharp depreciation

Chart 11 Growth and exchange rate developments during current account reversals



Source: Algieri and Bracke (2007).

and a sizeable economic slowdown (see Chart 11). Interestingly, the study found that large exchange rate changes were often not a part of the adjustment episodes, in particular among industrial countries.¹⁹

3.4.2 THE RISK OF A PROTECTIONIST BACKLASH

A second type of risk relates to the potential build-up of protectionist barriers in response to growing imbalances. In a scenario where imbalances do not adjust quickly, there is a growing risk of rising political pressure for protectionist solutions to reduce them. While such solutions may at first glance offer an easy way to contain increasing imbalances, they are bound to have a disruptive impact on global trade and global output growth. These risks cannot be neglected as there are currently a dozen bills of this nature in the US Congress, the most threatening including proposals to declare China's weak currency an illegal subsidy and allow American firms to seek compensatory tariffs. A Federal Reserve Bank of New York paper by Faruquee et al. (2006b) has investigated the impact of trade barriers: if imposed simultaneously by all countries, an increase in import tariffs would reduce economic growth in all countries (by 1.2 percentage points of GDP in the United States, 3.2 percentage points in emerging Asia, 2.8 percentage points in the group comprising Japan and the euro area and 2.4 percentage points for the remaining countries).

3.4.3 THE RELATIONSHIP BETWEEN RISKS AND DISTORTIONS

As a final point, one may underline that while distortions and risks are to some extent related, they may also materialise independently from one another. On the one hand, the presence of distortions can increase risks (for example, government fiscal or structural policy may contribute to raising the current account deficit in the United States, which in turn increases the risk of a disorderly adjustment). Conversely, the presence of risks can bring more distortions: for example, the large US bilateral trade deficit with China is perceived to be contributing to a rise in protectionist sentiment. On the other

hand, it is important for policy purposes to focus on distortions and risks independently of one another. One could think, for example, of a situation where the presence of distortions has reduced risks (this would be the case in a very regulated environment, for example), at the cost of a substantial welfare loss for the world economy. In this case it would be a policy challenge to tackle these distortions, even though risks are contained.

¹⁹ See also "Spillovers and cycles in the global economy", World Economic Outlook, IMF, April 2007, in particular the event analysis presented in Chapter 3, "Exchange rates and the adjustment of external imbalances".

4 STRUCTURAL AND CYCLICAL FACTORS

In this section, we present a conceptual framework for the analysis of global imbalances. In what follows, we separate determinants of global imbalances into two sub-groups:

- (1) *structural* determinants of widening current account positions that explain the surprising persistence of global imbalances; and
- (2) *cyclical* factors, which imply short-run fluctuations in external positions.

The chosen categorisation²⁰ of factors is probably only one of many, and as usual the exact allocation of certain factors to one or the other group is not always straightforward. That being said, the chosen framework offers a new perspective on global imbalances by providing a rationale for the surprising persistence of global balances, without neglecting the potential risk associated with a disorderly unwinding.

The literature on the structural determinants of global imbalances is still in its infancy but has been growing in the recent years. The main idea can be described as follows: financial market imperfections in fast-growing emerging economies combined with the rapid process of financial globalisation has had a significant impact on the magnitude and the direction of capital flows at the global level.

The effects of financial market imperfections on capital flows have been further amplified by the differential impact of business cycle moderation and by the ability of the US financial markets to allow households to insure against idiosyncratic risks. Furthermore, the almost unique position of the United States as a provider of “safe” assets, not only in “good” but particularly in “bad” times, is also a possible explanation for the large size of capital flows into the United States.

It is, however, important to emphasise that the notion of “structural global imbalances” does not necessarily indicate that the outcome is

desirable or welfare-optimal, as the underlying imbalances are sometimes the result of (remaining) distortions, as exemplified by the notion of *imperfect financial globalisation*. But, if global imbalances are mainly caused by structural factors, a rapid unwinding becomes less likely.

Against this background, the widening of current account positions cannot be entirely explained by changes in the structure of the global economy. Cyclical factors, sometimes associated with economic policies, have fuelled the underlying imbalances. If market participants start to question the sustainability of these policies and the associated economic outcome, an overshooting can happen and a disorderly unwinding of global economic imbalances is possible.

Both sets of factors thus contribute to global imbalances, though their degree of permanence is quite distinct. Although they are conceptually separate, they are often highly interdependent. This implies that none of the presented theories provides by itself a satisfactory, self-contained explanation of global imbalances. It is therefore important to consider the factors as being not mutually exclusive but inter-reliant.

4.1 STRUCTURAL FACTORS

It is important that a broad view be taken of global imbalances. In the policy discussion, global imbalances have so far been a synonym for the widening current account deficit in the United States and the corresponding current account surpluses in, particularly, emerging Asia and oil-exporting economies. From the financial perspective, current account imbalances are by definition matched by corresponding capital flows. As a result, global imbalances nowadays could equally well be described in terms of gradually increasing net capital flows from emerging economies to industrial

²⁰ Labelling the factors as short-run and long-run, highlighting thereby their different degrees of persistence, could be equally valid.

countries. In what follows, we demonstrate that a characteristic of global imbalances is indeed this counterintuitive direction of global capital flows. Furthermore, we will argue that not only the direction but also the composition of global capital flows provides some interesting insight into this new wave of financial globalisation. In light of these stylised facts, we will discuss the relationship between institutions, incomplete financial globalisation and the emergence of global imbalances. Finally, we also provide some intuition as to why improving macroeconomic management could have been a factor behind widening current account deficits.

4.1.1 A VIEW OF GLOBAL IMBALANCES FROM THE FINANCIAL ANGLE

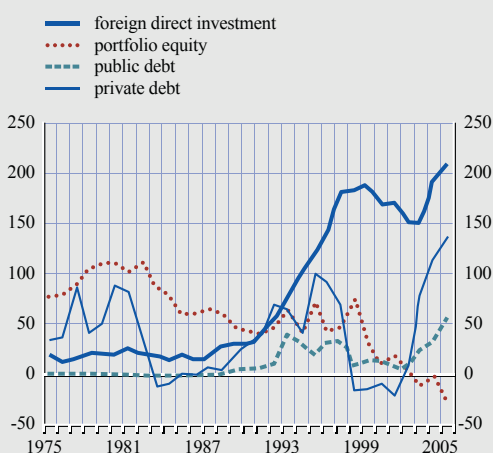
While global cross-border capital flows have risen to unprecedented levels in the recent years, only a small fraction reaches developing countries. The observed counterintuitive pattern in the data has been labelled in the literature as the “Lucas puzzle”. Lucas (1990) highlighted more than decade ago the weaknesses of standard neoclassical growth models in explaining the behaviour of international capital flows. Such models predict that countries with a lower capital/labour ratio should have a higher

marginal return to capital, so that international capital should flow from rich to poor countries.

In recent years, the average relative per capita income of capital-exporting countries has been trending downward (Charts 12 and 13). Correspondingly, there has been an upward trend in the relative income level of the group of countries with current account deficits. Using Lucas’ terminology, capital has started to flow from poor to rich countries or “uphill”. Interestingly, in policy circles the threat to global financial stability is perceived to be greater than in previous episodes of financial globalisation, when capital was flowing “downhill” or mainly between developed economies, leading to the conclusion that the global economy is in imbalance.

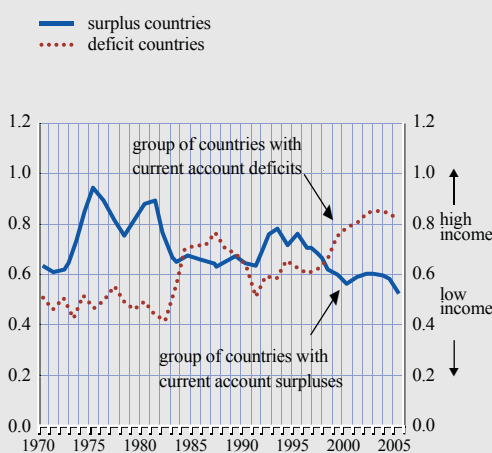
Lucas’s original explanation of subdued capital flows to emerging economies was the overall lack of productivity catch-up in developing countries resulting from domestic distortions in the return to capital. Explanations of the Lucas paradox have relied on the notion that risk-adjusted returns to capital investment may not be as high in poor countries as suggested by their low capital/labour ratios. The latter can be the

Chart 12 Net capital flows to middle and low-income countries (real USD billions, base year=2000)



Source: IMF World Economic Outlook.

Chart 13 Weighted average of income in surplus and deficit countries

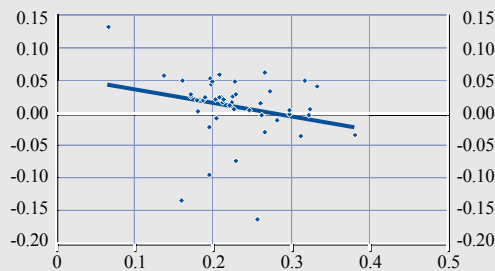


Source: Prasad, Rajan and Subramanian (2006). The baseline sample includes 22 industrial and 61 non-industrial economies as defined in Bosworth and Collins (2003).

Chart 14 Average capital inflows and investment rates in emerging economies

(as a percentage of GDP; 1980-2006)

x-axis: investment/GDP
y-axis: capital inflows/GDP



Source: IMF World Economic Outlook

result of weak institutions (Alfaro et al. 2005), costly physical capital (Hsieh and Kelnow, 2003) or repeated defaults on government debt (Gertler and Rogoff, 2000). As a result, international capital does not flow with the same magnitude towards poor countries as originally predicted by the neoclassical model. Of course, the above stylised facts are not inconsistent with Lucas's original explanation. One could argue that capital flows from poor to rich countries because the risk-adjusted returns to capital are simply higher in high-income countries.

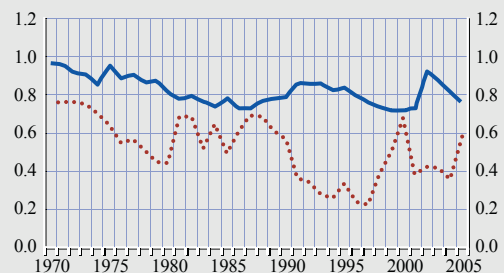
However, the allocation of capital within emerging economies appears to be distorted. Chart 14 illustrates a stylised fact that is inconsistent with Lucas's original explanation. It demonstrates that the average ratio of net capital inflows to GDP between 1980 and 2006 seems, if anything, to be negatively correlated with the investment-to-GDP ratio in emerging economies. However, if investment and capital flows were primarily driven by changes in risk-adjusted returns to capital, countries that invest more should receive more capital. Gourinchas and Jeanne (2006) labelled the observed pattern the "capital allocation puzzle".²¹

Interestingly, foreign direct investment (FDI) flows behave more in accordance with the

Chart 15 Weighted average incomes of FDI-exporting and FDI-importing countries

y-axis: relative per capita GDP weighted by current account

— FDI-exporting countries
..... FDI-importing countries



Source: Prasad, Rajan and Subramanian (2006). The baseline sample includes 22 industrial and 61 non-industrial economies as defined in Bosworth and Collins (2003).

standard model. It is possible that capital flows between developed and developing countries are increasingly dominated by aid flows or the accumulation of foreign reserves.

Prasad, Rajan, and Subramanian (2006) argue therefore that a proper indication whether the benchmark neoclassical model is able to replicate the data is given by examining FDI flows. Chart 15 demonstrates that FDI flows indeed behave more in accordance with the standard neoclassical model. The weighted average relative incomes of countries experiencing net FDI inflows are generally lower than that of FDI-exporting countries. As a result, the data indicates that financial capital flows "uphill", while FDI tends to flow "downhill".

The stylised facts presented so far are striking. First, capital tends to flow from emerging to developed economies. Second, even capital flows to emerging economies tend to be allocated to countries with relatively low investment-to-GDP ratios, although

²¹ Furthermore, Prasad, Rajan, and Subramanian (2006) show that developing countries that have relied more on foreign finance have not grown faster than comparable countries with a net capital outflow. If, however, capital flows to emerging markets were primarily driven by changes in risk-adjusted returns to capital, countries with higher capital flows should also experience higher growth rates.

there should be an unambiguously negative relationship between investment and the current account if foreign inflows respond largely to investment opportunities. The fact that the relationship is positive provides a hint that the allocation of domestic savings is the driving force behind these results. In particular, as we will argue later, the effectiveness of domestic financial intermediation might be an important determinant of international capital flows.

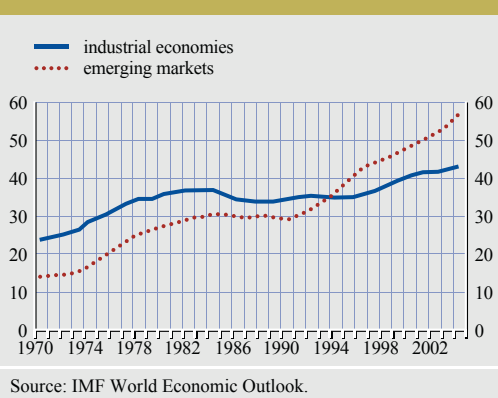
What are possible explanations for these stylised facts? In what follows, we highlight the importance of structural factors in explaining the pattern of international capital flows and global imbalances. In particular, we will highlight the role of:

- (i) global economic and financial integration;
- (ii) incomplete financial globalisation,²² emphasising the role of institutions; and
- (iii) improved macroeconomic management and the corresponding business cycle moderation in the United States.

4.1.2 GLOBAL ECONOMIC AND FINANCIAL INTEGRATION

Although global economic integration has grown rapidly, financial globalisation has been unbalanced and incomplete. Financial market imperfections can have an impact on the direction of net capital flows and the corresponding composition of gross flows through several channels. For example, regional financial imperfections can result in an insufficient supply of “safe” assets in the world and trigger net capital flows to regions where safe assets are produced. Financial imperfections can also induce diverging patterns of relative domestic savings between economies with a low level of financial development and economies with functioning and deep financial markets due to different capacities to provide insurance against future risk. A prerequisite for all these developments is, however, the existence of global economic and financial integration.

Chart 16 Trade openness (sum of exports and imports as percentage of GDP)



The rise in trade openness has been significant in both industrial and emerging economies. Cross-border trade flows have increased very markedly in the 1990s and 2000s. In the 1970s the sum of exports and imports stood around 25% of GDP in industrial economies; this number has been over 40% since the early 2000s (Chart 16). Even more impressive is the increase in trade openness in emerging market economies. Exports and imports have grown from 15% to almost 60% percent of GDP.

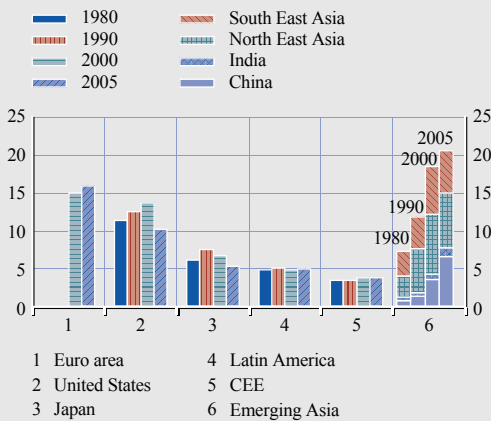
Particularly, the share of emerging Asia in world exports has been steadily increasing. Exports from emerging Asia rose from 8% of total world exports in 1980 to over 20% in 2005, overtaking the United States, the euro area and Japan as the most important export region. The rise in exports in emerging Asia is driven not only by developments in China but also by the acceleration of intra-regional export dynamics in South-East and North-East Asia (Chart 17).

Financial capital flows have also recorded a rapid increase in recent years. The sum of stocks of external assets and liabilities as a percentage of GDP, an indicator of financial openness, has followed an upward trend. In industrial economies, it stood at around 120% of GDP in 2005, compared with 20% in the 1970s.

²² See Bini Smaghi (2007) for a discussion on the relationship between incomplete financial globalisation, global imbalances and national monetary policies.

Chart 17 Shares in world exports

(percentages of world total)



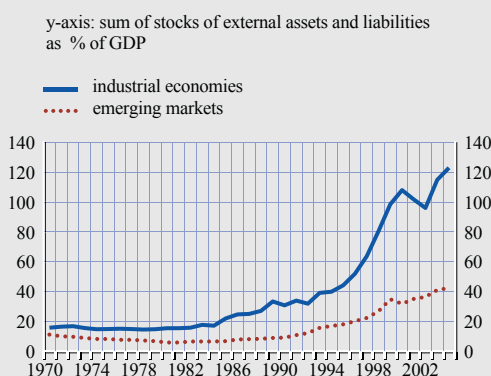
Sources: IMF World Economic Outlook and ECB calculations.

In emerging economies, the stock of external assets and liabilities has doubled as a percentage of GDP in the last ten years, reaching over 40% in 2005 (Chart 18).

The wave of global economic integration has been viewed as an engine for global growth. Rising cross-border trade and financial flows were further spurred by the liberalisation of capital controls in anticipation of the benefits that cross-border flows would bring in terms of global allocation of capital and improved

Chart 18 Financial openness

(absolute stock of financial assets and liabilities as a percentage of GDP)



Source: IMF World Economic Outlook.

international risk-sharing possibilities. The strong presumption was that these benefits ought to be large, especially for developing countries that tend to be relatively capital-poor and have more volatile income growth.

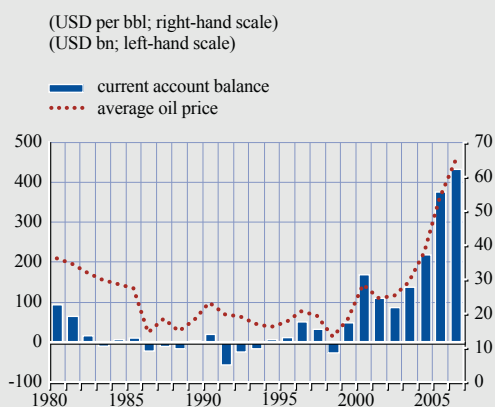
However, widening current account positions will only reflect efficient allocation of global capital if relative prices between regions are not distorted. Widening current account positions in the world could be partly a natural consequence of global economic and financial integration. Globalisation allows investment to be steered towards the projects with the highest returns and technology to be transferred to less developed economies. This dampens the complementary relationship between domestic investment and savings, leading to stronger variations in current account positions across countries. Furthermore, financial integration allows improved diversification of risks, contributing thereby also to a welfare-improving and more efficient allocation of capital. This benign view of global imbalances relies, however, on the assumption that relative prices (for example nominal and real exchange rates) in the world are not distorted.

The widening current account positions resulting from the rise in oil-prices can be rationalized by the desire of oil-exporting countries to smooth consumption intertemporally. While recent oil-price hikes have been a fillip for income growth in oil-exporting countries, it is unlikely that this trend will persist forever.²³ Financial globalization, however, allows oil-exporters to smooth consumption intertemporally. The latter jointly with the lack of domestic investment opportunities, particularly in GCC countries, provides a rationale for capital outflows from oil-exporting countries, and widening current account positions in the world.

²³ Even if oil prices remain high in the future, substitution effects will potentially result in a decrease in the actual income of oil exporters in the long run.

Chart 19 Oil exporters' combined current accounts

(1980–2006, USD billions; USD per barrel)



Source: IMF World Economic Outlook.

Global economic and financial integration can, therefore, partly explain the increase in cross-border capital flows but not the rise in net capital outflows from emerging Asia. The increase in international capital flows can be partly explained by the reduction of cross-border capital controls and increasing financial development and integration. However, financial globalisation fails to elucidate the counterintuitive direction of net capital flows in recent years. We will turn to this issue next.

4.1.3 THE ROLE OF INSTITUTIONS AND FINANCIAL DEVELOPMENT

Domestic institutions and the degree of financial development in a country play a role in determining not only the magnitude of gross capital flows but in particular the direction of net flows. For example, a weak domestic financial sector could translate a sustained increase in productivity into an increase in savings growth that bypasses the domestic financial system and triggers net financial outflows. If a financial sector is well developed, a permanent increase in productivity would result in an increase in consumption as consumers borrow to consume in anticipation of their higher income. If, however, there are borrowing constraints as a result of a

negative external shock, savings might increase following a permanent rise in productivity. Jappelli and Pagano (1999) demonstrate the possibility of a positive correlation between savings and growth with financial market imperfection. As argued by Ju and Wei (2006), if the domestic financial sector is inefficient, the increase in domestic savings will bypass it, resulting in an outflow of financial capital.

The “bypass” effect in emerging economies can explain why FDI flows “downhill” and financial capital tends to flow “uphill”. If a country has an underdeveloped financial sector but an intermediate level of property rights, it is likely to be simultaneously a net exporter of financial capital and a net importer of FDI. The composition of gross flows depends therefore on the relative strength of financial institutions and property rights protection. In other words, the failure of domestic financial intermediation provides an explanation for the observed composition of capital flows.

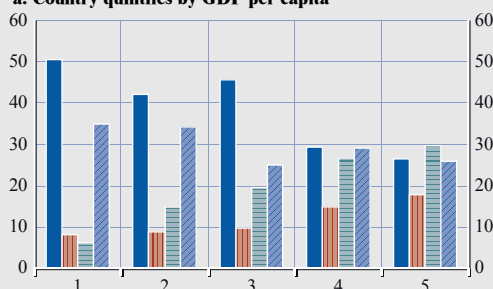
There are several stylised facts that underline the empirical significance of the bypass effect. Using stock data on foreign asset positions for 80 industrial and emerging economies, Daude and Fratzscher (2006) demonstrate the empirical significance of the bypass effect. In Chart 20, we summarise their results. Note that the group of countries are organised into quintiles, where a higher quintile indicates a higher value of the variable of interest, and corresponding capital stocks are presented as percentage shares of total capital stocks. The stylised facts presented in the figures below are striking. First, rich countries appear to receive more foreign portfolio investment (FPI) than poor countries. Second, higher GDP volatility implies higher FDI. Third, mature financial markets (represented by the ratio of credit to GDP in the economy) are associated with high foreign portfolio investment and limited FDI flows. Fourth, worse institutions (measured by a corruption index) go hand in hand with relatively higher FDI flows compared with foreign portfolio investment.

Chart 20 Capital flows, income levels and institutions

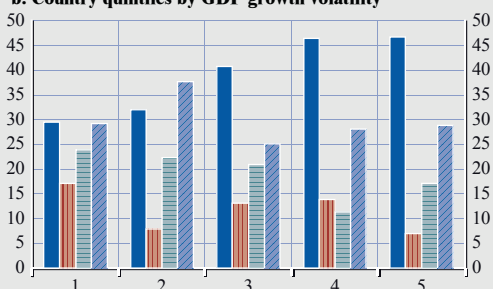
(percentages)

■ FDI
■ FPI equity
■ FPI debt
■ loans

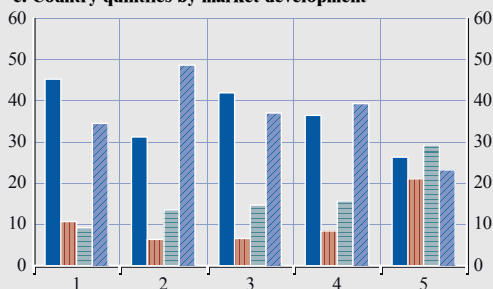
a. Country quintiles by GDP per capita



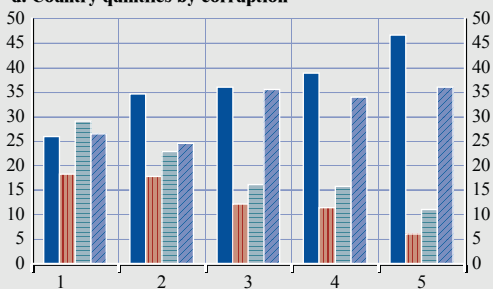
b. Country quintiles by GDP growth volatility



c. Country quintiles by market development



d. Country quintiles by corruption



Source: Daude and Fratzscher (2006).

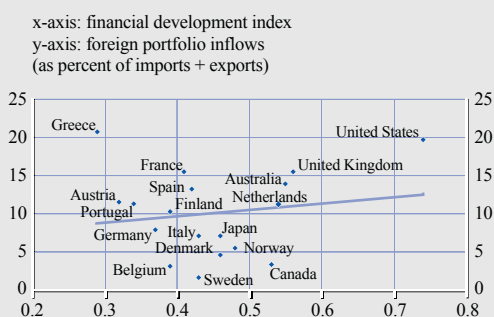
4.1.4 FINANCIAL IMPERFECTIONS AND PRECAUTIONARY SAVINGS

Capital market liberalisation/integration may generate net capital flows only because countries are vastly different in their levels of financial development and institutional quality. Economies with more developed financial markets can potentially accumulate foreign liabilities vis-à-vis countries with less developed financial systems in a gradual, long-lasting process, despite higher capital-to-labour ratios. Mendoza, Quadrini and Rios-Rull (2006) show that even if all countries have identical preferences, resources and production technologies, differences in financial characteristics across countries result in net capital flows. Increasing financial integration with the rest of the world can lead to a reduction in US savings and an increase in the foreign demand for US assets as a result of the specific characteristics of the US financial system. Dorucci and Brutti (2007)

also highlight the role of financial imperfections in explaining the asymmetric responses of regional savings rates to global growth. Ferrucci and Miralles (2007) provide empirical support for the latter hypothesis.

Financial systems that are developed and well-functioning result in deeper financial markets, allowing lower domestic savings. First, countries with deeper financial markets tend to have lower savings and accumulate net foreign liabilities. Conversely, countries with shallow financial markets, and therefore high financial market volatility, may have higher savings (owing to the lack of insurance, for example) but higher capital outflows (resulting from a desire to seek more secure returns). Second, financial market differences also affect the composition of the international portfolio. Countries with deeper financial markets can invest in high-return assets.

Chart 21 Financial development index and foreign portfolio investment

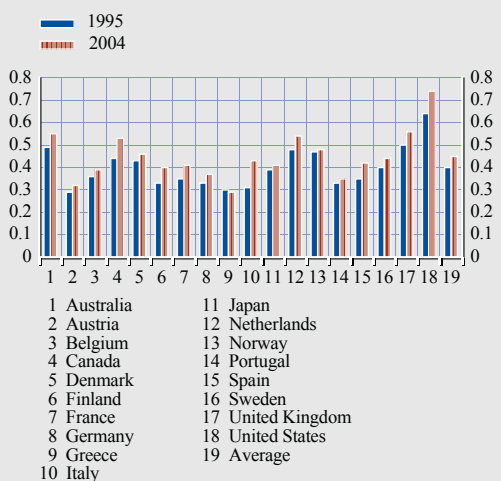


Source: IMF World Economic Outlook.
Note: A higher value of the financial development index implies a higher level of financial development.

As a result, they may receive positive factor payments even if their net foreign asset position is negative. Low-income countries with low levels of financial development will be worse off in such an environment because their savings may bypass their domestic financial sector and flow to developed countries with highly sophisticated financial markets, at least in the short run. Financial imperfections can have therefore increase savings and the demand for (safe) assets.

Financial imperfections can also capture a country's inability to supply assets. Caballero et al. (2006) emphasise the importance of financial imperfections for global imbalances. Financial imperfections are defined as a country's inability to supply assets in a world without uncertainty. If there is an increasing demand for a "store of value" at the global level, but safe assets are not provided in every single region in the world, one should observe capital flows to regions that are able to produce the desired assets. Consider a situation where some regions that are good asset suppliers experience a sustained growth slowdown (continental western Europe and Japan in the early 1990s, for example), or where the quality or acceptance of financial assets deteriorates (emerging Asia and Russia after the Asian crisis). In both cases, the global supply of financial assets declines. This depresses global interest rates, generates persistent capital flows to the United States and an offsetting current account deficit. The global decline in the supply of financial assets also increases the value of US financial

Chart 22 Financial development across countries



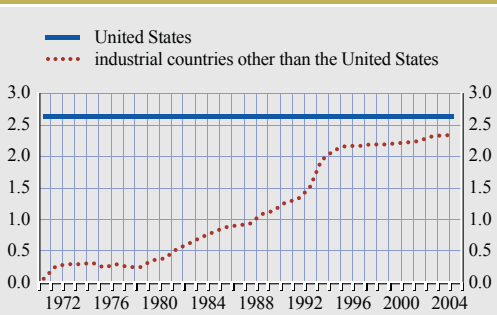
Source: IMF World Economic Outlook.
Note: A higher value of the financial development index implies a higher level of financial development.

assets, which could be a fillip for US wealth and consumption growth, leading thereby to a current account deficit.

Why does capital flow from emerging markets mainly to the United States and will this flow be sustained forever? The argument that financial capital flows from emerging markets to developed economies as a result of financial market imperfections might be compelling, but it does not explain by itself the predominant role of the United States as a beneficiary of this "exorbitant privilege". However, there are several explanations for the exceptional role of the United States as the "world's banker". First, although most industrial economies are increasingly financially open, they still lag behind the United States with regard to financial development (see Charts 21, 22 and 23).²⁴ Second, Europe and Japan have experienced a prolonged episode of subdued economic growth with corresponding negative spillovers to

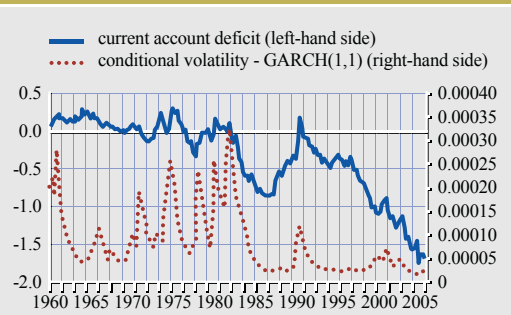
²⁴ In fact, while industrial economies and emerging markets have made substantial progress in the area of financial development in recent years, the *relative* gap to the United States has not narrowed significantly (see also Chart 22). This, together with the growing level of income in emerging markets, can also explain the increase in capital flows into the United States.

Chart 23 Financial openness index



Source: Chinn and Ito (2006).
 Note: A higher value of the financial openness index implies higher financial openness.

Chart 24 US business cycle volatility and current account (quarterly current account balance as a percentage of annualised GDP)



Source: ECB calculations (based on Fogli and Perri, 2006).

regional financial markets. The comparative advantage of the United States in generating financial assets is, however, not eternally given and cannot be considered as being exogenous. In fact, policy failures could lead to a questioning of the exceptional position of the United States as host of flights to quality.

4.1.5 BUSINESS CYCLE MODERATION, ECONOMIC POLICIES AND PRECAUTIONARY SAVINGS

External imbalances can also be the result of a decline in business cycle volatility and a corresponding reduction of precautionary savings. Chart 24 illustrates the close comovement between an estimate of conditional volatility of US real GDP growth (estimated by a GARCH (1,1) model) and US external imbalances. It also confirms the result of Stock and Watson (2002) that since the 1980s the decline in US business cycle volatility has been very significant. There are several explanations in the literature for the “great moderation”; the most frequently cited reason is the improved conduct of US monetary policy (see Clarida, Gali and Gertler, 2000). However, how can these results explain widening current account positions in the world?

If a country experiences a fall in business cycle volatility greater than that of its partners, its relative incentive to accumulate precautionary savings declines, resulting (all other things being equal) in a permanent savings and investment

imbalance, and a corresponding deterioration in its external balance. External imbalances could be, therefore, a by-product of the great moderation in US business cycle volatility. Fogli and Perri (2006) assess how much of the current US imbalance can be explained by this channel. They suggest that a fall in business cycle volatility such as that observed for the United States relative to other major economies can account for about 20% of the current total US external imbalance.²⁵

The increase in risk aversion in Asia has amplified the process. The growth in international reserves in recent years, especially in Asia, has generated a debate on the optimal level of reserves for emerging market countries and on the reasons behind this trend. Jeanne and Ranciere (2006) argue that reserves have been accumulated as an insurance against the risk of balance-of-payments crises, which came to be perceived as higher after the 1997-98 South-East Asian crises. In other words, the continuing accumulation of international reserves, or stock of precautionary savings, is an indication of an increase in risk aversion in Asia. Both the decline in US business cycle volatility and the rise in precautionary savings in Asia, combined

²⁵ Output volatility may have fallen in other industrial economies as well, but the combination of reduced volatility with the more advanced stage of financial development in the United States may explain why the US current account deficit has been more strongly affected.

with the insufficient supply of safe assets in the world, may be additional explanations of why financial capital flows “uphill”.

A change in demographics can also have a significant impact on current account developments in the world. As households generally prefer a smooth consumption pattern, but income follows a hump-shaped profile, an altering age structure has an impact on the savings decisions of individuals. Demographic transitions towards a society with a higher elderly dependence ratio initially increases household savings as it reduces the number of young dependents and increases the number of working adults, but eventually reduces savings as a larger portion of population retires and reaches old age. The net effect on the saving/investment balance tends therefore to vary during the different stages of demographic transition.

There are several other structural factors that could explain high global savings. One of the most prominent is the low level of public goods provision by governments in Asia. The near-absence of social security and the associated high uncertainty about future developments fuels Asia’s precautionary savings rate. Furthermore, continuous deleveraging of corporate sector balance sheets, not only in emerging economies but also in the industrial world, has contributed to the global savings glut. A significant part of savings growth in Asia also reflects foreign exchange market interventions, associated with fixed exchange rate regimes, as for example in China, or managed exchange rate regimes, as in other parts of emerging Asia. This does not only result in savings/investment imbalances but also distorts international relative price developments, leading potentially to suboptimal allocation of capital as we have discussed above.

While there is a consensus that fixed exchange rate regimes can trigger distortions in global trade flows, the literature is inconclusive about the importance of the exchange rate for the emergence and/or the unwinding of global imbalances. Fixed/managed exchange rate regimes and the corresponding impact on

international relative prices can trigger structural distortions in international trade and financial flows. However, there is a lack of consensus in the empirical literature as to how much of the present US current account deficit is a result of this. As we will discuss at a later stage, Fratzscher, Juvenal and Sarno (2007) highlight instead the importance of asset prices for the emergence of the US current account deficit. Bems, Dedola and Smets (2006) argue that the important role of productivity improvements and fiscal and monetary policy easing have helped to increase the US external deficit since 2000. There is also a lack of agreement with regard to the role of the exchange rate in the resolution of global imbalances. In a series of influential papers, Obstfeld and Rogoff (2001, 2005 and 2006) argue that a closing of the US current account deficit through the exchange rate channel would imply a large fall in the external value of the US dollar. Their result is, however, subject to two important caveats that tend to bias upwards the required depreciation. First, implied changes are derived under the assumption of the exchange rate being the only available adjustment factor. Second, theoretical models of the current account are by construction highly stylised and rely on a number of assumptions both on the structure of the economy and on the size of certain economic relationships which may be unrealistic. Engler, Fidora and Thimann (2007), for example, highlight the importance of an endogenous supply-side response for the analysis - a feature that is missing in the Obstfeld-Rogoff framework - and show that the latter significantly reduces the need for a large exchange rate change to narrow the current account gap. In a similar vein, Bems and Dedola (2007) show that including valuation effects resulting from fluctuations in gross asset and liability positions in the Obstfeld-Rogoff framework can also substantially attenuate the need for a large exchange rate adjustment.

4.2 CYCLICAL FACTORS

In this section, we discuss some further factors that have *potentially* contributed to the widening current account positions in the world. We label

the factors discussed in this section as “cyclical” or “macroeconomic policy-induced”. There are several factors that fit well under this umbrella. Focusing in what follows mainly on developments in the United States, we find it helpful to separate the arguments into (i) those relating to factors that have had a potentially cyclical impact on private sector aggregate demand and (ii) those relating to factors that have affected public sector aggregate demand. As most of the arguments are extensively discussed in the “traditional” literature on the determinants of current account deficits, we will keep the analysis concise.

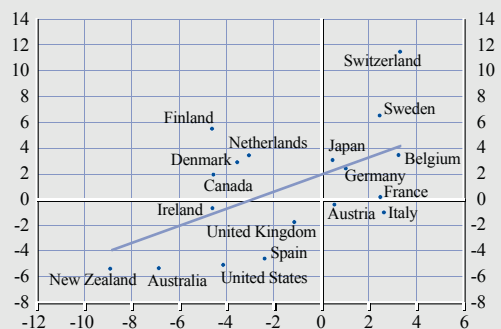
4.2.1 PRIVATE SECTOR SAVINGS/INVESTMENT IMBALANCES

Widening current account deficits in the United States have been accompanied by a fall in household net savings. Since the 1990s developments in the current account have been closely mirrored by fluctuations in household net savings. However, not only the recent US experience (see Chart 25) but also international evidence points to a close relationship between household net savings and the external position of a country. In Chart 26 we plot data for economies belonging to the Organisation for Economic Co-operation and Development (OECD) to illustrate the positive relationship between average current account balances and average household net savings between 2001 and 2005.

Chart 26 Household and current account balances

(2001-05 average as a percentage of GDP)

x-axis: average households' saving-investment balance
y-axis: average current account balance



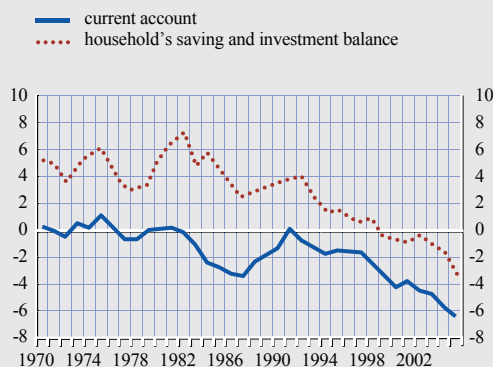
Source: OECD.

The fall in US household net savings is reflected in the rise in private consumption. Until the end of 2006 the dynamics of US GDP growth were dominated by private consumption and residential investment (see Chart 28). US personal consumption rose from 67% of GDP in 1999 to 70% in 2005. A similar sharp increase has been observed in residential investment.

The rise in US private consumption has been one of the triggers for the observed unbalanced path of global demand. The dynamics of US real GDP have been the main engine for global

Chart 25 US household and current account balances

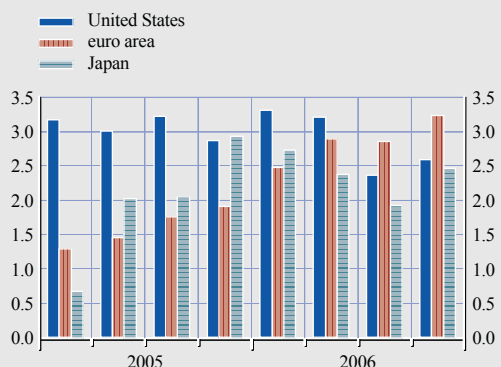
(as a percentage of GDP)



Source: OECD Economic Outlook.

Chart 27 G3 real output growth

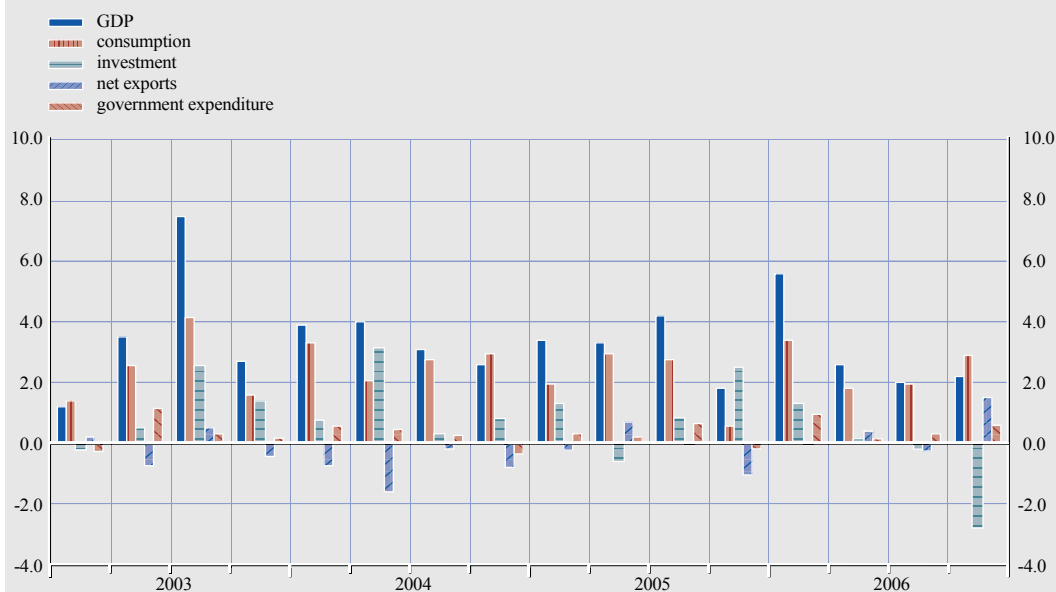
(annual percentage changes)



Source: IMF World Economic Outlook.

Chart 28 Contributions to US real GDP growth

(quarterly seasonally adjusted at annual rates)



Source: US Bureau of Economic Analysis.

growth in recent years. Since 2002 US real GDP growth has been on average 200 basis points higher than growth in the euro area or in Japan (see Chart 27). US real GDP growth has been driven mainly by a sharp and persistent acceleration of private consumption, while net exports have recorded a negative contribution to GDP growth on average. At the same time, private consumption growth in other industrial economies has been subdued.

What are the factors behind the acceleration of US private consumption? There are several factors which could have triggered a boost in US consumption.²⁶ In what follows, we highlight the role of two factors that have been widely discussed in policy circles. In particular:

- (i) *an increase in US permanent income due to a persistent positive productivity shock; and*
- (ii) *the rise in household wealth reflecting the surge in asset prices.*

The two factors have fundamentally different implications for widening current account deficits. While productivity-driven changes in permanent income would imply that current account imbalances are an equilibrium response on the part of rational agents to changes in the economic environment, US consumption growth driven by fluctuations in asset prices could give a rise to a boom-bust cycle. As the current account is usually a countercyclical variable, a revision of consumer and investor expectations and a corresponding drop in asset prices could trigger a sudden unwinding of the US current account deficit.

²⁶ See also the Bank for International Settlements (BIS) Annual Report 2007 for a comprehensive analysis of factors behind changes in propensity to consume in the United States.

Productivity differentials²⁷

Productivity differentials between the United States and the rest of the world are one of the possible explanations for the observed widening of current account deficits. From the theoretical perspective a country-specific permanent increase in productivity²⁸ justifies a rise in the current account deficit, as it raises the permanent income of households. Several studies have shown the significance of productivity shocks in explaining current account positions. Glick and Rogoff (1995) demonstrate, for example, that a 1% increase in US productivity relative to productivity abroad decreases the current account balance by 0.15 percentage point of GDP. In fact, a 1% increase in investment triggered by a productivity shock tends to induce a widening of a current account deficit by 0.33 percentage point of GDP.²⁹

Productivity differentials between tradable and non-tradable sectors might have also triggered a widening of the US current account deficit. According to Gordon (2004), over 50% of the US/Europe productivity differential over the past decade is due to retailing, with another 25% due to wholesale. In theory, a productivity shock in the non-tradable sector could have an impact on current account via the following channel. First, households have preferences as regards the distribution of a consumption basket between traded and non-traded goods, but also face a choice in the allocation of consumption over time. When households have a high intertemporal elasticity of substitution but a low elasticity between traded and non-traded goods, they are less concerned about fluctuations in consumption over time and more concerned about the distribution of consumption between goods. So if the supply of non-traded goods rises as a result of a rise in productivity in the non-tradable production sector, households will still wish to consume a balanced basket of goods and therefore increase imports of traded goods resulting in a trade balance deficit. This implies a sharp increase in current consumption and a decline in future consumption when households pay back their external debt.

The significance of productivity differentials in explaining the widening of the US current account deficit is, however, disputed. First, the estimated productivity differentials between the United States and Europe appear to be too small to plausibly drive the widening of the US current account deficit. Second, in theory productivity differentials should lead to a current account deficit being financed by foreign private capital inflows. Looking at the data, however, a large fraction of net capital flows into the United States reflect purchases of US assets by foreign central banks, especially from emerging Asia and oil-exporting countries. Third, it is difficult to argue that productivity growth in the United States has been significantly higher than in emerging Asia, the main counterpart of the US trade deficit.

Asset prices and household wealth

At the aggregate level, the effect of wealth on consumption has been a mainstay of large-scale econometric models. Econometric specifications of aggregate consumption such as that included in the Federal Reserve Board's FRB/US model generally show that an additional dollar of stock market wealth raises the level of consumer spending by 3 to 5 cents, with the effect emerging gradually over several years.

Some other studies estimate an even greater impact of changes in wealth on consumption. Juster, Lupton, Smith and Stafford (2004),

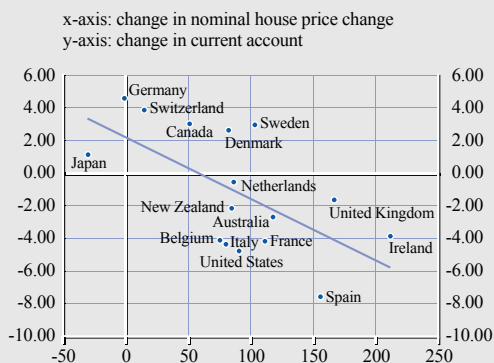
27 One can certainly argue about whether productivity differentials should be listed as a cyclical factor in the chosen framework. Note, however, that in the empirical macroeconomic literature shocks to productivity are one of the key drivers of business cycle fluctuations. Furthermore, households sometimes mistakenly interpret temporary productivity shocks as permanent shocks, triggering thereby cyclical fluctuations in consumption and the current account. The fact that long-run trends in productivity differentials are determined by structural factors is, however, acknowledged.

28 Temporary shocks should actually lead to a current account surplus.

29 This is a puzzle, since in the standard open-economy models a permanent country-specific productivity shock will induce a rise in the current account deficit in excess of the corresponding rise in investment. Because it takes time for the capital stock to adjust, permanent income rises by more than current income following a productivity shock, implying a fall in domestic savings and a significant deterioration in the current account.

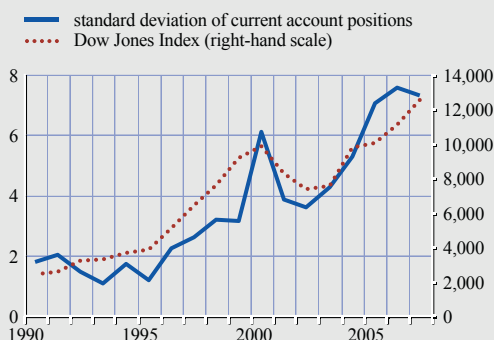
Chart 29 House prices and current account

(average change 1997-2005)

Sources: IMF and *The Economist*.

examining the relationship between changes in “active” savings and capital gains over a period of five years, estimate a surprisingly large marginal propensity of consumption of 17 cents out of each dollar of additional stock market wealth. The results of Dynan and Maki (2001) indicate that for households with different levels of security holdings, the marginal propensity of consumption out of wealth is between 5 cents and 15 cents, with the most likely gain in the lower part of this range. Because this response is larger than most aggregate estimates, the authors argue that households with high levels of securities holdings may have a smaller response to wealth gains.

Chart 30 Global current accounts and stock prices



Sources: BIS and ECB calculations.

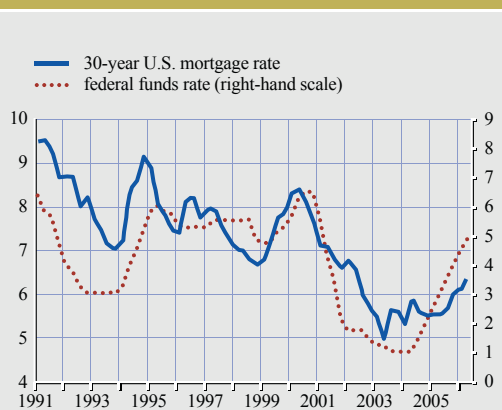
How much do housing values boost the wealth effect and consumer spending relative to equities? Carroll, Otsuka and Slacalek (2006) argue that an increase in housing wealth of USD 100 could eventually boost spending by USD 9, while a similar increase in stock market wealth produces only USD 4 more spending. This is because homes are, for most families, their single biggest asset. Note that distribution differs considerably between housing and stock market wealth. According to the Federal Reserve System, 68.5% of Americans live in their own homes, while stock market participation is just under 50%. Only a small percentage of a typical family's net worth is invested in equities.³⁰ Indeed, in most cases, equities are only their second or third largest asset. The significant rise in home prices (which doubled between the late 1990s and the early 2000s) was also driven by the appearance of new financial instruments such as the mortgage equity withdrawal that accompanied these asset price rises over the last few years.

Empirically, fluctuations in asset prices seem to be very important for the current account. Fratzscher, Juvenal and Sarno (2007) have shown that a 10% relative increase in equity or household wealth in the United States could lead to a deterioration in the trade balance by 1%. Variance decomposition analysis also indicates that wealth effects, related to asset market shocks and not exchange rate shocks, appear to be the main drivers of the US current account deficit. The close co-movement between asset prices and current accounts is indeed striking. Data on OECD countries illustrate a negative relationship between the change in house prices and the current account (see Chart 29). Moreover, the evolution of current account imbalances in the world is closely tracked by the movement in US equity prices (see Chart 30).

What are the factors behind the rise in US asset markets? The empirical literature points towards a strong relationship between asset prices and US

30 See also Vansteenkiste (2007) for an analysis on the impact of regional housing markets in the United States on macroeconomic aggregates.

Chart 31 US mortgage interest and policy rates

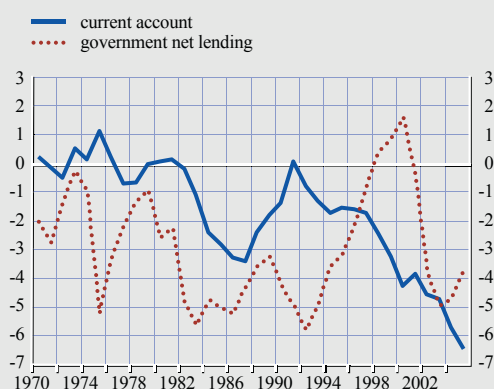


Source: US Bureau of Economic Analysis.

interest rates. Iacoviello (2005) and Iacoviello and Minetti (2003) provide Value-at-Risk (VAR) evidence indicating a positive response of real house prices to expansionary interest rate shocks. A recent study by the Federal Reserve Board (Ahearne et al., 2005) considers cross-country evidence and finds a consistent pattern of low interest rates preceding a house-price peak. Similar findings are presented in a BIS study by Borio and McGuire (2004). Therefore, loose monetary policy, particularly in the United States (see Chart 31), might have played a significant role in triggering asset price booms in recent years.

Chart 32 US government net lending and current account balance

(as a percentage of GDP)



Source: OECD Economic Outlook.

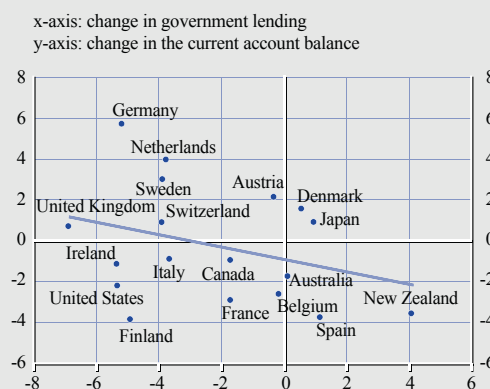
4.2.2 PUBLIC SECTOR SAVINGS/INVESTMENT IMBALANCES

The “twin deficit” proposition, which says that fiscal deficits are a main driving force behind current account deficits, has been at the centre of policy discussions ever since the Reagan tax cuts in the 1980s. The reason why the twin deficit hypothesis has become popular lies in the fact that the US budget deficit and trade balance moved closely together in the mid-1980s, a period characterised by large fiscal imbalances. In the late 1990s, however, the two time series show a remarkable divergence, leading sometimes to the premature conclusion that the twin deficit hypothesis is disproved by the data (see Chart 32). The analysis of the unconditional correlation might, however, be misleading as it fails to take into account the cyclical nature of fiscal and trade balances. Following both supply and demand-side shocks the trade balance is generally found to be countercyclical, while an economic boom will improve the fiscal balance. As a result, a negative correlation between trade balance and fiscal stance at business cycle frequencies might provide us with a distorted picture of the true effects of fiscal policy on the trade balance.

A large body of literature has focused on identifying the impact of fiscal policy on the current account balance. While there is

Chart 33 Government net lending and current account

(average change 1997-2005)



Source: OECD Economic Outlook.

considerable disagreement on the quantitative effects, most studies argue that there is a negative relationship between a fiscal deficit and the trade balance. Chinn and Prasad (2003) and Gruber and Kamin (2005) find, however, a very low elasticity of the trade balance to a fiscal deficit. Bussière, Fratzscher and Müller (2005) also report a modest negative impact of a fiscal deficit on the current account. Interestingly, Kim and Roubini (2003) find that a negative shock to the fiscal balance has a positive impact on the current account in the United States, providing evidence for a “twin divergence” hypothesis. The unconditional correlation between fiscal deficits and current account balances in the OECD also indicate a negative relationship between the variables (see Chart 33).

Some model-based studies also suggest a limited response of the trade balance to changes in fiscal policy. For example, Erceg et al. (2005) find that a 1% increase in a fiscal deficit increases the current account deficit by 0.20%. The assumed intratemporal elasticity between foreign and domestic goods in the model is, however, relatively low compared with that suggested by the empirical literature. Models with strong non-Ricardian features, where a rise in government spending implies a domestic demand multiplier larger than one, and a direct link between government debt and net foreign asset positions, such as for example the IMF’s GEM, predict a much stronger impact of fiscal deficits on the trade balance (see Faruqee et al, 2006a).

However, even if the immediate impact of fiscal policy on the trade balance is limited, budget deficits might jeopardise a country’s ability to meet its future obligations. In theory, the limited response of the trade balance to changes in the fiscal stance is usually driven by a fall in investment. However, this lowers the potential growth rate in the economy, jeopardising thereby the ability of the country to repay its future obligations (see Corsetti and Müller, 2006).

5 CONCLUSION

This paper has taken a bird's eye view of the phenomenon of global imbalances. If nothing else, it has shown that these imbalances are a complex phenomenon. Global imbalances cannot be reduced to a large current account deficit in one country, the United States. Instead, they are a manifestation of a number of factors that are the salient features of the global economy of the early twenty-first century: the economic and political rise of new emerging giants, an unprecedented wave of financial integration, and long-lasting pressures on the price of energy resources and commodities. How should we think about these imbalances? Are they exceptional in a long-run historical context? What fundamental factors explain them? These are some of the questions this paper has aimed to address.

The paper started with a definition of global imbalances: external positions of systemically important economies that reflect distortions or entail risks for the global economy. We propose this definition because it has three components that are essential to understanding the imbalances. First of all, our definition refers to external positions and thereby encompasses not only current account positions but, in particular, also financial positions. This is crucial because international financial integration is more than just the mirror image of trade integration (in fact, the international investment positions of several countries, predominantly the United States, do not reflect their cumulated current account balances owing to valuation effects). Second, the definition refers to systemically important economies and includes both the deficit side (the United States) and the surplus side (Asia and oil exporters). Third, it refers to distortions and risks, which we offer as the main criterion for distinguishing imbalanced from balanced positions.

We then proposed some measures of global imbalances and provided some perspective on the present phase of global imbalances in comparison with past episodes. A first striking

feature is that global imbalances are a recurrent theme in international economic history. The gold standard period preceding the First World War, the Bretton Woods period, the petrodollar recycling of the 1970s, the twin deficits of the United States in the 1980s, and the wave of financing flows into emerging markets in the 1990s all represent earlier episodes of large external imbalances. They were characterised by very different constellations (sometimes flows from industrial to emerging market economies, sometimes flows between industrial countries, sometimes between emerging market economies) and very different outcomes (sometimes orderly unwinding, sometimes unwinding through crisis). From this, one may be tempted to conclude that the present episode is just another repetition of history. This does not hold, however: we argue that three main features set today's situation apart from past episodes of growing external imbalances: (i) the fact that capital flows from emerging new players (e.g. China and India) to the industrial world; (ii) an unprecedented wave of financial globalisation, with more integrated global financial markets and increasing opportunities for international portfolio diversification; and (iii) the favourable global macroeconomic and financial environment, with record high global growth rates, low financial market volatility and easy global financing conditions.

Finally, we have argued that this increase in global imbalances has been driven by a unique combination of structural and cyclical determinants. Structural changes in the global economy have allowed a widening of external positions that may be sustainable in the medium term. Specifically, financial market imperfections in rapidly growing emerging economies have had an impact on the magnitude and on the direction of capital flows at the global level, with capital flowing from emerging to industrial countries. The effects of financial market imperfections on capital flows are further amplified by the differential impact of business cycle moderation and by the attractiveness of US financial markets as a safe haven. Cyclical factors have further fuelled

this structural process of widening external positions. These cyclical factors relate to saving/investment patterns in the private sector (in the United States, for instance, accelerating private consumption due to a productivity-induced increase in US permanent income and due to wealth effects from rapid asset price increases) and the public sector (the twin deficits in the United States). If market participants start to question the sustainability of the associated economic outcome, an overshooting can happen and a disorderly unwinding of global economic imbalances is possible.

The framework offered in this paper to assess global imbalances is not meant as a stand-alone assessment. Instead, it may be useful as a conceptual benchmark for economists monitoring trends and developments in global imbalances. By way of illustration, applying the framework to 2007, one may note that global imbalances have been driven mainly by changes in cyclical factors. In the first half of the year, real economy developments - a rotation of global demand - helped to bring about a broad stabilisation of imbalances, especially in the United States. During the summer of 2007, financial market developments - a global repricing of risk - were a clear manifestation of existing imbalances and could signal the start of a more pronounced adjustment process. However, with structural drivers remaining largely in place, in particular the attractiveness of US financial assets as a safe haven, a rapid adjustment in external imbalances remained, as of autumn 2007, relatively unlikely.

REFERENCES

- Ahearne, A. G., J. Ammer, B. M. Doyle, L. S. Kole and R. F. Martin, 2005, "House prices and monetary policy: a cross-country study", International Finance Discussion Paper No 2005-841.
- Alfaro, L., S. Kalemli-Ozcan and V. Volosovych, 2005, "Why doesn't capital flow from rich to poor countries: an empirical investigation", NBER Working Paper No 11901.
- Algieri, B. and T. Bracke, 2007, "Patterns of current account adjustment - insights from past experience", ECB Working Paper, No 762.
- Bems, R. and L. Dedola, 2007, "Current account reversals and capital markets integration: The adjustment of the US external deficit revisited", mimeo, European Central Bank.
- Bems, R., L. Dedola and F. Smets, 2006, "US imbalances: The role of technology and policy", ECB Working Paper No 719.
- Bini Smaghi, L., 2007, "Global capital and national monetary policies" - speech at the European and Economic Financial Centre, London.
- BIS, 77th Annual Report, 2007, Bank for International Settlements, Basel.
- Blanchard, O., F. Giavazzi and F. Sa, 2005, "The U.S. current account and the dollar", MIT Department of Economics Working Paper, No 05-02 and NBER Working Paper No 11137, February.
- Bordo, M. D. and B. Eichengreen, 1993, "A retrospective on the Bretton Woods system", University of Chicago Press.
- Borio, C. and P. McGuire, 2004, "Twin peaks in equity and housing prices?", BIS Quarterly Review, March 2004.
- Bosworth, B. P. and S. M. Collins, 2003, "The empirics of growth: an update", Brookings Papers on Economic Activity, No 2, pp. 113-79.
- Brender, A. and F. Pisani, 2007, "Global imbalances: is the world economy really at risk?", DEXIA.
- Bussière, M., M. Fratzscher and G. Müller, 2005, "Productivity shocks, budget deficits and the current account", ECB Working Paper No 509.
- Caballero, R. J., E. Farhi and P. O. Gourinchas, 2006, "An equilibrium model of global imbalances and low interest rates", mimeo, MIT.
- Caballero, R. J., 2006, "On the macroeconomics of asset shortages", NBER Working Paper No 12753.
- Carroll, C. D., M. Otsuka and J. Slacalek, 2006, "How large is the housing wealth effect?", mimeo, Johns Hopkins University.

- Chinn, M. and H. Ito, 2006, "What matters for financial development? Capital controls, institutions, and interactions", *Journal of Development Economics*, forthcoming.
- Chinn, M. and E. S. Prasad, 2003, "Medium-term determinants of current accounts in industrial and developing countries: an empirical exploration", *Journal of International Economics* 59(1), 47-76.
- Clarida, R., J. Galí and M. Gertler, 2000, "Monetary policy rules and macroeconomic stability: evidence and some theory", *The Quarterly Journal of Economics*, MIT Press, Vol. 115(1), pp. 147-180, February.
- Corsetti, G. and G. Müller, 2006, "Twin deficits: squaring theory, evidence and common sense", *Economic Policy*, 48, October 2006, 597-638.
- Daude, C. and M. Fratzscher, 2006, "The pecking order of cross-border investment", ECB Working Paper No 590.
- Dooley, Garber and Folkerts-Landau, 2003, "An essay on the revived Bretton Woods system", NBER Working Paper No 9971.
- Dorrucci, E. and F. Bratti, 2007, "The link between global growth and external imbalances, and its implications for the international monetary system", mimeo, European Central Bank.
- Dynan, K.E. and D.M. Maki, 2001, "Does stock market wealth matter for consumption?", *Finance and Economics Discussion Series*, Board of Governors of the Federal Reserve System, 2001-23.
- Engler, P., M. Fidora and C. Thimann, 2007, "External imbalances and the US current account: how supply-side changes affect an exchange rate adjustment", ECB Working Paper No 761.
- Erceg, C., Guerrieri, L. and Gust, C., 2005, "Expansionary fiscal shocks and the trade deficit", *International Finance Discussion Paper No 825.*, Board of Governors of the Federal Reserve System.
- Faruqee, H., D. Laxton, D. Muir and P. Pesenti, 2006a, "Smooth landing or crash? Model-based scenarios of global current account rebalancing", published in R. Clarida (ed.), "G7 current account imbalances: sustainability and adjustment", NBER conference volume, University of Chicago Press.
- Faruqee, H., D. Laxton, D. Muir and P. Pesenti, 2006b, "Would protectionism defuse global imbalances and spur economic activity? A Scenario Analysis", *Staff Reports*, Federal Reserve Bank of New York, No 268, December 2006.
- Ferrucci, G. and C. Miralles, 2007, "Saving behaviour and global imbalances: the role of emerging market economies", ECB Working Paper Series No. 842.
- Fogli, A and F. Perri, 2006, "The 'great moderation' and the US external imbalance", NBER Working Paper No 12708.

- Fratzscher, M., L. Juvenal and L. Sarno, 2007, "Asset prices, exchange rates and the current account", ECB Working Paper No 790.
- Freund, C., 2005, "Current account adjustment in industrialized countries", *Journal of International Money and Finance*, Vol. 24, No 8, pp. 1278-1298, December.
- Gertler, M. and K. Rogoff, 1990, "North-south lending and endogenous domestic capital market inefficiencies", *Journal of Monetary Economics*, Vol 26, pp. 245-66.
- Glick, R and K. Rogoff, 1995, "Global versus country-specific productivity shocks and the current account", *Journal of Monetary Economics*, Elsevier, Vol. 35(1), pp. 159-192, February.
- Gordon, R. J., 2004, "Two centuries of economic growth: Europe chasing the American frontier", NBER Working Paper No 10662.
- Gourinchas, P. O. and O. Jeanne, "Capital flows to developing countries: the allocation puzzle", NBER Working Papers 13602.
- Gruber, J. and S. B. Kamin, 2005, "Explaining the global pattern of current account imbalances", *International Finance Discussion Paper*. No 2005-846 and *International Journal of Money and Finance*, Vol. 26(4), June 2007, pp. 500-522.
- Gwartney, J. and R. Lawson, with W. Easterly (2006). *Economic Freedom of the World: 2006 Annual Report*. Vancouver, BC: The Fraser Institute.
- Hausmann, Ricardo and Federico Sturzenegger, 2005, "U.S. and global imbalances: can dark matter prevent a big bang?"
- Hsieh, Chang-Tai and Peter J. Klenow, 2003, "Relative prices and relative prosperity", NBER Working Paper No 9701.
- Hunt, B. and A. Rebucci, 2005, "The U.S. dollar and the trade deficit: what accounts for the late 1990s?", *International Finance* 8 (3), 399-434.
- Iacoviello, M., 2005, "House prices, borrowing constraints and monetary policy in the business cycle", *American Economic Review*, Vol. 95, No 3 (June), pp. 739-764.
- Iacoviello, M. and R. Minetti, 2003, "Financial liberalisation and the sensitivity of house prices to monetary policy: theory and evidence", *The Manchester School*, Vol. 71, No 1, pp. 20-34.
- Jappelli, T. and Pagano, M., 1999, "The welfare effects of liquidity constraints", *Oxford Economic Papers*, Oxford University Press, Vol. 51(3), pp. 410-30, July.
- Jeanne O. and Ranciere R., 2006, "The optimal level of international reserves for emerging market countries: formulas and applications", IMF Working Paper 06/229.
- Ju, J. and S-J. Wei, 2006, "A solution to two paradoxes of international capital flows", NBER Working Paper No 12668.

- Juster, T., J. P. Lupton, J. P. Smith, and F. Stafford, 2006, "The decline in household saving and the wealth effect," *Review of Economics and Statistics*, MIT Press, Vol. 88(1), pp. 20-27, January.
- Kohn, D. L., 2004, "How should policymakers deal with low-probability, high-impact events?", remarks at the European Central Bank Conference on monetary policy and imperfect knowledge, Würzburg, Germany, October 15, 2004.
- Kose, M. Ayhan, Eswar Prasad, Kenneth Rogoff and Shang-Jin Wei, 2006, "Financial globalization: a reappraisal", IMF Working Paper 06/189.
- Kim, S. and N. Roubini, 2003, "Twin deficits or twin divergence? Fiscal policy, current account, and real exchange rate in the U.S.", NYU Stern mimeo.
- Lane, P., and G.-M. Milesi-Ferretti, 2005, "A global perspective on external positions", IIS Discussion Paper No 79, June 2005.
- Lucas, R., 1990, "Why doesn't capital flow from rich to poor countries?", *American Economic Review*, Vol. 80, No 2 (May), pp. 92-6.
- Meissner, C. M. and A. Taylor, 2006, "Losing our marbles in the new century? The great rebalancing in historical perspective", NBER Working Paper No 12580.
- Mendoza, E., V. Quadrini and J-V Rios-Rull, 2006, "Financial integration and financial deepness and global imbalances", NBER Working Paper No 12909.
- Milesi-Ferretti, G. M and A. Razin, 2000, "Current account reversals and currency crises: empirical regularities", in P. Krugman (ed.), *Currency Crises*, University of Chicago Press, Chicago, United States, pp. 285-326.
- Obstfeld, M. and K. Rogoff, 2001, "Perspectives on OECD capital market integration: implications for US current account adjustment", in: Federal Reserve Bank of Kansas City, "Global Economic Integration: Opportunities and Challenges".
- Obstfeld, M. and K. Rogoff, 2005, "Global current account imbalances and exchange rate adjustments", *Brookings Papers on Economic Activity*, 1:2005, pp. 67-123.
- Obstfeld, M. and K. Rogoff, 2006, "The unsustainable US current account position revisited", in: Clarida, R., ed. "G7 current account imbalances: sustainability and adjustment", The University of Chicago Press.
- Prasad, E., R. Rajan and A. Subramanian, 2006, "Foreign capital and economic growth", mimeo, IMF.
- Stock, J. H., and M. W. Watson, 2002, "Has the business cycle changed and why?", NBER *Macroeconomics Annual*, 2002, pp. 159-218.
- Vansteenkiste, I., 2007, "Regional housing spillovers in the US: lessons from regional divergences in a common monetary policy setting", ECB Working Paper No 708.

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