

Liquid assets, liquidity constraints and global imbalances

ALEXANDRE BACLET AND EDOUARD VIDON
Macroeconomic Analysis and Forecasting Directorate
Banque de France

The world distribution of current account balances has been steadily drifting away from “normality” since 1997. This puzzling development has occurred in parallel with large scale accumulation of official foreign reserve assets in emerging Asia and commodity exporting countries, and a growing role of portfolio flows in financing the US external deficit. The theoretical toolbox that was used to understand “old puzzles” of international macroeconomics may still be relevant to address these new puzzles, to the extent that it focuses more specifically on liquidity aspects: uneven supply of liquid assets, borrowing constraints, and externalities related to financial infrastructures that foster market liquidity. The paper discusses how these various features have been introduced in the most recent literature on global imbalances. One aspect that may require further examination is the role of financial market liquidity as a “public good externality”: in the absence of appropriate provision of such a public good in emerging economies, reserve accumulation may be seen as an attempt to import the “public services” benefits of holding liquid “risk-free” assets. This may in turn possibly result in a form of “congestion” if US dollar reserve accumulation outpaces the issuance of US Treasuries or equivalent securities. Large reserve holders have thus turned to a wider range of asset classes, including asset-backed securities whose liquidity has all but vanished in the course of recent financial market turbulences. These developments could therefore affect the financing conditions of the US current account deficit, and undermine some of its structural determinants.

The concern expressed by policymakers and part of the academic literature over "global imbalances" has largely focused on the size and persistence of the US current account deficit, and the resulting large and growing negative external position of the US, which is often deemed to be of systemic importance. However, opposing views remain firmly entrenched on each of the following issues:

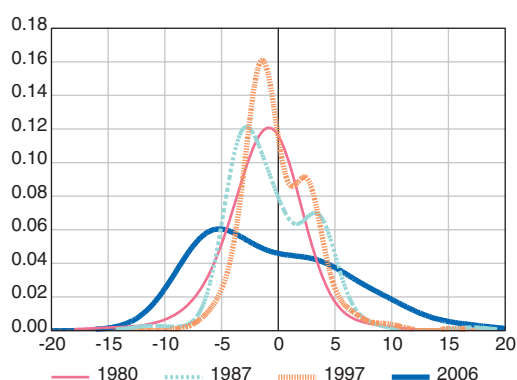
- How significant are the "stylised facts" of global imbalances?
- What are the true causes of this state of the world economy?
- Is the situation sustainable? Is a reversal desirable and how can it be achieved?

1 | SOME STYLIZED FACTS

Backus *et al.* (2006) question the claim that the US external deficit is "unprecedented" from a historical and cross-country perspective. We take a broader view of global imbalances by examining the world distribution of current account balances. In order to document the magnitude of imbalances, we look at changes in that distribution, weighting each country by its share of the world GDP. We use non-parametric estimates for the sample of countries in the IMF database (Chart 1). It appears that the 2006 situation is indeed unprecedented in the last quarter of century, not only in terms of the US deficit, but also in terms of the global distribution of imbalances.

Chart 1
World distribution of current account balances as a % of GDP

(density weighted by the share of each country in world GDP)



Source: WEO, authors calculation

¹ In principle, the surface below the distribution in a given year, of current account balances should sum to zero. In practice, it is not exactly the case in the data, because of statistical discrepancies

The world distribution of current account balances has been steadily drifting away from "normality" since 1997.¹ Namely, it has become bimodal, and it has flattened dramatically. Such a flat distribution is especially striking compared to the previous episode of large US current account deficit (that episode reached its peak in 1987 before a disorderly unwinding).

Chart 2 illustrates this spectacular flattening of the distribution with a 3-D view focusing on the period from 1997 to 2006.

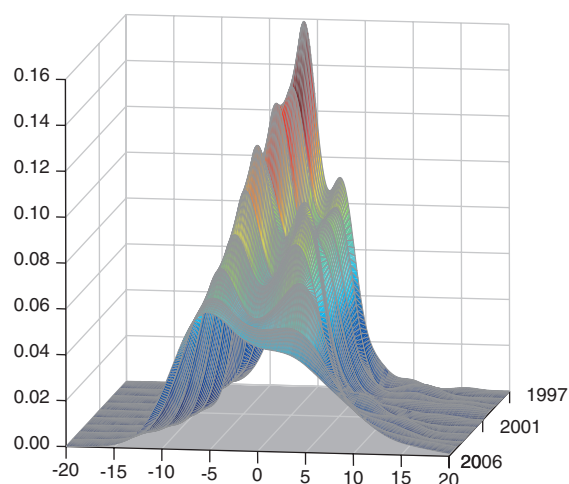
While these graphs illustrate the truly global nature of growing current account imbalances, they do not by themselves provide an explanation for the phenomenon.

In addition, a key feature of this distribution is that over the last decade, on a net basis, capital flows have been consistently flowing from emerging economies towards mature economies, a paradox from the perspective of neo-classical growth theory.

The literature explaining global imbalances is abundant and meticulous observers count no less than eleven alternative explanations (Roubini, 2007). However, as highlighted by the ECB (2007), the debate largely revolves around the respective roles of cyclical vs. structural factors. More specifically: one view argues that cyclical policies may have played a role in bringing about a saving shortage in the US; another view emphasizes the role of asymmetric growth potentials

Chart 2
Change in the distribution of current account balances 1997-2006

(density weighted by country share of world GDP)



Source: WEO, authors calculation

and/or market structures in generating current account imbalances as an equilibrium outcome, which could therefore be considered efficient in some sense. A consensus view acknowledges that a combination of factors is required to understand the full picture. As summarized by Blanchard (2007) the consensus is that global imbalances result from a combination of low savings in the US, high saving in Asia and investors' preference for US financial assets.

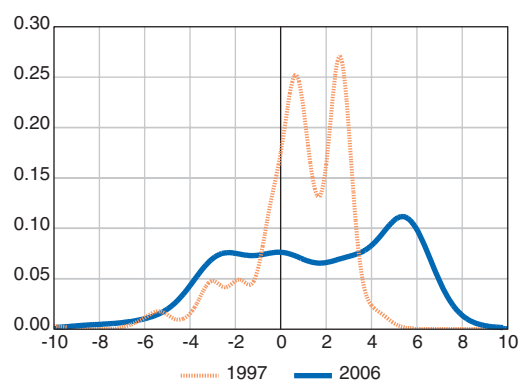
This last factor strikes us as crucial, because conventional explanations that leave it aside often also leave several macro puzzles unresolved, in particular the direction of net capital flows and the persistence of the US current account deficit.

Because current account balances by definition reflect financial flows, one cannot help noticing that the spreading out of current account imbalances has taken place over a period of fast global financial integration and innovation, even though financial market deepness has remained extremely uneven between mature economies and emerging markets.

As a matter of fact, the importance of net portfolio inflows has grown over time as a funding channel for the US current account deficit, in line with the increase of that deficit. The world distribution of net portfolio inflows as a % of GDP is depicted in Chart 3, which can be seen as one of the major counterparts to the current account balances represented in Charts 1 and 2. The increase in the size of net portfolio flows as a share of GDP is especially striking in the US, which is responsible for the rightmost bump in both the 1997 and 2006 distributions.

Chart 3
World distribution of net portfolio inflows as a % of GDP

(density weighted by the share of each country in world GDP)



Source: WEO, authors calculation

2 By contrast, the possible role of monetary policy and global "excess liquidity" in the build-up of global imbalances is not explored here.

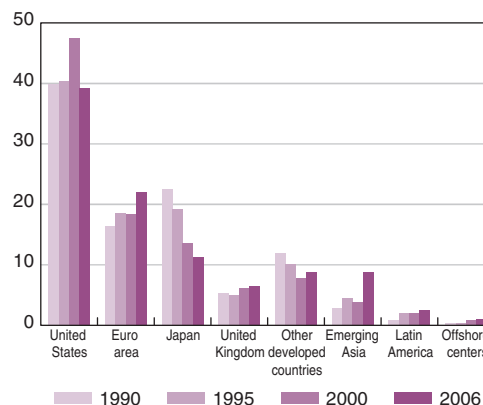
The geographic imbalance of asset market capitalizations (Chart 4) has been the inspiration for an important body of the international macroeconomics literature focusing on the financial account as the driving force of balance of payments dynamics and attempting to explain various puzzles. The main common feature of this literature is that it emphasizes the macroeconomic consequences of microeconomic market imperfections that are frequently related to liquidity issues, primarily: the ability of various economies to supply liquid assets, and the role played by liquidity/borrowing constraints. Liquidity, in a structural sense, is therefore exposed as central to the understanding of international capital flows and resulting current account trends. The purpose of this paper is to provide an overview of such liquidity related explanations of global imbalances.²

The scope for and the welfare benefits of a policy-led reversal of global imbalances (be it through structural or stabilization policies) are of course dependent on the conclusion reached with respect to its root causes. Calls for an "orderly unwinding" often focus on the role of cyclical policies, while the benign neglect view highlights the equilibrium nature of such imbalances. While structural explanations have often been interpreted as benign, an even dubbed a "new paradigm" (Xafa, 2007), we emphasize that we take them seriously as motivating policy action, in so far as the market failures that underpin these models are potentially very costly in welfare terms.

The rest of this paper is organized as follows. Section 2 discusses how the macroeconomic literature has dealt with some puzzling facts regarding current

Chart 4
World distribution of financial assets

(stock market capitalization plus total outstanding debt)



Sources: WFSE, BIS, BâF calculations

account balances and international capital flows. Section 3 reviews the specific role of liquidity issues in recent models of global imbalances, in relation with trends in asset market liquidity. Section 4 concludes by drawing some policy implications.

2 | OLD PUZZLES AND NEW PUZZLES OF INTERNATIONAL MACROECONOMICS

International macroeconomics is puzzle-rich. Obstfeld and Rogoff (2000) have famously offered a "common cause", namely international trade costs in goods markets, in order to explain six of them. Several of the puzzles they have addressed are closely related to current account imbalances, in particular the home bias in asset holdings and the Feldstein–Horioka (1980) puzzle, *i.e.* the correlation between domestic investment rates and saving rates.

It is interesting to note that growing global imbalances may have to some extent dissipated these two of puzzles, as the gap between investment and saving rates has widened in the US and in countries with large current account surpluses. More precisely, we currently witness a reduction in the Feldstein-Horioka puzzle, *i.e.* a reduction in the correlation between the saving and investment rates in the developed economies (which benefit from better financial infrastructures), whereas the correlation remains strong in emerging economies.

Regarding the home bias puzzle, anecdotal evidence indicates that international diversification has been at play in household financial portfolios. Increasing international financial integration thus appears to participate in the reduction of the home bias in asset holdings especially in the US and in Japan, economies with highly developed financial systems.

The question of why capital doesn't flow from rich to poor countries is another longstanding current account puzzle, first explored by Lucas (1990). Differences in human capital were his main focus, and empirical investigation of the Lucas puzzle (Alfaro *et al.*, 2005)

emphasizes differences in "institutional quality". We will argue later that financial infrastructure providing liquid asset markets plays a central role.

Extending the neoclassical growth framework, the inter-temporal approach to the current account (as summarized by Obstfeld and Rogoff, 1994) has recognized that in a stochastic environment, current-account balance determination largely depends on the extent to which markets exist for insuring against shocks. In the case where insurance markets exist for all future contingencies, with outcome fully verifiable and contract fully enforceable, international capital flows can perfectly insure against any country specific shock and from a formal point of view, assuming there is no "world" or aggregate shock that would remain uninsurable, each country's economy can be analysed as if perfect certainty prevailed. However, in practice, asset markets are hardly complete, in particular due to asymmetric information and moral hazard that prevent full risk sharing. In the international context, sovereign risk and distance, together with cultural and legal differences magnify the difficulties.

Heterogeneity in levels of financial development, in particular various degrees of financial markets deepness, even among developed economies, is all the more important as current account balances (as a percentage of GDP) are negatively correlated with indicators of financial development. Indeed Kharroubi (2007) shows that after the 1997 Asian crisis, countries with current account deficits have been those where financial development, as measured by private credit as a percentage of GDP, has been higher.

The puzzling direction of international capital flows has thus further been explored in models focusing on financial imperfections (*e.g.* Gertler and Rogoff, 1990).

However, until it unfolded over the last decade, the puzzling build-up of large global imbalances could not be addressed as such in the literature. More specifically, the present state of the world economy can be seen as a collection of related "new puzzles" of international macroeconomics:

- the persistence of the US current account deficit together with a persistent surplus in the US income balance, in spite of a growing negative external position (see *e.g.* Gourinchas and Rey, 2005);

- the large scale accumulation of official foreign reserve assets in emerging Asia.

Dooley, Folkerts-Landau and Garber (2003) have outlined a coherent explanation with their so-called "Bretton Woods 2" (BW2) conjecture. The idea is that Asian emerging economies are pursuing export-led growth strategies by deliberately maintaining undervalued exchange rates, while providing the funding for the US current account deficit, as the US is a key consumer of these exports. However, what strikes us is that the BW2 conjecture is in itself a puzzle. In some general game theoretic sense, it may be considered as a kind of strategic "international policy" equilibrium. But in order to ascertain its dynamic (in)stability, a more elaborate modelling of the underlying incentives is required. A deeper understanding therefore vindicates the investigation of its microeconomic foundations.

In particular, a convincing explanation of global imbalances should not only account for the "uphill" direction of net capital flows, but also for the "allocation puzzle" (Gourinchas and Jeanne, 2007): the fact that net capital flows between emerging countries and industrialized countries are directed toward economies that have lower investment rates and lower growth rates. Besides, a full understanding of the direction of *gross* capital flows (distinguishing between direct investment and portfolio investment) may require a more complex modelling of financial frictions and incentives.

To summarize, old puzzles of international macro have largely been dealt with by incorporating market imperfections such as trade frictions and capital market imperfections, as well as growth externalities such as human capital. This toolbox may still be relevant to address some new puzzles of international capital flows, by focusing more specifically on liquidity aspects:

- various degrees of risk and market completeness, that make insurance and diversification more or less available (a liquid market is one that offers a wide range of assets);
- credit market frictions such as borrowing constraints, as one particularly important aspect of market imperfection (a liquid market is one that facilitates borrowing);

- externalities resulting from accumulated capital, such as human capital, but also institutions and infrastructures, in particular financial systems (that foster market liquidity).

The next section describes how these various features have been introduced in the most recent literature on global imbalances.

3| STRUCTURAL LIQUIDITY ISSUES IN MACRO MODELS OF GLOBAL IMBALANCES

3|1 Asymmetric supply of assets, incomplete markets and global imbalances

A first approach of global imbalances where market liquidity plays a central role relies on the intuition that asymmetries in financial development translate into uneven ability to supply assets, in particular *liquid* assets. From the asset demand side, incomplete asset markets can also bear consequences for saving behaviour. Asset market completeness and liquidity can be decisive in directing capital flows, therefore determining financial account imbalances. Such financial development asymmetries are not new, so that one may wonder why they should have played a specific role in the recent build-up of global imbalances. A possible explanation relates to the recent pace of globalization: its growth benefits may have spurred demand for financial assets, while institutional changes that determine the supply of sound market instruments may proceed more slowly.

ASSET SHORTAGE

Rajan (2006) and Caballero (2006) have both popularised the "asset shortage" hypothesis as a potentially comprehensive explanation of global imbalances, as well as of some asset prices puzzles (in particular the long-term interest rates "conundrum"). Caballero is concerned with the "shortage of financial assets" in a general sense. By contrast, Rajan's concern

is with the "global shortage of hard assets", in relation with physical investment; as a consequence, he also focuses on the resulting shortage of debt instruments, which often need to be backed by hard assets.

Rajan's explanation for the asset shortage situation relies on the observation that nominal investment may have been unusually low in some areas. The consequence is that the incremental amount of assets that are produced and can serve as collateral has decreased. Rajan's approach is particularly relevant for fixed income instruments, in particular the so-called "asset-backed securities".

Caballero conjectures that the asset shortage may stem in particular from the inability of emerging economies to produce sound and high quality financial assets required by local agents, ranging from households to central banks, to store wealth. Indeed, developed countries' stock markets rely on strong property rights, while the repossession mechanisms for debt securities require appropriate infrastructure and good governance. Caballero stresses that emerging economies are characterized by "weak bankruptcy procedures, chronic macroeconomic volatility and sheer expropriation risk". As a consequence of these deficiencies, the utility of their domestic assets as a store of value or as collateral is certainly much lower than that of assets produced in developed economies. As the highest growth rates are being recorded in countries with low levels of financial development, the collateral value of investments realized in these countries is limited and therefore the world supply of financial assets is refrained.

Meanwhile, advanced economies such as the United States or the United Kingdom have managed to combine a steady growth with a great ability to produce sound and liquid financial assets, which may account for net financial flows being directed towards these economies, and the resulting build-up in their current account deficits. In particular, it is interesting to note the parallel between the growing US external deficit and the surge in residential investment in the US, accompanied by financial innovation that has favoured growing issuance of residential mortgage backed debt and other asset-backed securities.

Building on the "asset shortage" intuition, Caballero, Fahri and Gourinchas (2006) constructed a model in which asymmetric abilities of country to

produce financial assets are responsible for global imbalances. In their framework the domestic supply of financial assets is mechanically related to the level of financial development. This model fits the situation of Asian economies with high saving rates that cannot be satisfied by insufficiently liquid domestic asset markets. "Excess saving" is therefore being exported towards countries with large supply of high-quality assets. Such imbalances can moreover be exacerbated by other international asymmetries in saving behaviour (resulting from the rapid pace of growth in Asia, as well as demographic phenomena and precautionary motives).

INCOMPLETE MARKETS AND UNCERTAINTY

The role of macroeconomic volatility as a potential explanation for asset shortage was mentioned by both Rajan (2006) and Caballero (2006). Yet as Caballero *et al.* (2006) built primarily on the asset supply consequences of asymmetric levels of financial development, they did not address market completeness and risk as such. By contrast, Mendoza, Quadrini and Rios-Rull (2007) focus on the consequences of financial opening under uncertainty, when markets in different regions of the world are more or less incomplete. They are specifically interested in relating global imbalances with growing financial integration occurring among countries with heterogeneous level of financial development. Uncertainty, and the inability of agents to perfectly insure against it, have direct consequences on saving rates and on the asset demand. Besides, their modelling of heterogeneity in financial market development accounts for lasting global imbalances as well as for the composition of financial flows (direct investment from developed economies towards emerging economies and portfolio investment the other way round). A more developed economy is more likely to take risks by investing in financial assets from emerging economies whereas emerging economies will be looking for risk-free financial assets to hedge against shocks. The asymmetry in financial markets development drives the excess saving in emerging economies towards developed economies.

Beyond the market structure considerations (asset supply, relative market liquidity), a better understanding at the macroeconomic level requires to consider the liquidity services provided by foreign asset holdings.

3|2 Liquidity constraints, liquidity shocks and global imbalances

Another aspect of the role of liquidity (or lack thereof) in bringing about global imbalances is explored in the literature that addresses the role of liquidity constraints in relation with international capital flows. It is not unrelated to the issue of asymmetries in financial deepness insofar as such liquidity constraints are just a special case of market incompleteness. In a general sense, such constraints may be more or less binding depending on the state of financial development. More specifically, the issue of credit constraints is closely linked to the asset shortage/incomplete markets issue in at least two ways:

- the availability of assets that can be posted as collateral is of course a key determinant of the ability to borrow;
- the possibility that a borrowing constraint may become binding in the future is an additional motive for saving by accumulating liquid assets.

Dealing with the international dimension of liquidity constraints naturally leads to the recognition that international liquidity may differ from domestic liquidity. This was a central aspect of the approach by Barro, Mankiw and Sala-i-Martin (1995), which showed that the difficulty in using human capital as collateral for international borrowing can explain slower rates of convergence within the framework of the neo-classical growth model.

However, a different framework, based on contract theory, for dealing with liquidity constraints has now become predominant following in particular seminal work by Holmström and Tirole (1998). Caballero and Krishnamurthy (2001, 2002) provide an interesting investigation of the role of financial constraints on international capital flows, in an effort to improve models of financial crises in emerging market. In a 'dual liquidity' model, they distinguish between the financial constraints affecting borrowing and lending among agents within an emerging economy, and those affecting borrowing from foreign lenders. Financial claims on future flows (collateral) that can be sold to foreign and domestic lenders alike are labelled international liquidity, while those that can be sold solely to other domestic agents are labelled

domestic liquidity. Holmström and Tirole (2002) have further explored the issue of international liquidity by extending their model to allow for foreign investors to provide liquidity services to domestic firms. While this line of work provides valuable insight on the interactions between the tightness of the international constraint, the contraction of domestic collateral and real activity, it is not meant to deal with issues related to global imbalances.

However, two interesting implications can be drawn for the current state of the world economy if one considers that US Treasury securities can be thought of as a financial vehicle of international liquidity:

- one reason why a country such as the US has never run into a current account crisis as such may be that it has never faced a shortage of international collateral;
- the large accumulation of foreign exchange reserves in the form of US securities can be thought of as international collateral for foreign direct investment into emerging economies.

This interpretation of the role of foreign reserves has been put forward by Dooley, Folkerts-Landau and Garber (2004, 2007) and also in Gourinchas and Jeanne (2007).

More directly in relation with global imbalances, Ju and Wei (2006) build on Holmström and Tirole (1998) to propose a model that resolves two paradoxes of international capital flows: they address the issue that international capital flows from rich to poor countries can be regarded as either too small (Lucas paradox) or too large (if one believes in factor price equalization). Firms are subject to liquidity shocks, which they overcome all the more easily as financial markets are developed. Besides, Ju and Wei also allow for differences in levels of property rights protection. The combination of these ingredients allows rich patterns of gross capital flows to emerge with differences between countries: a country with little physical capital and an inefficient financial system may experience both an outflow of financial capital and a direct investment inflow, resulting in a positive net inflow. This phenomenon is described as a "bypass" of the poorly developed domestic financial system. By contrast a country with a low capital-to-labour ratio but a high risk of expropriation may experience financial outflows without the compensating direct investment inflow, thus resulting in large net capital outflow.

From the perspective of the role of liquidity issues in explaining global imbalances, Ju and Wei's approach is interesting in at least three dimensions:

- this framework explicitly outlines the role of liquidity constraints and liquidity shocks in determining the direction of capital flows;
- by making a distinction between financial flows and direct investment flows, it allows for a more accurate understanding of gross capital flows, of which "global imbalances" are a net outcome; it is consistent with the Gourinchas and Rey (2005) explanation of the US income balance;
- the ability of firms to cope with liquidity shocks is seen as an index of financial development: this can be understood as firms having access to more or less liquid financial markets, such liquidity being possibly supplied publicly in the form of government securities.

3|3 Financial market liquidity as a public good and global imbalances

The role of public goods can be analyzed both at a macro level –their contribution to growth– and at a micro level, from the perspective of economic agents that benefit from them.

Lucas (1990) showed that growth externalities can have an implication for capital flows. While his focus was on human capital, public goods clearly play a similar role. Furthermore, the role of financial infrastructure as public goods is most likely to have a defining influence on the direction of financial flows.

In a general sense, the existence and proper functioning of liquid financial markets can be interpreted as a public service that enters into the technology, and therefore the productive function of advanced market economies. It is not immediately clear however whether the service provided by deep financial market is rival³ and/or excludable,⁴ and to which of the theoretical "public goods" models it relates. Indeed, public services provided by financial markets can be characterized at various levels.

³ Rival goods are those that can be consumed by only so many persons at a time.

⁴ Excludable goods are defined by the feature that their consumption by those who have not paid for them can be prevented at low cost.

The public good may be the whole financial market infrastructure that contributes in particular to generating market liquidity: part of that infrastructure may be privately provided (e.g. exchanges and clearing houses), but some essential components are typically publicly provided (e.g. regulations, supervision, lender of last resort, contract enforcement), so that it is probably best to characterize market infrastructure as a range of various public goods.

Focusing on the components of the infrastructure that are publicly provided, regulation and supervision are clearly pure public goods. The public good factor of large-value payment systems has been explored in the context of the Eurosystem's real-time gross settlement system (Pagès and Humphrey, 2005). To the extent that they may be subject to queuing phenomena, payment systems can exhibit "network externalities". Intraday liquidity management by participants can thus potentially lead to gridlock phenomena, one aspect of systemic risk in interbank payment and settlement systems (De Bandt and Hartmann, 2000).

Congestion of public goods has been studied in the context of endogenous growth models (Barro, Sala-i-Martin, 1990), but it has not been considered as such in more recent models of financial intermediation and capital flows. Nevertheless, interesting features of several theoretical approaches can be related to that notion, in particular:

- generally speaking, constraints that prevent borrowing (e.g. against future labour income) by lack of the appropriate financial infrastructure can be suboptimal and costly in welfare terms;
- in Holmström and Tirole (1998), the productive sector is willing to purchase low yielding government securities as an intermediate input in the production process : the lack of publicly supplied liquidity can therefore be thought of as a form of public service congestion, namely a shortage of liquid financial assets;
- Rajan (2006) notices that a shortage of fixed assets that can be used as collateral cannot be immediately overcome by financial innovation, because financial derivatives require posting of collateral: in that spirit a form of congestion may come from the inadequacy between the rate of growth of real assets and that of financial innovation.

These approaches suggest that it is useful to focus on the actual provision (public or private) of liquid financial assets, as a key feature of an efficient market infrastructure. Ownership of such assets is rival, but excludable through price mechanisms. However, the liquidity services provided by those assets can be subject to congestion if they are used by too many asset holders at once.

From a practical standpoint, the notion of congestion evokes various undesirable states of financial markets:

- some market participants may attempt, and sometimes succeed to "corner" a large share of some liquid assets such as Government bond benchmarks;
- some segments of financial markets are sometimes subject to "seizures" (vanishing of liquidity).

How is the congestion approach useful for the understanding of global imbalances?

From the perspective of emerging economies, one can understand the accumulation of large amounts of financial assets issued by advanced economies as an attempt to import the "public service" benefits provided by holdings of US or European government securities. In other words, financial globalization can be seen as having made internationally available a public good produced in developed economies: liquid "risk-free" assets. The absence (or congestion) of such a public good in emerging economies is thus "by-passed" (using the Ju and Wei terminology). Accumulation of foreign reserves therefore serves both as an insurance against the risks of international financial integration (such as balance of payment crises or banking crises), but also as "foreign collateral" (Dooley, Garber and Folkerts-Landau, 2007; Gourinchas and Jeanne, 2007) in the international intermediation of saving: as such, it may facilitate foreign direct investment into the country. Indeed, Dooley *et al.* (2007) explicitly consider "a country's international collateral as a public good for its residents".

The two roles are clearly linked insofar as those liquid assets could be sold in order to provide emergency liquidity support to domestic banks (*e.g.* by repurchase of sterilization bills that have been issued to them).

From the perspective of the advanced economies that issue those securities however, the consequences of making them globally available are mixed.

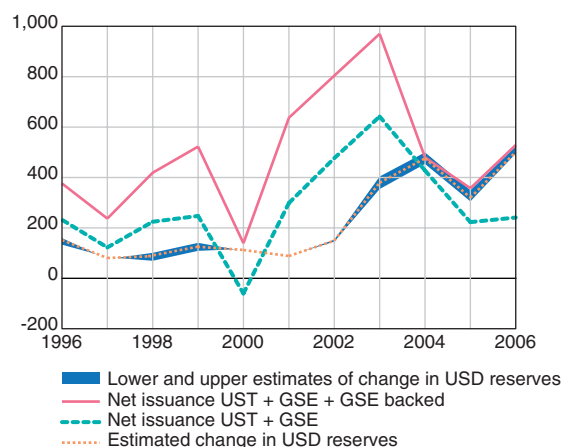
On the one hand demand for such securities by foreign reserve managers may help relax borrowing constraints for eligible issuers.

On the other hand it may induce some of the above-mentioned congestion effects in the developed financial markets: if the holdings by foreign central banks become very large, that may to some extent remove the liquidity of the instrument; in addition, large portfolio shifts may trigger market seizures in specific compartments. Chart 5 illustrates the fact that over the recent years, estimated foreign reserve accumulation in US dollars has exceeded the net issuance of US Treasuries and US Agency securities (traditional asset classes for official reserves), even when including net issuance of GSE backed mortgage pools.

As a consequence, concern over possible lack of liquidity supply in the form of traditional reserves assets may partly explain the drive of large foreign reserves holders to invest into a wider range of asset classes, in particular asset backed securities. This highlights another issue from the perspective of emerging economies investing in such assets: the fact that their liquidity has all but vanished in the course of recent financial market turbulences questions the "public good" benefits that can be expected from holding them.

Chart 5
Net issuance of US Treasury and agency securities and USD reserve accumulation

(USD billions)



Sources: COFER-IMF, Flows of Funds, BdF calculations

Recent financial market developments could structurally affect the financing conditions of the US current account deficit, with possible implications on the pace of adjustment if some categories of US issued asset classes have become less attractive to non US investors.

Yet the latest IMF projections (IMF, 2007) still forecast a small and gradual reduction in the US current account deficit as a share of GDP, together with a contraction in external surpluses of oil exporting economies. Noticeably, surpluses recorded in emerging Asia, in particular in China, are expected to be sustained at a foreseeable horizon. As a result, the world distribution of current account imbalance would evolve very slowly: the reversal in the recent flattening trend would be very limited, and the distribution would remain very asymmetric, with a fat tail on the surplus side. The puzzles of global imbalances may therefore be with us for many more years.

To the extent that global imbalances reflect various aspects of market completeness, including undesirable credit market frictions, and lack of publicly supplied liquidity in some fast growing economies, they may possibly entail large welfare losses over time. Policies favouring the removal of such structural distortions, in particular the development of insurance mechanisms and liquid financial markets in emerging economies should therefore be encouraged.

It will take time before the benefits of structural policies can be reaped. Meanwhile, as long as some bypassing of inefficient financial systems is at play, the liquidity of assets issued by advanced economies (first of all by the US) will remain central to international financial stability. In particular, whenever the liquidity of official reserve assets is at stake, the congestion hypothesis may be worth investigating. It may provide a useful framework to encompass:

- *the rationale for public supply of liquidity,*
- *the asset shortage hypothesis and,*
- *the systemic implications of "excess" foreign reserves accumulation.*

At this stage we lack a formal model to fully understand all the effects (positive and negative) arising from the international usage of liquid government securities as a public good. This however appears to us as a promising venue of research.

BIBLIOGRAPHY

Alfaro (L.), Kalemli-Ozcan (S.) and Volosovych (V.) (2005)

"Why doesn't capital flow from rich to poor countries? An empirical investigation", *NBER Working Paper*, No. 11901

Backus (D.), Henriksen (E.), Lambert (F.) and Telmer (C.) (2006)

"Current account fact and fiction", *mimeo*, *New York University*

Barro (R.J.), Mankiw (G.) and Sala-i-Martin (X.) (1995)

"Capital mobility in neoclassical models of growth", *The American Economic Review*, vol. 85, No. 1, pp. 103-115, March

Barro (R.) and Sala-i-Martin (X.) (1990)

"Public finance in models of economic growth", *NBER Working Paper*, No. 3362

Blanchard (O.) (2007)

"Current account deficits in rich countries", *NBER Working Paper*, No. 12925

Caballero (R. J.) (2006)

"On the macroeconomics of asset shortages", *NBER Working Paper*, No. 12753

Caballero (R. J.), Fahri (E.) and Gourinchas (P.-O.) (2006)

"An equilibrium model of global imbalances and low interest rates", *NBER Working Paper*, No. 11996

Caballero (R. J.) and Krishnamurthy (A.) (2001)

"International and domestic collateral constraint in a model of emerging market crises", *Journal of Monetary Economics*, 48, pp. 513-548

Caballero (R. J.) and Krishnamurthy (A.) (2002)

"A dual liquidity model for emerging markets", *NBER Working Paper*, No. 8758

De Bandt (O.) and Hartmann (P.) (2000)

"Systemic risk: a survey", *ECB working paper*, No. 35, November

Dooley (M.), Folkerts-Landau (D.) and Garber (P.) (2003)

"An essay on the revived Bretton Woods system", *NBER Working Paper*, No. 9971

Dooley (M.), Folkerts-Landau (D.) and Garber (P.) (2004)

"The US current account deficit and economic development: collateral for a total return swap", *NBER Working Paper*, No.10727

Dooley (M.), Folkerts-Landau (D.) and Garber (P.) (2007)

"The two crises of international economics", *NBER Working Paper*, No. 13197

European Central Bank (2007)

"Adjustment of global imbalances in a financially integrated world", *Monthly Bulletin*, August

Feldstein (M.) and Horioka (C.) (1980)

"Domestic saving and international capital flows", *Economic Journal*, 90, June, pp. 314-29

Gertler (M.) and Rogoff (K.) (1990)

"North-South lending and endogenous domestic capital market inefficiencies", *Journal of Monetary Economics*, 26, pp. 246-266

Gourinchas (P.-O.) and Jeanne (O.) (2007)

"Capital flows to developing countries: the allocation puzzle", *unpublished manuscript*

Gourinchas (P.-O.) and Rey (H.) (2005)

"From world banker to world venture capitalist: US external adjustment and the exorbitant privilege", *NBER Working Paper*, No. 11563

Holmström (B.) and Tirole (J.) (1998)

"Private and public supply of liquidity", *Journal of Political Economy*, vol 106, No. 1, pp. 1-40

Holmström (B.) and Tirole (J.) (2002)

"Domestic and international supply of liquidity", *American Economic Association, Papers and proceedings*, Liquidity shortages and financial crises, pp. 42-45, May

International Monetary Fund (2007)

"World economic outlook", October

Ju (J.) and Wei (S.-J.) (2006)

"A solution to two paradoxes of international capital flows", *NBER Working Paper*, No. 12668

Kharroubi (E.) (2007)

"Current account, credit constraints and growth", *mimeo*, March

Lucas (R.) (1990)

"Why doesn't capital flow from rich to poor countries?", *AEA Papers and Proceedings*, vol. 80, No. 2, pp.92-96, May

Mendoza (E. G.), Quadrini (V.) and Rios-Rull (J.-V.) (2007)

"Financial integration, financial deepness and global imbalances", *CEPR Discussion paper*, No. 6149, March

Obstfeld (M.) and Rogoff (K.) (1994)

"The intertemporal approach to the current account" *NBER Working Paper*, No. 4893

Obstfeld (M.) and Rogoff (K.) (2000)

"The six major puzzles in international macroeconomics: is there a common cause?", *NBER Working Paper*, No. 7777

Pagès (H.) and Humphrey (D.) (2005)

"Settlement finality as a public good in large-value payment systems", *ECB working paper*, No. 506, July

Rajan (R.) (2006)

"Is there a global shortage of fixed assets?", *Speech at the G-30 meetings in New York*, International Monetary Fund

Roubini (N.) (2007)

"The instability of the Bretton Woods 2 regime", *www.rgemonitor.com*, July

Xafa (M.) (2007)

"Global imbalances and financial stability", *IMF working paper*, No. 07/111, International Monetary Fund, May