

WHAT INTERNATIONAL MONETARY SYSTEM FOR A FAST-CHANGING WORLD ECONOMY?

AGNÈS BÉNASSY-QUÉRÉ* AND JEAN PISANI-FERRY**

Highlights

- Though the renminbi is not yet convertible, the international monetary regime has already started to move towards a 'multipolar' system, with the dollar, the euro and the renminbi as its key likely pillars. This shift corresponds to the long-term evolution of the balance of economic weight in the world economy. Such an evolution may mitigate some of the flaws of the present (non-) system, such as the rigidity of key exchange rates, the asymmetry of balance-of-payments adjustments or what remains of the Triffin dilemma. However it may exacerbate other problems, such as short-run exchange rate volatility or the scope for 'currency wars', while leaving key questions unresolved, such as the response to capital flows global liquidity provision. Hence, in itself, a multipolar regime can be both the best and the worst of all regimes. Which of these alternatives will materialise depends on the degree of cooperation within a multilateral framework.

JEL Codes: F33, F32

Keywords: International monetary system, capital controls

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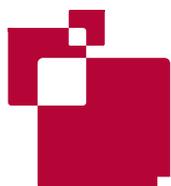


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NON-TECHNICAL SUMMARY

After two decades out of the spotlight, the reform of the international monetary system is once again on the international policy agenda. Looking beyond the system's possible responsibilities in the crisis, exchange-rate disagreements, unprecedented reserve accumulation and the difficulties in coping with volatile capital flows in certain countries can all explain this renewed interest in international discussions.

The current international monetary regime is a hybrid one that involves asymmetries between the countries in a floating exchange rate regime and the countries whose currency is pegged to the US dollar and, as well as between the US, whose currency retains dominant status, and the other participating countries. Its shortcomings are often pointed out, but it has worked remarkably well during the global crisis of 2008-2009.

Though the renminbi is not yet convertible, the international monetary regime has already started to move towards a 'multipolar' system, with the dollar, the Chinese currency and the euro as its key likely pillars. This shift corresponds to the long-term evolution of the balance of economic weight in the world economy. Such an evolution may mitigate some flaws of the present (non-) system, such as the rigidity of key exchange rates, the asymmetry of balance-of-payments adjustments or what remains of the Triffin dilemma. However it may exacerbate other problems, such as short-run exchange rate volatility or the scope for 'currency wars', while leaving key questions unresolved, such as the response to capital flows global liquidity provision. Hence, in itself, a multipolar regime can be both the best and the worst of all regimes. Which of these alternatives will materialise depends on the degree of cooperation within a multilateral framework.

The international community should already start preparing for the evolution of the international monetary system, by creating a favourable environment for the flexibility of exchange rates (whilst still allowing for regional agreements) and the harmonious internationalisation of the renminbi and, possibly, the euro. To this end, it would be necessary to extend the IMF's mandate to include surveillance of the financial account, to agree on a "code of conduct" to guide the use of capital control instruments, to strengthen liquidity-supplying facilities for use in times of crisis, and to put in place genuine coordination between the key central banks for managing global liquidity.

ABSTRACT

Though the renminbi is not yet convertible, the international monetary regime has already started to move towards a 'multipolar' system, with the dollar, the Chinese currency and the euro as its key likely pillars. This shift corresponds to the long-term evolution of the balance of economic weight in the world economy. Such an evolution may mitigate some flaws of the present (non-) system, such as the rigidity of key exchange rates, the asymmetry of balance-of-payments adjustments or what remains of the Triffin dilemma. However it may exacerbate other problems, such as short-run exchange rate volatility or the scope for 'currency wars', while leaving key questions unresolved, such as the response to capital flows global liquidity provision. Hence, in itself, a multipolar regime can be both the best and the worst of all regimes. Which of these alternatives will materialise depends on the degree of cooperation within a multilateral framework.

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QUEL SYSTÈME MONÉTAIRE INTERNATIONAL POUR UNE ÉCONOMIE MONDIALE EN MUTATION RAPIDE ?

RÉSUMÉ NON TECHNIQUE

Après trois décennies d'éclipse, la réforme du système monétaire international figure de nouveau à l'ordre du jour des discussions internationales. Au-delà des controverses sur sa responsabilité dans la genèse de la crise, les différends sur les changes, l'ampleur sans précédent de l'accumulation des réserves, et les difficultés des pays aux prises avec la volatilité des mouvements de capitaux expliquent cette actualité.

Le système monétaire international est aujourd'hui un régime hybride avec une forte asymétrie entre, d'une part, les économies en régime de change flottant et d'autre part, celles en régime de change fixe principalement par rapport au dollar des Etats-Unis ; mais aussi entre les Etats-Unis, qui conservent un statut particulier, et tous les autres pays. Si ses multiples défauts sont régulièrement rappelés, il faut reconnaître que ce système s'est bien comporté durant la crise de 2008-2009.

Bien que le RMB ne soit pas encore convertible, le régime monétaire international a entamé une transition vers un système plus « multipolaire », dont les piliers pourraient, à terme, être le dollar, le renminbi et l'euro. Cette évolution ne fait qu'accompagner celle des poids respectifs des différents pays et zones dans l'économie mondiale. Elle pourrait gommer certaines imperfections du (non) système monétaire international actuel, comme la rigidité de certains taux de change clés, l'asymétrie des ajustements de balances de paiements ou ce qui demeure du dilemme de Triffin. Elle pourrait cependant exacerber d'autres défauts du système monétaire actuel, tels que la volatilité des taux de change ou le risque de « guerres des monnaies ». Enfin, certaines questions, comme la fourniture de liquidité internationale, resteraient irrésolues. Ainsi, un régime multipolaire peut s'avérer le meilleur comme le pire des systèmes, selon le degré de flexibilité des taux de change qui l'accompagne et selon le degré de coordination multilatérale.

La communauté internationale devrait donc dès aujourd'hui se préparer à l'évolution du système monétaire international en créant des conditions favorables à la flexibilité des taux de change (ce qui n'exclut pas des accords monétaires régionaux) et à une internationalisation harmonieuse du renminbi et, éventuellement, de l'euro. Pour ce faire, il serait nécessaire d'étendre le mandat du FMI à la surveillance du compte financier, de mettre en place un code de conduite sur l'usage des interventions de change et des contrôles de capitaux, de renforcer les dispositifs de fourniture de liquidité en cas de crise et de mettre en place une coordination des banques centrales clés pour la gestion de la liquidité mondiale.

RÉSUMÉ COURT

Bien que le RMB ne soit pas encore convertible, le régime monétaire international a entamé une transition vers un système plus « multipolaire », dont les piliers pourraient, à terme, être le dollar, le renminbi et l'euro. Cette évolution ne fait qu'accompagner celle des poids respectifs des différents pays et zones dans l'économie mondiale. Elle pourrait gommer certaines imperfections du (non) système monétaire international actuel, comme la rigidité de certains taux de change clés, l'asymétrie des ajustements de balances de paiements ou ce qui demeure du dilemme de Triffin. Elle pourrait cependant exacerber d'autres défauts du système monétaire actuel, tels que la volatilité des taux de change ou le risque de « guerres des monnaies ». Enfin, certaines questions, comme la fourniture de liquidité internationale, resteraient irrésolues. Ainsi, un régime multipolaire peut s'avérer le meilleur comme le pire des systèmes, selon le degré de flexibilité des taux de change qui l'accompagne et selon le degré de coordination multilatérale.

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Mots-clefs : Système monétaire international, contrôles de capitaux.

WHAT INTERNATIONAL MONETARY SYSTEM FOR A FAST-CHANGING WORLD ECONOMY?

Agnès Bénassy-Quéré* & Jean Pisani-Ferry**1

INTRODUCTION

"We can conclusively prove that we need a flying object; inventing the airplane is a different matter altogether"

Tommaso Padoa-Schioppa (2010)

This paper is dedicated to his memory

International monetary relations are often looked at *in abstracto*, as if there was an ideal international monetary regime independent of the underlying economic structures and the global balance of economic power. In this paper we take the opposite viewpoint. Our aim is to examine and discuss what the major changes under way in the world economy imply for the evolution of international monetary relations.

We posit that the single most important economic change in the current period is the redistribution of economic power. Discussions about the future of the international monetary system should use this as a starting point.

We start in section 1 with a concise characterisation of the current international monetary regime. Next, we review in section 2 past and likely future changes in the balance of economic power and its possible monetary consequences – taking both a positive and a normative approach. The last two sections are devoted to the discussion of shorter-run issues, such as those related to the transition from the current regime to that which will emerge in the next two to three decades. In section 3 we thus discuss current issues such as “currency wars” and growing restrictions to capital flows. We draw conclusions in section 4.

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1. THE CURRENT REGIME

An international monetary regime, or a system² is a set of rules and institutions that constrains or at least influences sovereign choices and monetary relationships between nations or groups of nations (McKinnon, 1993). International monetary regimes are generally considered along four dimensions:

- Currency convertibility³ and, more generally, the management of capital flows;
- The exchange-rate regimes;
- Rules and institutions for liquidity provision in case of emergency;
- Monetary surveillance and cooperation.

The system put in place in the aftermath of the Second World War established current account convertibility but allowed capital controls. Most currencies were pegged to the dollar, itself pegged to gold (hence the gold-exchange standard), but the corresponding exchange rates were adjustable in the event of “fundamental misalignments”. Liquidity provision and the surveillance of national economic policies were ensured through the creation of the International Monetary Fund (McKinnon 1993, Eichengreen 2008). This regime could be called hegemonic to the extent that the country issuing the dominant currency (the United States) guaranteed the quality of the global anchor and played a stabilising role in case of global or regional shocks. The need for cooperation was thus limited (Kindleberger, 1981).

The international regime evolved thereafter with the end of the gold anchor (1971), the general spread of floating exchange-rate regimes amongst advanced economies (1973), formally supported with the Jamaica Agreement (1976), the emergence of European monetary cooperation, some attempts of exchange-rate targeting among the members of the G7 (1985, 1987) and, in the 1990s-2000s, the creation of the euro, the conversion of many central banks to the inflation-targeting strategy and the increasing importance of emerging countries, whose choices sometimes differed from those of the advanced countries.⁴

Consequently, the present regime is characterised by:

- Almost universal current-account convertibility, increasing financial account convertibility and a high degree of capital mobility between advanced and emerging countries, with the major exception of China;

² We speak alternatively of monetary regimes and monetary systems. Regime is a more factual characterisation of the state of affairs. ‘System’ has normative connotations (which is why the current regime is often called by critics a “non-system”). Note that Mundell’s classical definition of a system is ambiguous in this respect (see McKinnon, 1993).

³ Throughout our discussion, we assume that current account convertibility is already in place. “Convertibility” thus refers to the convertibility of the financial account.

⁴ See McKinnon (1993) for a clear characterisation of the successive regimes.

- Mostly free floating amongst advanced economies or zones, and various behaviours inspired by the “fear of floating”⁵ in emerging and developing countries (with the exception of Latin America and some European countries);
- Liquidity provision in case of emergencies based on IMF facilities, but also on bilateral swaps and regional agreements (such as the Chiang Mai agreement in East Asia); however, since the Asian crisis at the end of the 1990s, self-insurance through official reserve accumulation has been most prevalent, especially in Asia.
- Monetary surveillance and cooperation at regional (EU) or multilateral (G20, IMF) levels, the effectiveness of which is disputable.

This regime can alternatively be characterised as multipolar or unipolar. Some authors (for example Rose, 2006) claim that what has emerged from the ashes of the Bretton Woods order is a system in which there is “no role for a centre country, the IMF, or gold”, but in which a growing number of advanced and emerging countries have adopted some form of inflation targeting and float independently. But others (for example Padoa-Schioppa, 2010, or, implicitly, Zhou Xiaochuan, 2009) see the current international monetary regime as one that gives a central role, and privileges, to the US as the country issuing the main international currency. Others again (for example Dooley, Folkerts Landau and Garber, 2005) claim that part of the world has moved to a floating regime of the sort described by Rose while another part lives under a revived Bretton Woods regime centred on the US dollar, which leads Aglietta (2010) to call it a semi-dollar standard.

1.1. The role of International currencies

In this context several currencies (the US dollar, the euro, the yen and the pound sterling) play international roles but only one (the US dollar) is dominant across the board. Table 1 presents key statistics concerning the international role of the dollar, the euro and the yen. Although gradually declining, the role of the dollar as the pivotal currency remains clear for the means-of-payments and store-of-value functions. The crisis has also highlighted the extent to which non-US banks, including those from Europe, had accumulated large gross and net US dollar positions and were dependent on continuous access to dollar funding. This led the US Federal Reserve to take a leading role in the provision of liquidity to non-US banking sectors through international swap agreements (McGuire and von Peter, 2009).

⁵ See Calvo and Reinhart (2002).

Table 1: Selected indicators of the international use of key currencies, in percent of world totals

	Dollar	Euro	Yen	Other
Forex market turnover, April 2010 (/200%)	84.9	39.1	19.0	57.0
Outstanding international debt securities, end 2009 (excluding domestic issues)	45.8	21.4	5.8	17.0
Outstanding international bank loans, end 2009 (excluding trans-European loans)	53.8	15.7	3.6	26.9
Allocated foreign exchange reserves, end 2009	62.2	27.3	3.0	7.5

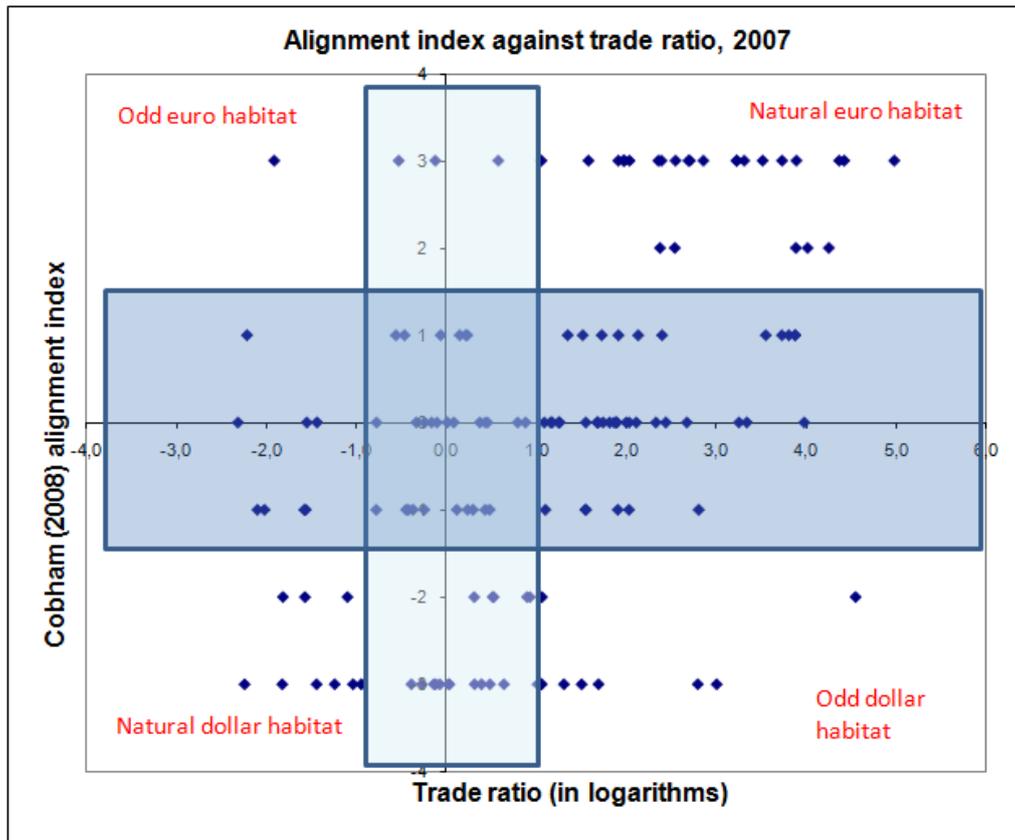
Sources: ECB (2010), BIS (2010).

As for the unit-of-account functions, the dollar remains key for commodity and energy markets, although it is less the case for manufacturing trade. It also remains key for monetary anchoring. For example, Bénassy-Quéré et al (2006) have estimated that, from 1999-2004, 92 percent of a sample of 59 currencies were de facto pegged. Among them, 56 percent were pegged to the US dollar, 14 percent to the euro and 22 percent to a basket.⁶ For 2007, Goldberg (2010) finds that out of 207 countries, 96 were either dollarised or had their currency pegged to the dollar and another eight were in a managed float against the dollar, resulting in 36 percent of non-US world GDP being linked to the dollar. If the US share in world GDP is included (25% in 2007), this “dollar area” accounts for more than 60% of the world economy.

This predominance of the dollar as an anchor currency is confirmed by Figure 1 which plots on the X-axis a country’s ratio of trade with the EU to trade with the US and on the Y-axis the exchange rate alignment index of Cobham (2008). It is apparent that countries tend to peg to the currency of the country they trade with most. However, many countries exhibit an odd dollar habitat (meaning they trade more with the EU but align more to the US dollar) whereas there is only one example of the reverse situation. This is evidence of the importance of the “Bretton Woods 2” regime of Dooley et al (2003) and also confirms that the euro is still a regional, rather than a global currency (Pisani-Ferry and Posen, 2009)

⁶ The sample excludes all euro-area countries. Bénassy-Quéré et al (2006) argue that the attrition of intermediate regimes during this period is the mere consequence of monetary unification in Europe, which has moved the corresponding intermediate (ERM) regimes into hard pegs.

Figure 1: Trade and Exchange-rate relationships in the 2000s



Source : calculs des auteurs à partir de Cobham (2008) et des statistiques de commerce du FMI.

On the whole, the dollar remains the main pivotal currency for all three monetary functions – means of payment, unit of account, store of value. It is true that most of the advanced economies and a group of emerging countries, most of which adopted in the 2000s some variant of inflation targeting strategies,⁷ have severed direct links with the US dollar through the pegging of the exchange rate or the accumulation of foreign exchange reserves. But even these countries proved to be dependent on the Federal Reserve for liquidity provision at the height of the crisis, despite the emergence of regional arrangements and the extension of IMF facilities. Although neglected in more tranquil times, the dollar reclaimed its position during the crisis, proving that it was still the keystone in the international monetary system.

⁷ In 2005, the following countries had adopted inflation-targeting regimes: Israel, Thailand, Peru, Poland, South Korea, Chile, Mexico, Hungary, the Czech Republic, Columbia, South Africa, the Philippines, Brazil [see Mishkin and Schmidt-Hebbel, 2007].

Table 2: Bilateral swap lines activated in response to the 2008-2009 financial crisis

Dollars (USD billion) Federal Reserve		Euros (EUR billion) European Central Bank and Nordic countries*	
Euro Area (ECB)	Without limit	United States	80
Japan	Without limit	Denmark	12
United Kingdom	Without limit	Poland	(10)#
Switzerland	Without limit	Sweden	10
Australia	30	Hungary	(5)#
Canada	30	Iceland	1.5*
South Korea	30	Latvia	0.5*
Mexico	30	Renminbi (CNY billion) People's Bank of China	
Singapore	30	Hong Kong	200
Sweden	30	South Korea	180
Brazil	15	Indonesia	100
Denmark	15	Malaysia	80
Norway	15	Argentina	70
New Zealand	15	Belarus	20

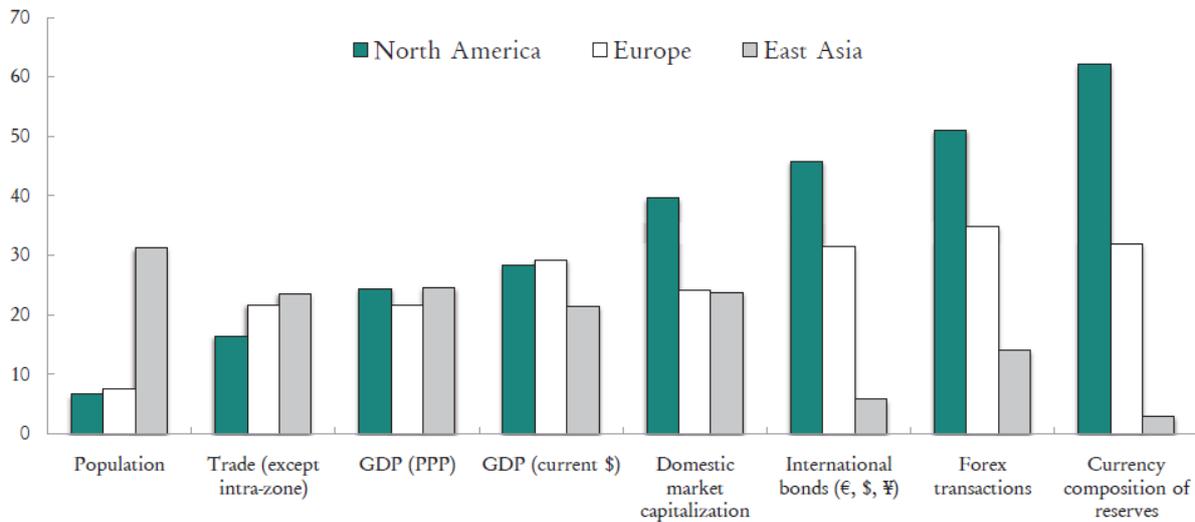
Source: Allen and Moessner (2010).

* : Swap agreements (national currency against euro) with Danish and Swedish central banks (not ECB)

: Repo agreements between ECB and central banks of Poland and Hungary

This still-central role of the dollar contrasts strongly with the emergence of a tripolar economy in which North America weighs no more than either Europe or East Asia (Figure 2). The persistence of fixed-exchange rate regime and the dominant role of the dollar as an anchor currency are also inconsistent with the need for emerging countries to run independent monetary policies focused on domestic inflation and financial stability at a time when their economic conditions differ markedly from those of the US, where monetary policy remains geared towards limiting the adverse growth consequences of the deleveraging cycle. This became obvious during the second wave of quantitative easing undertaken in the United States in autumn 2010.

Figure 2: Economic tripolarity vs. monetary unipolarity



North America = NAFTA ; Europe = EU + Switzerland ; East Asia = ASEAN +3

Sources : IMF WEO 2009 (population and GDP), IMF BOP 2009 (trade), WFE December 2009 (stock market capitalisation), ECB 2009 (international bonds), BIS (forex transactions), IMF COFER database (reserves), authors' calculations.

1.2. Shortcomings of the current regime

The debate on the pros and cons of monetary systems is virtually permanent. It currently focuses on a few key issues that it is useful to summarize at the outset, and to which we return in the last section:

- *Exchange rate misalignments.* Research on the effects of currency fluctuations has shown that short-term exchange-rate volatility has no significant disadvantages. However, pronounced and persistent currency misalignments have serious consequences because they lead to distortions in economic decisions (as regards investment, savings, employment, sectoral developments, etc..). This argument has long been used against floating exchange rates, but while these can lastingly depart from balance, they usually end up reverting to the long-term trend (Rogoff, 1996). Misalignments are now regarded more often as an argument against fixed exchange rates as they delay the adjustments of real exchange rates (as evidenced by the case of China).
- *The volatility of capital flows and the tools to cope with them.* Financial liberalisation has not delivered the expected results. Instead of promoting macroeconomic stability by allowing the absorption of temporary shocks on income, it has been accompanied by a high volatility of capital flows, which have often caused macroeconomic instability (Kose, Prasad, Rogoff and Wei, 2006). When facing large capital outflows, emerging countries must either draw on their reserves or have liquidity provided to them by the International Monetary Fund or partner countries.

- *The accumulation of reserves in emerging countries.* Uncertainties regarding access to liquidity (or to the attached conditionality) are important factors behind the accumulation of reserves, with serve as self-insurance. These large-scale investments into low-yielding reserve assets and the associated savings flows from South to North involve significant macroeconomic costs. These must be weighted against the benefits arising from an outwards-looking development model.
- *The discipline and coordination of macroeconomic policies.* Because of the specific role of the countries issuing international currency, first and foremost the United States, the international monetary system works asymmetrically. It does not provide incentives to countries in external surplus to adjust,⁸ nor does it include incentives to the United States.
- *The international monetary stance.*⁹ One of the essential tasks of the IMS is to ensure that the combination of national monetary policies is consistent with price stability at a global level. This issue was secondary during the “great moderation” of the 1990s and the 2000s, but is returning to the forefront in the context of scarce resources.

The role of the monetary regime in the genesis of the global crisis is a matter for controversy. It has been repeatedly suggested that capital inflows into the US favoured leverage and the formation of a credit bubble in the run up to the 2008 meltdown (Larosière, 2009; Turner, 2009; Rajan, 2010), but there are several versions of this view and it remains disputed (Box 1).¹⁰

Box 1: The role of the international monetary regime during the global crisis

Looking beyond the by now well-documented deficiencies of financial regulation, a debate has emerged regarding the responsibilities of macroeconomic policies and the international monetary system in setting up the conditions for the financial crisis. Two major trends can be distinguished.

- A first set of contributions (see Taylor, 2008, Rajan, 2010 and, for an early warning, White 2006) emphasises the effects of US monetary policy. They argue that in keeping interest rates low to stave off deflation and in targeting price stability of goods and services only, the Federal Reserve fuelled the real-estate bubble and allowed leverage to increase in the financial sector. Here, the international monetary regime is only indirectly responsible in the sense that it did not *constrain* the Federal Reserve to carry out a stricter monetary policy.

- A second set of contributions (see Caballero and Krishnamurthy, 2009) assigns responsibility to capital flows bound for the United States, and in particular the high demand for triple-A rated assets. In this interpretation, the high demand for safe assets had two effects. The first was to depress

⁸ This only applies to the short and medium term. In the long term, surplus countries are constrained by declining quality of investment opportunities in deficit countries.

⁹ Still referred to as “international liquidity”. In fact these are two separate issues; international liquidity refers to access to credit in the event of capital outflows.

¹⁰ On the controversies regarding the responsibility of the IMS in the 2007-09 crisis, see also Dorucci and Ettore (2011).

yields on Treasury Bills, and thus contribute to indebtedness. The other was to encourage the production of seemingly safe assets, via securitisation and tranching of subprime mortgages. In this view, the international monetary regime is responsible only to the extent that a large share of the demand for triple-A rated assets came not from the private sector but from the central banks of countries pegged to the dollar.¹¹ Dollar reserves declared to the IMF by developing countries rose from 255 bn\$ at the beginning of 1999 to 1353 bn\$ at the end of the second quarter of 2008, just before the fall of Lehman Brothers¹². Warnock and Warnock (2009) find that official capital flows into the United States could have depressed long-term yields by as much as 100 bps in 2005, which is a significant effect. In addition, a substantial share of this foreign capital was invested in securities issued by Fannie Mae and Freddie Mac, which would have further contributed to the expansion of the real-estate bubble. Bernanke (2011) considers that the demand for safe assets “provided additional incentives for the U.S. financial services industry to develop structured investment products”.

Summing up, the current international monetary regime has been shaped by a series of separate evolutions, which were the result of choices made by a large number of countries and the United States, directly and through the International Monetary Fund. The system’s deficiencies are well known, and its contribution to laying the groundwork for the financial crisis is a topic for discussion, but it has functioned remarkably well during the crisis - not least thanks to the cooperation between the ECB and the Fed and the role taken by the latter in the provision of global liquidity. However it would be unwise to rely on the *status quo*: the current regime is ill-suited to the new global economy emerging from the crisis.

¹¹ Central Banks tend to prefer sovereign assets. According to Caballero, Farhi and Gourinchas (2008), this high demand for triple-A assets could have led financial intermediaries to “create” other triple-A assets to satisfy private investors.

¹² Source: IMF COFER database. Not all reserves are recorded, as some countries, such as China, do not notify the composition of their holdings.

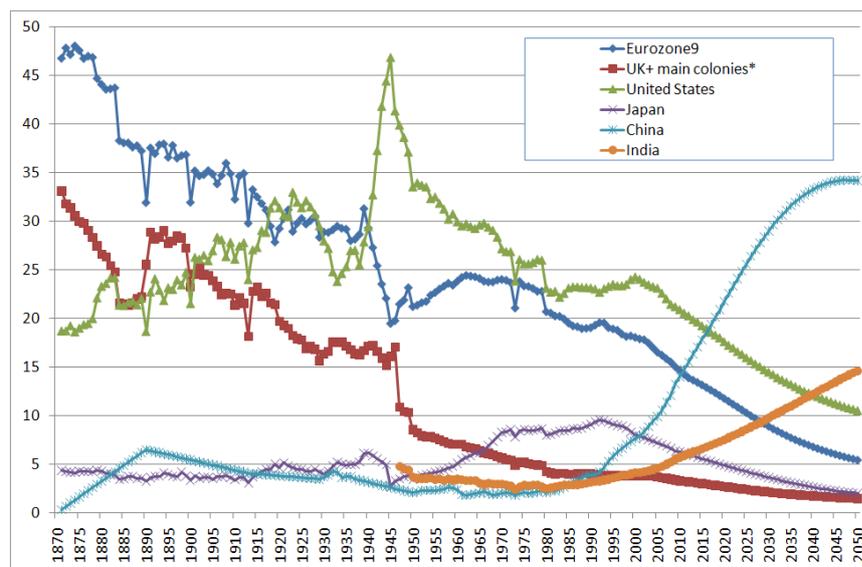
2. PERSPECTIVES FOR THE NEXT DECADES

2.1. The changing balance of economic power

Throughout the nineteenth and twentieth centuries the share of the largest economy in world GDP (measured at PPP exchange rates) consistently remained above 15 percent. UK weight at its peak in the late nineteenth century represented ten percent of world GDP, but more than twenty percent taking into account the British Empire. US weight was consistently above twenty percent in the post-second world war era. The world economy in the twenty-first century is likely to see the emergence of two new dominant players: China and India. In the meantime, there will be an interregnum during which economic power will be much more evenly distributed between a core group of countries.¹³

Figure 3 provides a bird eye's view of the evolution of the world economy and the distribution of economic power from 1870 to 2050.¹⁴

**Figure 3: Percentage shares of selected countries and areas in world GDP, 1870-2050
(At 2005 PPP exchange rates)**



Sources: Angus Maddison's historical statistics and CEPII projections.

Australia (up to 1900), New Zealand (up to 1939), India (up to 1946). Canada is not included as it was already granted significant autonomy in 1867.

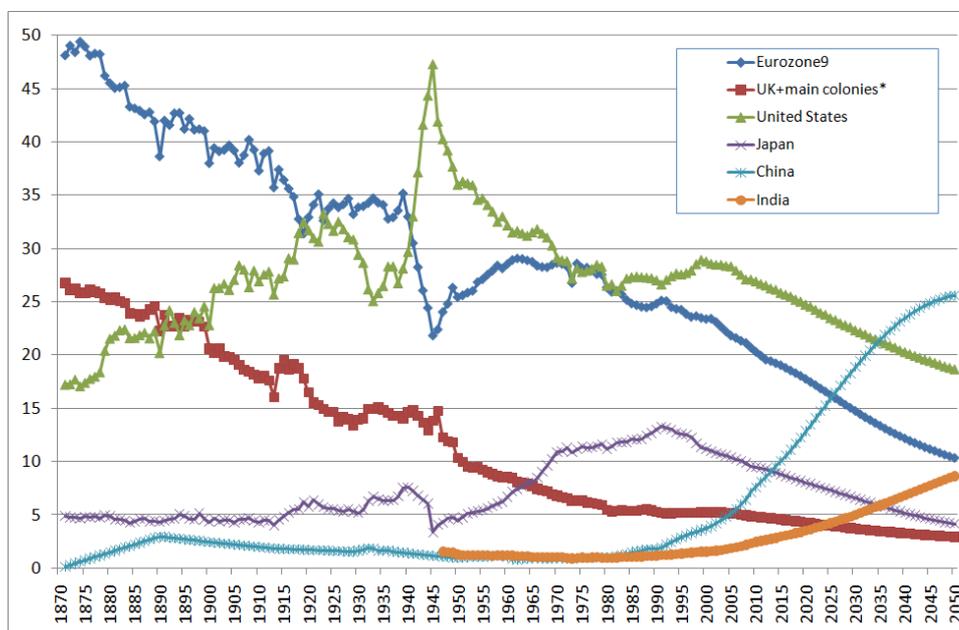
¹³ These long-term trends have been reinforced by the crisis of 2008-2009, as the large emerging economies were only slightly affected in comparison to advanced economies.

¹⁴ The figure is based on Angus Maddison's historical statistics (available from the Groningen Growth and Development Centre www.ggd.net) and long-term economic projections prepared by CEPII (Fouré et al, 2010). Most available long-term projections result in a qualitatively similar picture of the future of the world economy, so our developments here are not contingent on the use of a particular projection.

For most of the gold standard period (1879-1913), the sterling area composed of the UK and its main colonies was either the dominant power in terms of GDP or a close second to the US. Throughout the Bretton Woods period (1945-1973), the US was the undisputed dominant power. But according to long-term projections, China should overtake the US in PPP terms around 2015 and India should overtake it around 2040. These two economies are likely to be the only ones whose weight at 2005 PPP exchange rates will exceed 15 percent of the global economy at the 2050 horizon. By the middle of the century, US weight should be down to 10 percent and that of the euro area down to 5 percent. Even assuming enlargement of the euro area to the current EU and beyond, its weight is unlikely to reach 10 percent.

Projections of economic weights at the 2050 horizon on the basis of PPP exchange rates however give a somewhat exaggerated picture of the dramatic changes ahead, as PPP conversion gives greater weight to emerging and developing economies, whose currencies are typically undervalued compared to what purchasing power parity would imply. This convention is appropriate when measuring the shares of countries or regions in the market for production factors or in CO2 emissions. But it ceases to be appropriate for measuring financial or monetary power, which depends on GDP volumes but also on GDP value. Although it is possible to link the long-term changes in relative prices to the catching-up process (the Balassa-Samuelson effect), historic figures are not available. A compromise solution would be to measure GDP at 2005 prices and exchange rates, which are less favourable than PPP rates for emerging countries. On this basis, we can expect the world between 2010 and 2030 to be tripolar: the United States and Europe will continue to weigh significantly, and economic power will be distributed more evenly than ever in recent history between the three main economic players: China, the US and Europe.

**Figure 4: percentage shares of world GDP of selected areas, 1870-2050
(In constant prices at 2005 exchange rates)**



Sources: Angus Maddison's historical statistics and CEPII projections.

Australia (up to 1900), New Zealand (up to 1939), India (up to 1946). Canada is not included as it was already granted significant autonomy in 1867.

2.2. Monetary consequences

The implications for monetary arrangements of changes in economic power should be discussed with caution. The experience of the late nineteenth century/early twentieth century indicates that the British pound retained a key monetary role long after the UK had lost its economic dominance. History has shown that (i) economic power has a delayed impact on monetary power;¹⁵ (ii) two international currencies can coexist for extended periods of (Eichengreen and Flandreau, 2008) and (iii) economic size is not the only determinant of international currency status. Other critical factors are:¹⁶

- Financial openness,
- The existence of a liquid and deep bond market,
- Price stability and the predictability of monetary policy, and

¹⁵ The reasons for such inertia are relatively well known. They hinge on network externalities that tend to favour the international currency already in place. According to Eichengreen and Flandreau (2010), they should however not be overstated, while the role of financial regulations and public support (through the behaviour of the central bank) proved to be key in the race between the pound and the dollar in the interwar period.

¹⁶ For an econometric estimation based on currency shares in foreign exchange reserves, see Chinn and Frankel (2008).

- The ability of the policy system to cope with shocks.

Non-economic factors such as political cohesion and sheer power can also play a role (Posen, 2008). The example of Japan in the 1980s and the 1990s is indicative of the fact that, in spite of economic ascendancy, no currency can acquire international status if such important conditions are not met. Table 3 summarises the respective situations of the euro and the renminbi with respect to these criteria. It shows that the euro has many of the attributes that could make it a good candidate for internationalisation, but that it is still handicapped by its incomplete governance and the lack of political cohesion. These factors may be of secondary importance in normal times but they matter considerably in times of crisis when the ability of the governance regime to cope with unexpected shocks is being tested. Moreover, the euro area has so far adopted a neutral stance as far as the internationalisation of its currency is concerned, proclaiming that it intends neither to encourage nor discourage it (see Bini Smaghi, 2010). This stance is understandable, but the issue remains that the internationalisation of the euro requires a unified market for riskless assets, something that is still subject to significant controversy. Strong political support will be required for it to happen.

As far as the renminbi is concerned, it has significant handicaps in the short term, due to the limited openness and development of China's financial markets, as well as to a weaker policy record, but it has strong governance underpinnings. Provided financial reforms are carried out in China, it could gradually become a major challenger, and ultimately the main challenger to the dollar (see Dobson and Masson, 2008; Thimann, 2009). China has clearly signalled its intent to see its currency acquire international status (Cheung et al., 2010).

Table 2: Potential for internationalisation: the euro and the renminbi, in 2010

	euro	renminbi
Size	20% of world GDP, decreasing	7.6% of world GDP, increasing
Financial openness	Full capital mobility	Restricted capital mobility
Financial markets	Second after the US (see Table 1), but bond markets remain fragmented in the absence of unified eurobonds	Underdeveloped
Price stability and monetary policy predictability	Very good track record	Good track record but at risk, in part because of currency peg.
Ability of policy system to cope with shocks	Limited by institutional arrangements	Strong
Power and cohesion	Limited by political fragmentation	Strong
Willingness to internationalise	Weak (neutral stance of European institutions)	Significant ('pilot' programme)

Source: authors.

There are therefore two potential rivals to the dollar.¹⁷ The first, the euro, has many of the attributes of an international currency but its economic base is bound to shrink in relative terms and the

¹⁷ At the horizon of one or two decades, the Indian rupee and the Brazilian real are unlikely to have great potential in terms of international currencies, although domestic-denominated finance will likely expand in these two countries.

stability of its political base is questionable. The second, the renminbi, has strong economic and political underpinnings but it cannot rely on a developed financial infrastructure.

Barring a severe dollar crisis, the evolution towards a multipolar system may therefore take time. Moreover, genuine multipolarity can only develop if each pole allows its currency to play an international role. In the current context of open markets for trade in goods and financial assets, this requires allowing non-residents to hold domestic and offshore financial assets in the home currency, and enabling them to convert assets into other currencies without restriction at any time. To have the market work smoothly, this would also require residents to be allowed to buy and sell foreign-denominated bonds without constraints.¹⁸

2.3. Hegemonic stability?

There are many questions about the quality, the stability and the sustainability of a multipolar regime. Scholars of international relations often point out that a unipolar system exhibits 'hegemonic stability' properties (see Kindelberger, 1981, or the critical assessment by Eichengreen, 1987). The rationale for it is that the hegemon is supposed to internalise the externalities involved in the provision of a particular global public good – monetary stability – whereas none of the issuers of competing currencies has an incentive to behave in this way. For example, the hegemon refrains from conducting a monetary policy that has destabilising consequences for the rest of the world. This discipline results from its global responsibilities and the corresponding privileges.

Although attractive, this theory may overstate the willingness of the United States to internalise global stability in its policy-making process, both historically and in the recent past. For instance, the loose monetary policy during the Greenspan era may not have fully internalised the impact of cheap credit worldwide. By the same token, the US Fed's choice to embark on quantitative easing in the aftermath of the crisis in autumn 2010 did not internalise the consequences for emerging countries in terms of hot-money inflows.

In fact, there are significant limitations to the hegemonic stability approach. First, it starts from the assumption that the hegemon enjoys undisputed economic predominance and therefore has an unambiguous incentive to preserve and nurture international stability. Second, it often overlooks the risk that the hegemon exploits its monopoly power – in other words makes use of its exorbitant privilege to bolster narrow national interest, at the expense of global stability. However a simple review of the traditional functions of the monetary hegemon suggests that declining relative size may affect a country's ability to play that role (Table 3).

¹⁸ One-way financial opening would not allow the internationalisation of a currency, as it limits exchanges to the balance of the financial account (as opposed to gross flows). Consider, for example, that non-residents are allowed to acquire assets in China without residents of China being able to purchase assets abroad. Unless the central bank compensates for all capital inflows, the internationalisation of the renminbi would not be possible, except with a sharp appreciation. Note that it is free movement of capital that is key here, not the existence of a current account deficit.

Table 3: Roles of the monetary hegemon and their current relevance

Hegemon's role	Relevance	Does size matter?
Enforcer of rules of the game (e.g. exchange rates)	Yes (together with international institutions)	Yes
Global anchor	Yes	Yes
Supplier of reserve assets	Yes	Yes
Crisis coordination leader	Yes	Yes
Lender of last resort	Together with IMF	Yes

Source: authors.

Another argument in favour of a unipolar system, of an entirely different nature, comes from the substitutability between currencies. As long as the international currency is unrivalled in terms of liquidity and risk profile, shocks to expected returns have limited impact on portfolio choices – hence a degree of exchange-rate stability. But if one (or two) other international currencies were to share the dominant currency's liquidity and risk characteristics, they would become more substitutable. This would make portfolio allocations more sensitive to shocks to expected returns, and hence exchange rates would become more volatile (see, for example, United Nations, 2009).

Although straightforward, this line of reasoning concerns short-run volatility, not medium-term misalignments. Suppose, for instance, that US assets are expected to yield lower returns. International investors will switch to the competing key currencies, triggering a fall in the value of the dollar. But this fall in turn leads to a rise of expected returns, hence increasing the willingness of international investors to hold dollars. In brief, enhanced substitutability may increase short-run volatility, but not necessarily long-run deviations of exchange rates from fundamental equilibrium.¹⁹ To the extent that short-run volatility is easily hedged, as opposed to long-lived deviations, the cost of exchange-rate volatility could even be curbed despite higher short-run volatility.

¹⁹ See Bénassy-Quéré and Pisani-Ferry (2010).

2.4. The pros and cons of a multipolar system

A major question for today's policymakers is whether evolution towards a multipolar system is desirable. Assessing international monetary regimes is an especially difficult task. One of the reasons is that, by definition, there is only one international monetary system at any point in time and that once in place, this system lasts for several decades. There are few opportunities for genuine comparison²⁰. Another reason is that an international monetary system is rarely a pure one. For instance, the present system has already moved away from a clean dollar-standard system, and it is unlikely to move towards a clean multipolar system in the near future. Claims that the world would have performed better with a different monetary system are typically irrefutable.²¹

It is however useful to contrast schematic systems to gauge the pros and cons of moving in a particular direction. In the following we compare two polar systems:

1. Hegemony: a system in which one international currency is used by all countries as an anchor for pegging purposes and as a store of value – hence something close to the so-called 'Bretton Woods 2 system' of Dooley, Folkerts Landau and Garber (2004) linking emerging currencies to the US dollar. Different degrees of exchange-rate fixity can be considered in this setting, with logical consequences for capital mobility; and
2. Multipolarity: a system with a few key currencies with free capital mobility and floating exchange rates between them. These currencies can in turn serve as anchor and reserve currencies at regional level, with corresponding restrictions on capital flows when monetary sovereignty is not given up altogether (through dollarisation or monetary union). Peripheral countries can also choose to let their currencies float with the ability to limit capital flows if they prove excessively volatile.

The current system borrows from both systems: it involves more floating than regime 1 (the hegemonic one) but it is less symmetrical than regime 2 (the multipolar one). The purpose of the comparison is to assess the advantages and disadvantages of the ongoing evolution of the international monetary system and to determine which accompanying policies should be undertaken.

To assess both systems, it is necessary to rely on a set of generally accepted criteria. Ultimately, the international monetary regime should favour growth, monetary stability and international equity. This involves several dimensions, consistent with Musgrave and Musgrave's (1989) objectives of public intervention.

²⁰ This is one of the limits to historical analyses, such as that undertaken by Bordo and Jonung (2001), that emphasise differences in performance in terms of growth or inflation in each period but do not ascribe these differences to monetary regimes.

²¹ For example, the claim that the end of fixed exchange-rate has had adverse consequences on global growth is neither provable nor refutable.

- *Economic efficiency criteria*: to serve efficiently as means of payments, international currencies should be limited in number (to minimise transaction costs); for the same reason, they should be the currencies of large countries or areas (so that the currencies are already used by a large number of agents). The system should minimise the need to build up costly official reserves.²² It should also favour an efficient allocation of capital worldwide. For instance, it should be consistent with net savings flowing from developed to less-developed countries, in line with differentials in the marginal productivity of capital after taking into account limiting factors (political risk and financial depth in particular). The system should also avoid large misalignments of real exchange rates with their fundamentals, to avoid resource misallocation both internally (between traded and non-traded goods sectors), and internationally arising from price distortions.
- *Economic and financial stability criteria*. This involves several complementary dimensions:
 - A major lesson from the crisis is that financial stability is a public good that should be sought after by governments individually as well as collectively, while minimising the associated efficiency costs. The international monetary system has a key role to play in this respect, both to avoid the build-up of excessive imbalances and unsustainable NFA positions²³ and to mitigate the impact of crises. Crisis prevention should include the provision of a global anchor, so that monetary policies are geared towards global stability and reduce the risks of worldwide credit bubbles or deflation.²⁴ This essentially boils down to avoiding situations of excess or too little liquidity at global level.
 - The international monetary system should leave sufficient autonomy to governments and central banks to respond with national policy instruments, whilst ensuring that international liquidity is provided when necessary.
 - A further dimension is to ensure that exchange-rate volatility remains limited and/or manageable (through the development of affordable hedging instruments, which requires deep foreign-exchange markets). It is also desirable that the system prevents or limits adverse spillovers effects, as when a shock to country A has destabilising effects on the exchange rate between countries B and C. By the same

²² The cost of official reserves results from the spread between their remuneration and that of alternative investments. From a public finance perspective, this cost is equal to the difference between the rate of return on reserves and the interest rate on sterilisation bonds issued by the central bank. This cost can be significant when the internal interest rate is higher than the rate of the foreign currency. From the country's point of view, we could also consider the difference between the rate of return of reserves and of inflowing capital. This cost is usually high, as emerging and developing countries typically borrow in dollars at rates that are significantly higher than those offered by the U.S. Treasury. See for example Rodrik (2006). Moreover, countries do not internalise the full cost of reserves, which also includes global imbalances and crises that follow (see Landau, 2009).

²³ The precise meaning of 'excessive imbalances' and 'unsustainable NFA positions' is obviously a matter for discussion.

²⁴ We do not enter here the well-known discussion on whether other forms of bubbles affecting stock markets or commodities can be avoided through appropriate monetary policy. The discussion on this issue is essentially the same at national and at global levels.

token the system should discourage and, if necessary, punish beggar-thy neighbour policies, including 'currency wars' in situations of global demand shortage.

- *Equity criteria*: the system should ensure the symmetry of adjustments, so that balance-of-payments adjustments do not fall only on a specific category of countries (deficit countries whose currency has no international status). Equally, it should avoid granting one country the 'exorbitant privilege' of being relieved from international constraints, unless these are the counterpart of corresponding duties.

Feasibility should be added to these three criteria. Post-Bretton Woods monetary history has shown that genuine international cooperation is the exception rather than the rule, and that it is more easily done on a regional basis. Hence, the system should not be too demanding in terms of global cooperation, and it should be consistent with each region keeping a significant degree of freedom to organise cooperation within itself and to gear monetary policy towards domestic stability. Additionally, reform of the system should rely on, rather than oppose market forces.

Table 4 provides a first pass at assessing the two polar regimes on the basis of our set of criteria. It suggests that moving in the direction of a multipolar monetary system would help mitigate some of the problems of the present regime.²⁵

- As regards *economic efficiency*, to the extent that monetary blocks would match economic ones (with floating exchange rates between the blocks but not necessarily within them), the loss in terms of transaction costs, of having several key currencies rather than a single one, would remain limited. At the same time there would be some gains in terms of capital allocation through a lesser accumulation of costly and risky official foreign-exchange reserves, greater incentives to allocate capital within each monetary block, and less scope for real exchange-rate misalignments (although short-term exchange-rate volatility could actually be magnified).
- As regards *economic and financial stability*, multipolarity could help mitigate the Triffin dilemma,²⁶ and limit some causes of longstanding imbalances and their possible unwinding through crises. Adverse spillovers affecting bilateral exchange rates would also be reduced: a shock to country A would, *a priori*, have no reason to impact the exchange rate between the

²⁵ By focusing on extreme systems, we do not discuss here whether moving *some way* towards a multipolar system could actually worsen, rather than improve the situation, as it is the case for partial trade liberalisation.

²⁶ Belgian economist Robert Triffin exposed in 1960 that the US had to run a balance-of-payment deficit to meet the foreign demand for dollar reserve assets, but that these deficits and the resulting deterioration of the ratio gold reserves to dollar reserves, hence undermining confidence in the stability of the US dollar. The relevance of the Triffin dilemma is diminished in a world of free capital mobility because the United States can simultaneously (and during a long time) provide the world with liquid, dollar assets, and invest in foreign, less liquid ones. The *Triffin dilemma* then arises more from the transformation risk than from the accumulation of deficits. Note that in a multipolar system the Triffin dilemma would be spread across the key countries or areas. Only a supra-national currency could fully eliminate the Triffin dilemma (see Mateos y Lago et al. 2010; Fan et al. 2010). However, as Eichengreen puts it: "The more alternatives central banks and other investors possess, the more pressure policymakers will feel to take the steps to maintain those investors' confidence" (p. 68). This is consistent with an attenuation of the Triffin problem itself.

currencies of B and C. However, short-run volatility would be increased, for the same reasons that medium-run misalignments would be reduced.

- As regards *equity*, provided all key currencies are truly allowed to float, a multipolar system would reduce the asymmetry of adjustments and the 'exorbitant privilege' would have to be shared.

Hence, the move towards a multipolar system would yield some improvements in terms of efficiency and equity. Concerning stability, the gain in terms of lesser scope for imbalances would likely overcome the loss in terms of higher exchange-rate volatility, given the availability of affordable hedging products. However, the management of global liquidity would require strong cooperation among key countries, and the move to multipolarity would not fundamentally change the problem of liquidity provision in times of crisis (to the extent that the Federal Reserve would no longer feel in charge, it may even worsen it).

As for feasibility, it depends on the time horizon: there is little feasibility in the short term but feasibility will increase as time passes. On the whole, a move from a 'pure hegemonic' to a 'pure multipolar' system appears to be favourable.²⁷ However, the gains will be conditional on free floating (and free capital mobility) between key currencies, and on a move of third countries' exchange-rate policies towards more flexibility and/or regional pegs. Until now, the dollar peg has served as a "default" coordination mechanism, especially in East Asia: it allows a stabilisation of intra-regional exchange rates without there being any formal regional monetary cooperation. Moving towards more flexibility of exchange rates between the main poles of the world economy requires a regionalisation of anchoring policies. In Asia, this could be helped by the internationalisation of the renminbi which would limit the need for stabilising peripheral currencies with respect to the dollar (currencies would instead be stabilised with respect to the renminbi). However, it is likely that a large number of emerging countries would still seek to mitigate the effects of exchange rate fluctuations *vis-à-vis* currencies other than those of their neighbours. The use of capital controls to resist appreciation could trigger more frequent "currency wars", that are a direct consequence of a collective action failure.

The risk of "currency wars" will be mitigated in the multipolar system if key currencies truly float among themselves, but it will not be eliminated. On the contrary, deflationist situations may lead all countries (including those that issue the key currencies) to simultaneously seek to weaken their own currencies with respect to those of their competitors. In the absence of a hegemon willing to forsake exchange rate policy and let its exchange rate be determined by the preferences of its partners, the risk of "currency wars" may be heightened.

Although it is not the responsibility of the international community to decide which currency should be internationalised,²⁸ it should work to make the benefits of multipolarity materialize. This involves exerting some supervision on national exchange-rate policies, which is one mission of the IMF.

²⁷ Our analysis partially matches the conclusions of Mateos y Lago et al (2009) concerning the merits of hegemony versus multipolarity.

²⁸ As mentioned above, currency internationalization results from a combination of market forces and national policies.

Table 5: A schematic assessment of the hegemonic and multipolar monetary regimes

	Hegemony	Multipolarity	Gains from multipolarity^(*)
Efficiency			
<i>Reserves</i>	Incentive to accumulate costly official reserves for both self-insurance and pegging motives.	Incentive to accumulate reserve for pegging motives only for peripheral countries.	+
	Large exchange-rate risk on reserves.	Reduced exchange-rate risk through better diversification.	+
<i>Economies of scale</i>	Maximum.	Lesser efficiency (but cost limited if # of international currencies small).	-
<i>Global savings-investment balance</i>	South-North capital flows as South accumulates holdings in reserve currency.	Bias reduced, better capital allocation (if regional monetary blocks).	+
<i>Real exchange-rate misalignments</i>	Large potential for misalignments due to nominal pegs on the key currency.	Potential for misalignment limited to market bubbles (key currencies) and to intra-regional rates (nominal pegs).	+
Stability			
<i>Global anchor</i>	Provided by the hegemon, requires that it does not focus exclusively on domestic monetary objectives. Deflation bias limited by the ability of the hegemon to run large deficits without tears	Global stance resulting from independent national monetary policies may fail to ensure adequate stability	?
<i>Incentives to stability policies</i>	System may favour build-up of imbalances (incentive for the periphery to accumulate reserves in the hegemon's currency, no incentive for the hegemon to adjust - Triffin dilemma).	Competition between key currencies favourable to discipline.	+
<i>Resilience to major shocks, capital surges and stops</i>	Via reserve accumulation in the periphery. In times of crisis hegemon to provide liquidity through swap lines	Need for multilateral liquidity provision and possibly enhanced role of regional swap arrangements	?
<i>Exchange-rate volatility</i>	Stable portfolio allocations due to unique liquidity of the hegemon's financial market	More stability within monetary blocks, less stability (needing hedging) across blocks	-
<i>Symmetry of exchange-rate adjustments</i>	Asymmetries (eg euro/dollar reacts to a rise in China's wealth)	No asymmetry if all key currencies float freely	+

Equity			
<i>Symmetry of balance-of-payment adjustments</i>	No: adjustment falling on deficit countries that do not issue the international currency	More scope for symmetric adjustments provided key currencies truly float, but still some asymmetry for non-key countries.	+
<i>Exorbitant privilege</i>	Yes: unequal adjustment burden.	Shared privilege.	+
Feasibility			
<i>Status quo bias /Incentives to change</i>	High status quo bias in the short run, yet increasing risk of abuse of dominant position by weakening hegemon	Delicate transition likely to slow down change	-
<i>Coordination requirement</i>	Weak	Weak (regional hegemons), possibility of regional coordination.	+

(*) In this column we summarise the gains (+) or losses (-) implied by moving from a 'pure hegemonic' system to a 'pure multipolar' one.

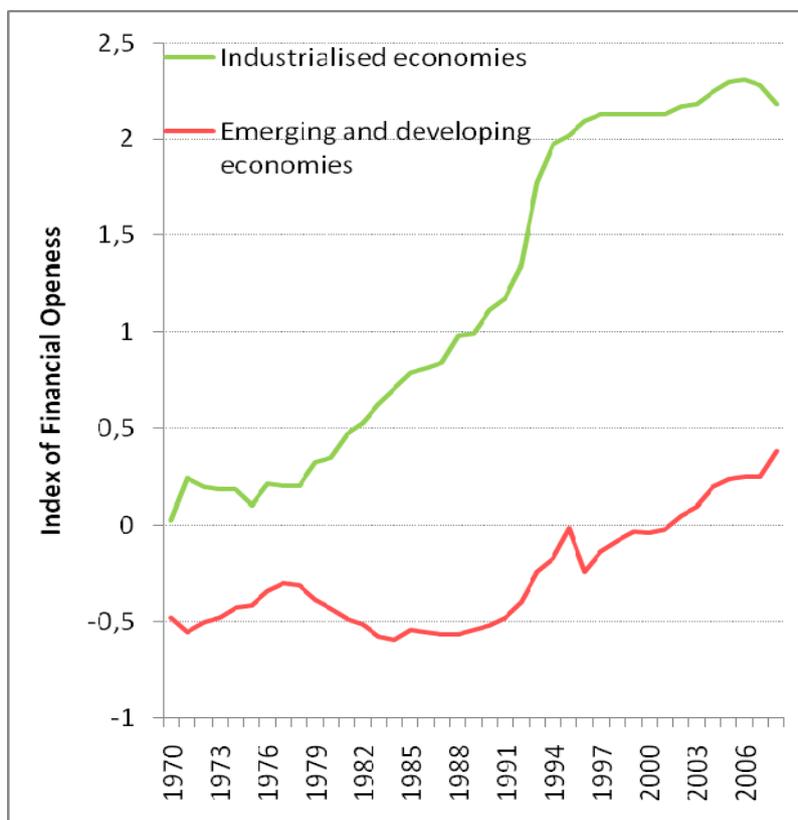
3. IMPLICATIONS IN THE SHORT AND MEDIUM TERM

Here we here assume that in the coming decades, the international monetary system will evolve towards multipolarity. This implies that China continues with its policies to internationalise the renminbi and that the euro area overcomes its debt and governance crises and succeeds in establishing a genuine and unified market for Eurobonds. As highlighted in section 2, such an evolution could bring a number of benefits, but only under two conditions: that floating is generalised between the key currencies and that financial safety nets are strengthened. These issues should thus be a priority for the international community. To this should be added the actual management of the transition, which could prove long and difficult.

3.1. Floating exchange rates and capital flows

The liberalisation of international capital flows is relatively recent in emerging countries. Opening dates from the 1990s, a period when it was thought that liberalisation would speed development by giving poor countries greater access to external financing. This element of the "Washington Consensus" crumbled after the Asian crisis of 1997-1998. Financial openness has significantly improved but it still remains well below what is observed in advanced countries (figure 5). In East Asia, it has hardly progressed since the end of the 1990s. The financial crisis has further contributed to the reluctance of emerging countries to open up completely. During the crisis, many countries (especially in eastern Europe) experienced sudden stops in external financing (and, in some cases, outright reversals of these flows), mainly bank loans and portfolio investments, on which they were highly dependent. In the aftermath of the crisis, these countries as well as others were vocal in protesting against the massive inflows of speculative capital seeking to benefit from higher yields, which were likely to fuel asset and credit bubbles as well as induce sharp real appreciation of their currencies.

Figure 5: Financial Openness Index, 1970-2008



Source : Chinn and Ito (2008), on the basis of IMF notifications.

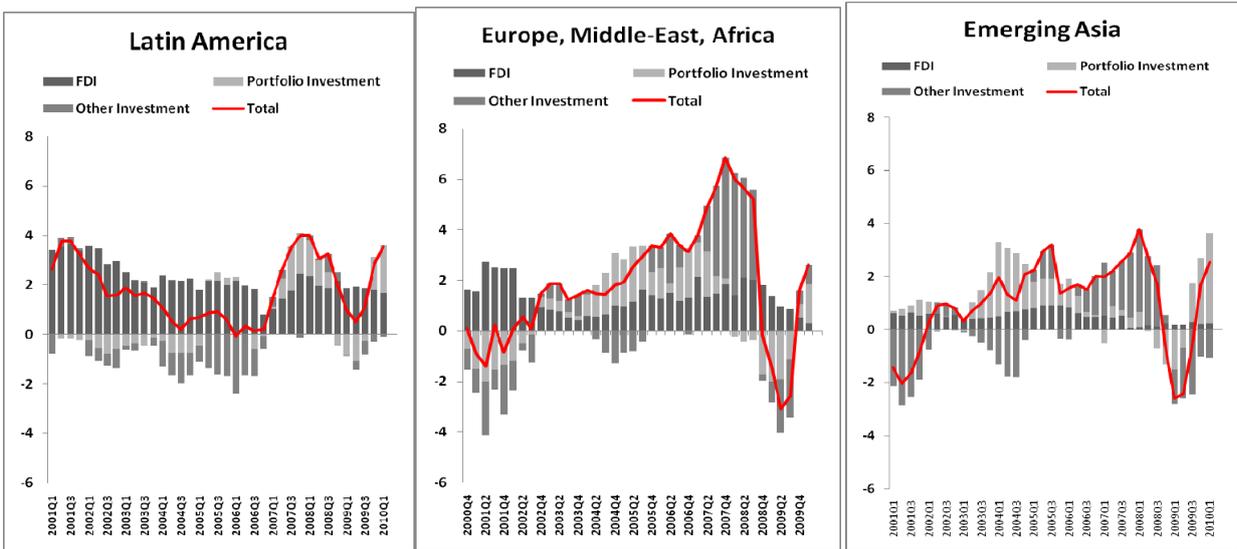
Admittedly, benefits from financial openness have been mixed. It was expected that lower borrowing costs would accelerate capital accumulation and ultimately raise living standards in emerging and developing countries. Benefits have, however, been very limited (see Gourinchas and Jeanne, 2006). Private capital flows to emerging economies have been more than offset by official purchases of government debt securities of advanced countries, especially the United States. In the absence of financial openness, these countries would perhaps not have benefited from outside financing but high rates of domestic savings would have preserved investment levels.

Financial openness was also expected to improve domestic portfolio diversification and act as a factor of macroeconomic stability – similar to the role that financial markets play in cushioning regional shocks within the United States (see Asdrubali, Sorensen and Yosha, 1996). Financial openness has on the contrary proven to be a destabilising factor, both economically and financially, in countries that did not have sound regulation and supervision, but also in some of those that had carried out the necessary reforms (Kose, Prasad, Rogoff and Wei, 2006).

The recent period has once again shown how volatile capital flows between advanced and emerging countries can be. The fall of Lehman Brothers in the fourth quarter of 2008 precipitated large outflows, but capital started flowing back in at a rapid pace because of large interest rate spreads. However, the magnitudes of these flows are not exceptional when compared to the flows of the

2000s (figure 6). The problem is the volatility of these flows (driven by portfolio investment flows and “other investments”, mainly bank loans), rather than the actual volumes. Several countries have since announced temporary measures to slow the inflow of capital, sparking a debate on how capital flows should be managed.

Figure 6: net capital flows towards emerging economies, 2000-2010 (% du PIB)



Source: authors’ calculations based on IMF data.
 Note : positive flows are net capital inflows, excluding central banks.

Two main problems arise from the volatility of capital flows:

- Sudden capital inflows are likely to weaken the host economies by fuelling asset price and credit bubbles, and/or by triggering a sharp appreciation of the country’s currency.
- Sudden stops and capital outflows cause balance of payments crises and sharp currency depreciations, often at the same time as financial crises.

Promoting flexible exchange rates thus requires clarification on how countries (especially emerging economies) can cope with potentially destabilising capital flows without triggering “currency wars”. Capital inflows and outflows do not yield the same set of problems.

3.2. Capital inflows and exchange rate adjustment

When faced with sudden capital inflows, there are five (non mutually exclusive) ways for a country to adjust its balance of payments:

- by simply letting the interplay of supply and demand cause an appreciation of the country’s currency;

- the central bank may *lower interest rates* to reduce the rate of return on domestic assets and halt currency appreciation; this is, however, not entirely straightforward as capital inflows generally nurture the development of credit and lower interest rates can serve to amplify this; the result is an appreciation of the real exchange rate, via an increase in internal prices.
- the central bank can compensate for capital inflows by *accumulating foreign exchange reserves* (which, in the balance of payments, are recorded as capital outflows); as long as these are sterilised, this type of intervention has not impact on monetary policy; if they are not, the effect is monetary expansion, with the same effects as if interest rates were lowered.
- *fiscal policy* may be called upon: restrictive fiscal policy reduces long-term interest rates, which reduces both capital inflows and the expansion of demand. In principle, this can be an appropriate course of action but it may not be justifiable from a public finance perspective if it requires sustained and/or increased budget surpluses.
- lastly, the government may chose to *restrict the inflow of capital* through regulatory instruments or taxes.

To this toolbox should also be added all the measures a country can put in place to limit the destabilising effects of capital inflows on the domestic economy. These are essentially macro-prudential in nature, designed to ensure that capital flows do not turn into asset price and credit bubbles. Some of the possible measures, such as restrictions on currency positions of banks, may amount to capital controls. However, these only have an effect on intermediated flows and not on portfolio investment. They are appropriate for limiting the risk taken by banks, but to the extent that they have a differentiated effect on intermediated flows and portfolio investment, are not appropriate for controlling capital flows.

The idea that emerging economies - where the rate of return on capital is structurally higher than in advanced countries - could in some case be brought to protect themselves against capital inflows was initially greeted with protest. It is, however, gaining acceptance and the IMF recently signalled a change in its doctrine (Ostry et al., 2010).

All of the measures outlined above, however, have significant drawbacks.

Capital controls, or more specifically the measures taken to *filter* capital inflows by allowing the free movement of long-term flows whilst discouraging speculations, have considerable flaws: their effectiveness is limited, especially when dealing with flows whose underlying drivers are structural in nature, as they are inevitably bypassed. They can also cause distortions in resource allocation and, like all forms of protection, are a source of rents. In addition, they cannot be used in emerging Europe as they are banned by the Treaty. For these reasons they are considered a last line of defence, to be used only when other macroeconomic instruments (foreign exchange intervention, monetary and fiscal policy) and prudential measures are insufficient.

Official interventions in foreign exchange markets are a different problem. They are costly, as they require that a share of the central bank's assets be held in lower-yielding investments than it could

hope for given the domestic rate of return²⁹. More generally, the accumulation of foreign reserves in poor countries diverts savings that could be harnessed for more productive uses. Moreover, foreign exchange interventions are difficult to sterilise entirely when they are undertaken on a large scale. This non-sterilised portion can lead to domestic inflation and generate real appreciation, as well as fuel asset price and credit bubbles. Lastly, official interventions are not always effective to prevent currency appreciation, especially if there are no restrictions on private capital flows (as in the case of Japan in 2003).

Lowering interest rates raises the same problems as unsterilised foreign exchange interventions (namely inflation and financial fragility). A drop in interest rates may also fail to stem inflows of speculative capital, if investors expect sharp currency appreciation. For example, compensating for a 5% appreciation over 3 months would require lowering the interest rate by 20 percentage points³⁰.

The *appreciation of the exchange rate*, resulting from market forces, has several advantages. It blunts the appetite of foreign investors for domestic assets by raising their cost: if the currency appreciates sharply, *carry trade* strategies become more risky because the destination currency can depreciate. Secondly, nominal appreciation lowers the price of imports, which eases pressure on domestic prices. Lastly, it is stabilising for the source country, whose currency depreciates. However, exchange rate appreciation creates two additional problems. The first is that if these capital inflows are only temporary, the exchange rate variation will be temporary also. The resulting volatility is not easy to hedge against in emerging markets, and it blurs price signals for domestic producers. Moreover, markets can have a distorted view of returns (such as during the period preceding the Asian crisis of 1997-1998) so that exchange rate fluctuations are not consistent with fundamentals (productivity in particular). The second problem of adjusting *via* the exchange rate is that the adjustment can be excessive or too abrupt. In this case, the economy may not have time to adjust to the new structure of relative prices and production potential will be reduced. For all the reasons just outlined, it is reasonable to assume that the exchange rate response is the best for dealing with long-term capital flows. Downsides would be limited in countries with developed capital markets, but other instruments may legitimately be used when capital inflows are clearly speculative in nature, when the necessary hedging instruments are not available inside the country, and/or when the adjustment is too sudden.

The main difficulty lies in defining the conditions under which these other instruments may be used. Capital controls can indeed be used for other purposes than safeguarding macroeconomic stability: to maintain an undervalued exchange rate, or to preserve an inefficient financial sector from foreign competition, for instance. This means that non-cooperative policies need to be identified and assessed. This ruling could only be achieved by a multilateral institution with an established reputation and widely recognized technical capacity. The first condition would be to extend the IMF's mandate to include surveillance of the financial account (and not just current payments³¹). This

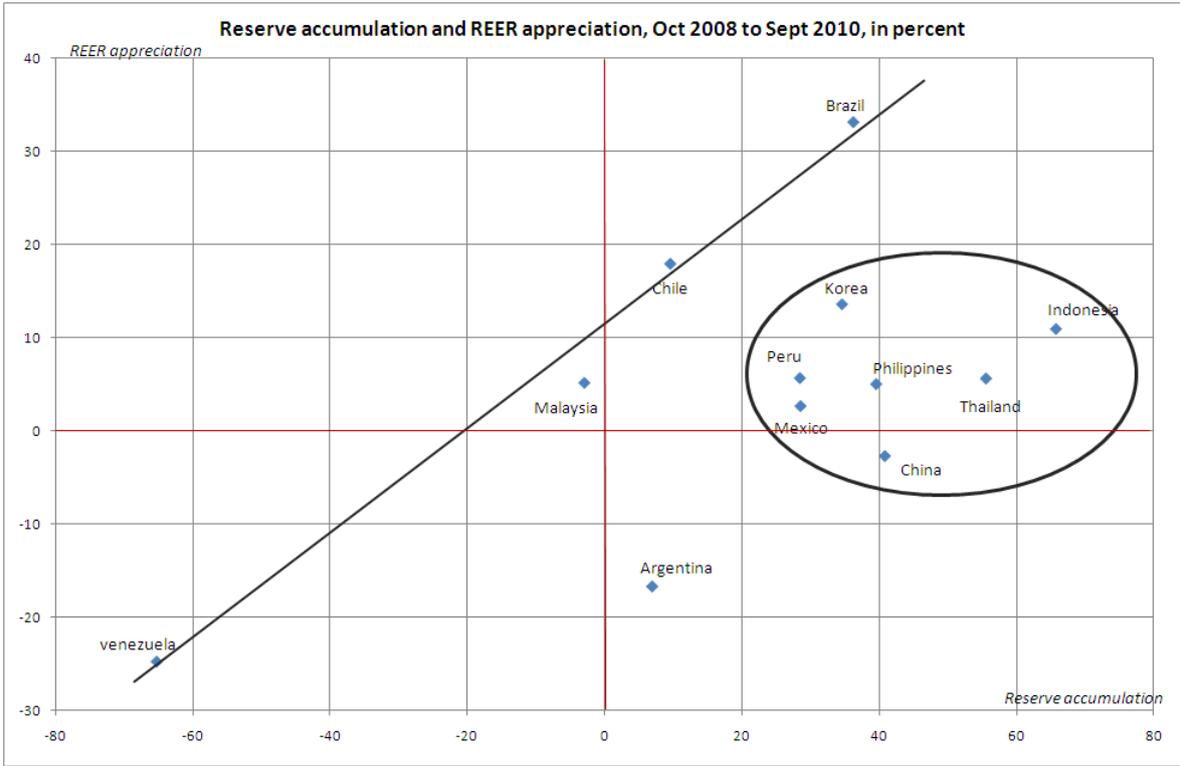
²⁹ This opportunity cost becomes a real cost when the central bank issues sterilisation bonds for its interventions.

³⁰ A 5% depreciation over three months corresponds to a 20% year-on-year depreciation.

³¹ This limited mandate for the IMF dates back to the Bretton Woods negotiations, that recognised the right for countries to establish permanent capital controls. It is no longer justified and may even prove counter-productive in the current context of widespread capital mobility.

would then involve defining criteria. The numerous studies that have sought to establish exchange rate and reserve standards have produced divergence results, and are not conducive to reaching an international agreement. However, it is easy to measure the rate of reserve accumulation and exchange rate appreciation and thus determine when the adjustment is disproportionately born by reserves. Figure 7 provides a snapshot of the period between 2008 and 2010, during which several countries, mostly in East Asia, strongly leant against the appreciation of their currencies by accumulating reserves. In contrast, the Brazilian real appreciated by 30% in real terms, despite sizable reserve accumulation. Temporary capital controls may be justified in this case.

Figure 7: Exchange rate and foreign exchange reserves fluctuations, October 2008 to September 2010



Source : authors' calculations based on IMF and BIS data. The straight line is not based on statistical inference.

On the whole, the appropriate response to capital inflows should be determined “lexicographically”: first, an appreciation of the nominal exchange rate; then, if the adjustment is too abrupt, reserves may be accumulated within “reasonable limits”. Lastly, if these interventions are not sufficient, targeted capital controls can be put in place. Macroprudential instruments should be considered during each stage to accompany the necessary measures. The implementation of these principles and international consistency would be monitored by the IMF, in cooperation with regional bodies where appropriate.

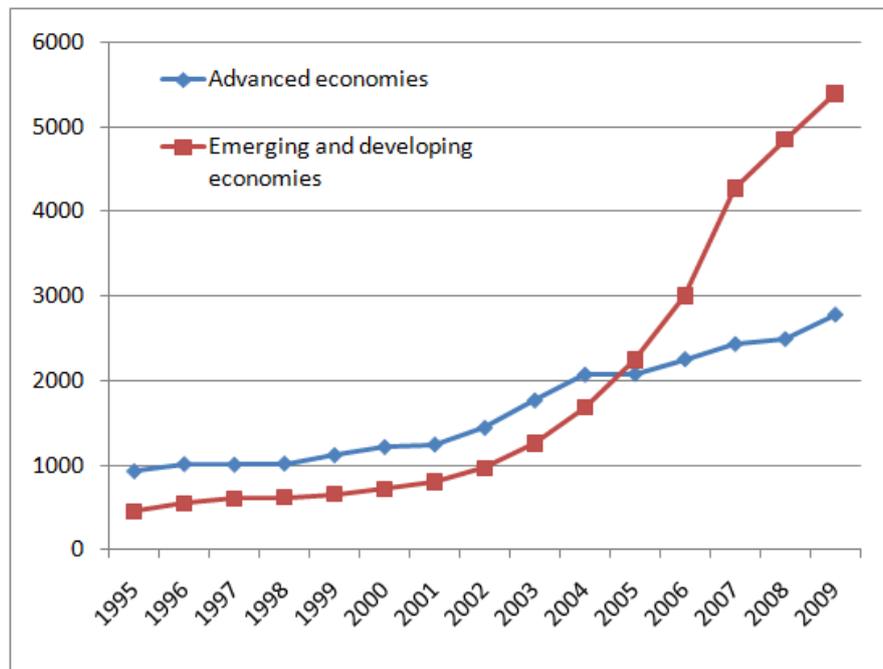
3.3. Capital outflows and emergency funding

Highly volatile capital flows, sudden stops and reversals of capital flows should be expected in financially open emerging countries. Where emergency funding (from the international community or regional partners) is not available, this can lead to balance of payments crises, with sharp currency depreciations, financial crises and ensuing economic recessions. The correlation between financial crises and currency crises has been extensively documented in the literature (Kaminsky and Reinhart, 1999, Laeven and Valencia, 2008), partly linked to the fact that currency depreciation increases the burden of foreign-currency denominated debt.

It is almost impossible for a country to prevent capital from flowing outwards. Restrictions here are especially inefficient: for legal reasons (as they can easily be construed to infringe upon property rights), and because capital outflows generally occur in contexts of heightened risk aversion (or even panic) where investors are not deterred by high costs. For the same reasons, interest rates are virtually unusable as a tool for preventing outflows: if investors expect rapid depreciation of the country's currency, only a very sharp rise in interest rates will be sufficient to stem the tide, and no government would wish to keep interest rates at such high levels for any length of time because of the adverse effects this would have on the economy. As for foreign exchange interventions, the central bank can compensate for capital outflows by drawing on its reserves, but only to the extent that these are sufficient for markets not to expect that they will soon be depleted.

The fear of a balance of payments crisis is the second main reason, along with exchange rate policy, for which central banks may wish to accumulate reserves. However, financial openness increases the amount of reserves needed to cope with a crisis, because it affects the financial account and thus potential capital outflows are substantially higher. This is one of the reasons for the rapid pace of reserve accumulation by emerging economies since the beginning of the 2000s (chart 8). However, recent econometric evidence suggests that self-insurance cannot explain reserve accumulation after 2005 (Obstfeld, Shambaugh and Taylor, 2010).

Figure 8: Evolution of foreign exchange reserves, USD billions



Source: IMF-COFER data.

These official reserves are costly for the country accumulating them, and potentially destabilising if they grant the issuing country unlimited access to external financing. The international community does try to provide alternatives to reserve accumulation, in the form of emergency liquidity facilities:

- the IMF liquidity facilities, specifically the *Flexible Credit Line (FCL)* and *Precautionary Credit Line (PCL)* facilities can be drawn upon automatically by countries that have already qualified.
- regional facilities in Europe (European Financial Stability Fund) and especially in East Asia (Chiang Mai initiative)
- bilateral swap agreements, especially during the financial crisis of 2007-2009 (see above).

There is now widespread agreement that these facilities are insufficient, and need to be enhanced and properly coordinated, whilst keeping moral hazard in check.

There are two main limits to regional arrangements: (i) many crises have a strong regional component (such as the Asian crisis), so the facilities they offer can prove insufficient, (ii) they rely on regional surveillance, for which there is no reason to believe that it is of better quality than multilateral surveillance. In this regard, the European experience is not an encouraging sign. Regional

(peer) surveillance can rapidly fizzle into a de facto “pact of non-aggression” between participating countries³².

Bilateral arrangements, centred on the U.S. Federal Reserve also raise several problems: (i) the relative decline of the US economy will inevitably diminish their importance, (ii) political interference cannot be excluded and (iii) because the central bank is independent, it will be difficult to obtain lasting and unwavering commitment from it.

Facilities for emergency liquidity provision are best designed at the multilateral level, even if these can be complemented by bilateral or regional agreements. PCL and FCL facilities have the advantage of combining automatic access with a pre-qualification review each year, which limits moral hazard. To avoid the risk of stigmatization of recipient countries, a possible solution could be to make these facilities mandatory for all countries that can pre-qualify. However, the Fund’s resources do not allow this. An alternative solution could be to transform the swap agreements described in Table 2 into a network of bilateral agreements, under IMF surveillance.

A complementary path would be to develop and relax the allocation of Special Drawing Rights (SDR), as these allocations do not take into account the external imbalances of different countries (see Cooper, 2009; United Nations, 2009, Julius, 2010 for detailed propositions). After all, when SDRs were introduced in 1969 the main objective was to allow international liquidity to be managed multilaterally. In 1978, the member states of the IMF entered into a pledge to transform the SDR into “the principal reserve asset of the international monetary system” (see Box 2).

Box 2: a short history of the SDR³³

The creation of the SDR in 1969 came after several years of international discussions, especially amongst the “Group of Ten” - a group of ten advanced countries (the US, Japan and eight European countries) represented by their finance ministers, Treasury heads or central bank governors (see Solomon, 1996).

After the war, U.S. holdings accounted for about 60% the world’s reserves of gold. The dollar/gold equivalence and the Marshall Plan, which provided dollar funding to European countries, allowed the relative scarcity of gold to be circumvented. However, the pace of gold production in the world was not consistent with the value of the peg. In the early 1960s, in order to address the problem of scarcity, the central banks of the U.S. and of European countries agreed on a pooling of gold reserves. Under the terms of the agreement, the participating countries were required to intervene if the market price departed from 35 dollars an ounce. However, the cost of these interventions steadily increased. The United States’ privilege as the issuer of the main international currency was also met with the hostility of Charles de Gaulle. After the pound was devalued in 1967, and given the risk of a dollar devaluation because of the Vietnam War, investors converted their dollars into gold, making

³² See Palais-Royal Initiative (2011).

³³ This box is based on Bénassy-Quéré and Pisani-Ferry (2010).

the 35 dollar an ounce parity increasingly difficult to uphold. The gold pool ceased its functions in 1968. The parity of 35 dollar an ounce was maintained for official transactions, but private transactions were carried out on the basis of a higher market price. This amounted to a *de facto* devaluation of the dollar, while the problem of international liquidity – based US capital exports – remained unsolved.

The SDR was created by the Fund to serve as a reserve asset. It can be seen either as a substitute for gold (and a competitor to the dollar), or simply a mechanism for managing global liquidity independently of the United States' current account. In 1978, the member states of the IMF agreed to make the SDR the "principal reserve asset of the international monetary fund" *via* an amendment to the Fund's statutes. More than thirty years later, however, the SDR has failed to reach its objectives as a unit of account and as a store of value.

Unit of Account

Initially set at 0.888671 grams of fine gold (on par with the official value of the dollar), the value of the SDR had to be redefined after the end of the Bretton Woods regime. In 1974, the SDR was redefined as a basket of 16 currencies, those of the member states that accounted for at least 1% of world trade. The basket was reduced to five currencies in 1981 (dollar, yen, pound sterling, Deutschemark, French franc), and in 1999 the franc and the mark were replaced by the euro. In 2001, the criterion for inclusion in the basket was changed. The currencies included in the basket were to be those of the biggest exporters, but also those most widely used in trade invoicing. This last criterion is currently an impediment to the inclusion of the renminbi in the basket.

The value of the SDR is determined daily by the IMF, according to the price of its component currencies and their weights within the basket. By construction, the DTS is more stable than its component currencies. However, to this day it is not used as the unit of account outside of the IMF and central banking.

Store of value

The second objective of the SDR was to free international liquidity of its reliance on U.S. economic policy. Three allocations were made between 1970 and 1972, amounting to a total of 9.3 billion SDR. In the years that followed, liquidity disappeared from the concerns of national governments, as the United States was running large current account deficits in a context of high inflation. New allocations amounting to SDR 12.1 billion took place between 1978 and 1981, and then nothing happened until the global financial crisis of 2007-09 and the decision of the G20 (London summit April 2009) to undertake a massive allocation of SDR 161.2 billion.

The SDR is quite an unwieldy instrument for managing international liquidity. The normal procedure is for the Director General of the Fund to make a proposal for the allocation or cancellation of SDRs at least six months before the desired date. The Board of Directors (24 directors) must then approve the proposal. The General Assembly (187 countries today) must finally vote it and reach a majority of 85%.

Furthermore, SDRs are allocated according to the IMF quotas, despite there being no reason for global liquidity needs to follow this distribution.

To make the allocation of SDRs responsive to global developments, it would be necessary to reform the Fund's statutes (allocations are currently agreed upon in general assembly) but also to establish close cooperation between central banks, especially those whose currencies are in the SDR basket of currencies. Indeed, it is they who are tasked with creating the international currencies in exchange for SDRs that are only "promises" of money (see Box 3). Placing central banks at the centre of the framework for managing global liquidity would allow global liquidity needs to be taken into account in the conduct of monetary policy. This would also be the natural forum for coordinating liquidity provision in crisis situations. However, the IMF's support would be essential to mitigate the problem of moral hazard inherent to all insurance schemes.³⁴

Box 3: A user's guide to the SDR³⁵

The SDR is not a currency. It is a claim on the member states of the IMF, who have a commitment to convert SDRs into key currencies under certain conditions. The mechanism is as follows: (1) the IMF agrees on an SDR allocation, (2) SDRs are allocated among member states according to their contributions to the Fund, (3) allocated SDRs generate interest payments (the SDR is an asset) and interest charges (the SDR is also a liability); the SDR department of the Fund serves as a clearing house; as the interest rate is the same on the asset as on the liability side, the operation is initially neutral, (4) a member state can have its SDRs converted by another member state, in which case it receives one of the currencies in the basket which it can then use to meet its commitments. Its SDR position becomes negative and it pays net interest to the SDR Department of the Fund, (5) the member state that was counterparty in the conversion has a positive SDR position, and receives the net interest. The counterparty for the conversion is determined either on a voluntary basis, or through a designation mechanism (IMF, 2001). The interest rate set by the Fund (based on the money market rates of the currencies in the basket) is low compared to the short-term rates emerging and developing countries are usually charged. This form of liquidity is therefore relatively inexpensive to use. In addition, the system has the advantage of pooling global liquidity, making large reserve accumulation unnecessary, at least in principle (SDR allocations do not depend on current account imbalances). However, the share of SDRs in foreign exchange reserves is still very low (in the range of 0.4%).

³⁴ In the same spirit, the Palais-Royal Initiative. (2011) suggests to activate the IMF "Council" envisaged in the Fund's Articles of Agreement, an assembly of finance ministers and central bank governors that would take over the IMFC and the G20 ministers and governors for economic, monetary and financial issues. Here we suggest a smaller grouping of key central bankers for monetary cooperation. The two proposals are compatible.

³⁵ This box is based on Bénassy-Quéré and Pisani-Ferry (2010).

3.4. The transition

The transition towards a multipolar system will not happen in a month, nor in a year. It will most likely be long: ten years or so, according to Barry Eichengreen (2011), one of the more “optimistic” experts on this issue. This transition comes with specific risks attached. In particular, rapid diversification of public and private holdings could destabilise the dollar. Cooperation between central banks will thus be key during the transition.

According to one of the readings of the financial crisis of 2007-2009, the United States was under pressure to supply (risk-free) reserve assets in sufficient quantities. One of the challenges will be to diversify into other reserve assets, which should happen with the expansion of supply and demand for renminbi and/or euro assets.³⁶ A smooth transition is in the interest of all the countries and regions concerned (the United States, China and the euro area).

Enhanced regional cooperation will ease the transition, especially in Asia where, until now, the dollar peg has served as a substitute for any form of genuine monetary policy coordination³⁷.

³⁶ As a complement, the supply of SDR-denominated assets could be encouraged, e.g. by letting international organizations issue debts in SDRs (see IMF, 2011).

³⁷ Historically, regional cooperation has proven difficult without a dominant country and plans for monetary cooperation in Asia (beyond the multilateral swap agreements) have so far suffered from the absence of a clear leader. According to Park and Song (2010), the emergence of the renminbi could weaken regional initiatives undertaken by ASEAN+3, but give rise to a de facto monetary bloc with China's currency at the centre. It is however possible that China will resist letting its currency float in the short run, to support its adoption at the regional level (since the countries of the region are generally in demand of stability with respect to the dollar).

CONCLUSION

It is not up to the international community to decide on the number or the identity of international currencies. A particular issuer may decide to promote, or otherwise discourage the internationalisation of its currency, but the emergence of an international currency is ultimately the result of the individual decisions of a myriad of public and private actors. All that can be said is that the economic and financial weight of large monetary entities will continue to change rapidly, that several currencies may coexist for a relatively long period and that China has now announced its intention to internationalise its currency. In this context, the U.S. dollar may well, in a decade or two, no longer be the system's only key currency (although it should still be dominant). Discussions on how to enhance the international monetary system should take this long-term perspective.

In this spirit, the immediate priorities should be:

1. *To move towards greater flexibility of the exchange rates of the main currencies.* Increased flexibility of the renminbi exchange rate is consistent with an evolution towards multipolarity. However, flexibility does not mean *laissez-faire*. It should go hand-in-hand with the recognition that exchange rates can be subject to excessive adjustments and that this can justify limited currency interventions, preferably coordinated, and/or capital controls.
2. *To create a framework for surveillance of capital controls.* As capital controls are making their comeback into the legitimate policy toolkit, there is a need to define when and how they can be used. In order to avoid them being used in mercantilist or beggar-thy-neighbour fashions, the international community could agree on a code of conduct on capital controls and the IMF could exercise surveillance. This implies extending the IMF's mandate to include surveillance of the financial account and enhancing the effectiveness of exchange-rate policy surveillance.
3. *To enhance existing facilities for the provision of global liquidity in times of crisis.* This would imply going a step further than existing facilities, and in particular making the provision of liquidity explicitly counter-cyclical. Multilateral arrangements are essential and they can be complemented by regional and bilateral facilities. This would reduce the self-insurance motive for reserve accumulation and thereby bring more transparency to the discussion on exchange rates.
4. *To create a venue for cooperation in managing global liquidity.* Although projects aiming to give a more important role to the Special Drawing Rights (SDR) are remote, a more modest objective could be to institutionalise cooperation and dialogue between the governors of the central banks whose currencies belong to the SDR basket, so that the global monetary stance and global liquidity are taken into account in national monetary policies. The SDR is a natural candidate for this because the central banks of the key currencies already have the ability to create money when SDRs are swapped for their own currencies: the impact of SDR allocations on global liquidity depends on their sterilisation policies, even if their current weight is still quite low. Inclusion of the renminbi in this basket (conditional on gradual internationalisation) would give more weight to such an initiative, especially as China has

already started creating international liquidity via its swap agreements. This could lead to the emergence of a G5 consisting of the United States, the euro area, the United Kingdom, Japan and China, which would be tasked with addressing those monetary and exchange rate issues that cannot realistically be tackled within the G20 framework. This G5 could also be in charge of coordinating swap lines in crisis periods.

The ultimate objective should be to create the right conditions for alternatives to the dollar to emerge without destabilising the system, and to reap the benefits of progressive multipolarisation.

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