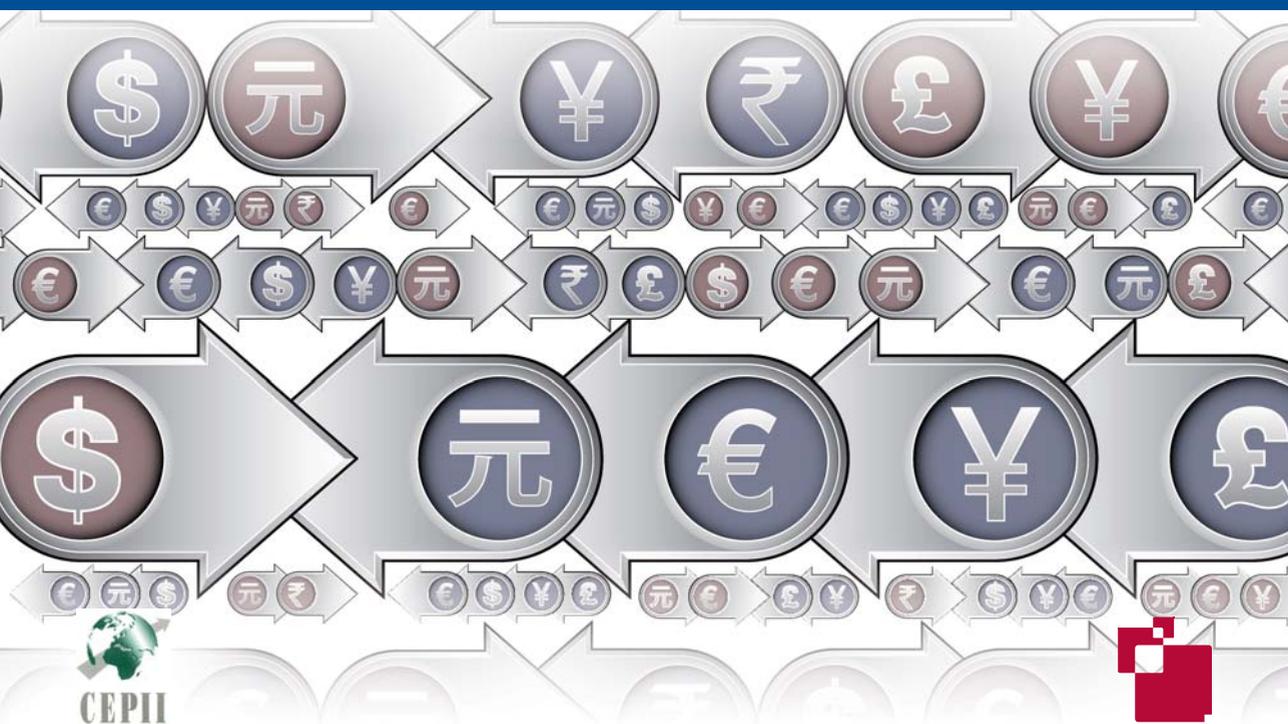


Global currencies for tomorrow: a European perspective

BY IGNAZIO ANGELONI, AGNÈS BÉNASSY-QUÉRÉ,
BENJAMIN CARTON, ZSOLT DARVAS, CHRISTOPHE DESTAIS,
JEAN PISANI-FERRY, ANDRÉ SAPIR AND SHAHIN VALLÉE



Global currencies for tomorrow: a European perspective

**BY IGNAZIO ANGELONI, AGNÈS BÉNASSY-QUÉRÉ,
BENJAMIN CARTON, ZSOLT DARVAS, CHRISTOPHE DESTAIS,
JEAN PISANI-FERRY, ANDRÉ SAPIR AND SHAHIN VALLÉE**

BRUEGEL BLUEPRINT SERIES/CEPII RESEARCH REPORTS

BRUEGEL BLUEPRINT SERIES

Volume XIII

Global currencies for tomorrow: a European perspective

Ignazio Angeloni, Agnès Bénassy-Quéré, Benjamin Carton, Zsolt Darvas, Christophe Destais,
Jean Pisani-Ferry, André Sapir and Shahin Vallée

© Bruegel 2011. All rights of this edition reserved. Manuscript © European Union. Short sections of text, not to exceed two paragraphs, may be quoted in the original language without explicit permission provided that the source is acknowledged. Permissions for reproduction beyond the above scope are to be sought from the copyright holder, represented by the Directorate-General for Economic and Financial Affairs, Unit D4 - Globalisation, trade and development, B-1049 Brussels. The **Bruegel Blueprint Series** is published under the editorial responsibility of Jean Pisani-Ferry, Director of Bruegel. Opinions expressed in this publication are those of the author(s) alone.

Editor: Stephen Gardner

Production: Michael T. Harrington

Cover graphic: Jean-Yves Verdu

BRUEGEL

33, rue de la Charité

1210 Brussels

www.bruegel.org

CEPII Research Reports

CEPII

113 rue de Grenelle

75007 Paris

www.cepii.fr

ISBN: 978-9-078910-21-3

Global currencies for tomorrow: a European perspective



A report on options for, and implications of, reforms of the international monetary system, prepared by Bruegel and CEPII for the European Commission in the context of contract number ECFIN/220/2010/573686 for which the European Union paid the amount of €57,871.82.

Opinions expressed in this report are those of the authors alone. They do not reflect the views of the institutions they are affiliated to nor the views of the European Commission. The authors are grateful to the following for insightful comments: Montek Singh Ahluwalia, Barry Eichengreen, Jacques de Larosi re, Eduardo Levi-Yeyati, Domenico Lombardi, Filippo di Mauro, Frank Moss, Anthony Nelson, Eswar Prasad, Fabrizio Saccomanni, Loukas Stemitsiotis, Lucinda Trigo, Ted Truman and Yongding Yu. The authors are also grateful for comments by participants in seminars at the Brookings Institution, CESifo, the European Central Bank, the European Commission, the Kiel Institute and Villa Mondragone. They also wish to thank Jinzhao Chen and Christophe Gouardo for excellent research assistance.

Contents

<i>About the authors</i>	vii
<i>Foreword</i>	x
Executive summary	1
1. Introduction	4
2. Lessons from history	7
2.1 The gold standard period (1870-1914)	7
2.2 The interwar period (1918-1939)	8
2.3 The Bretton Woods period (1945-1971)	9
2.4 Post-Bretton Woods (1971-late 1990s)	11
2.5 Two lessons from history	12
3. The current regime	14
3.1 Main features	14
3.2 Is the current regime unipolar or multipolar?	16
3.3 Global imbalances	19
3.4 Shortcomings of the current regime	22
3.5 IMS reform and the G20	31
4. Economic conditions and the monetary order	37
4.1 The changing balance of economic power	38
4.2 Critical determinants of currency status	40
4.3 Global financial conditions	43
4.4 The changing template of monetary and exchange-rate policies	51
5. Assessment of alternative regimes	53
5.1 Three scenarios for the next decade	53
5.2 Assessing the scenarios: criteria	63
5.3 Assessing the scenarios: comparison of alternative regimes	65

6. Transition	75
6.1 The path of renminbi internationalisation	76
6.2 Global rebalancing: structural and monetary reforms in China	82
6.3 Global rebalancing: policy shocks in the US	85
7. Implications for the euro area	86
7.1 Scenario assessment: the euro area viewpoint	86
7.2 Policy implications	89
8. Conclusions	91
References	97

About the authors

Ignazio Angeloni is Advisor to the Executive Board of the European Central Bank (ECB) on European financial integration, financial stability and monetary policy, and a Visiting Scholar at Bruegel, where he edits the G20 Monitor. He holds degrees from Bocconi University and the University of Pennsylvania. He previously worked for the Banca d'Italia and the International Monetary Fund, and was deputy director general of research at the ECB (1998-2005), followed by a period as director for international financial affairs at the Italian Ministry of Economy and Finance. He has taught at the University of Pennsylvania, Bocconi University and LUISS (Rome), and has published extensively on monetary policy, European integration, financial markets and banking.

Agnès Bénassy-Quéré is the Director of CEPII, the French international economics research institute, and a Professor at University Paris 1 – Sorbonne. After defending her PhD in economics at University Paris IX – Dauphine, she was appointed to the French Ministry of Economy and Finance (1991-1992). She then became a lecturer at the University of Cergy-Pontoise (1992-1996), a professor at the University of Lille 2 (1997-1998), deputy-director of CEPII (1998-2000) and a professor at the University of Paris X-Nanterre (2001-2004). In 2004, she returned to CEPII as deputy-director, before being appointed director in July 2006. She is a member of France's Council of Economic Advisors, *Commission Economique de la Nation* and *Cercle des Economistes*. Her research focuses on the international monetary system and European macro-economic policy.

Benjamin Carton is an economist in CEPII's international macroeconomics department, and a PhD researcher on monetary and international macroeconomics (Paris 1 University and Pavia University). He also teaches international macroeconomics at ENSAE (Paritech) and negotiation at the Université Catholique de Paris and Institut des sciences politiques de Paris. He previously worked at the French Treasury in the macroeconomic policy and European affairs directorate, in charge of macroeconomic analysis and background papers for international summits.

Zsolt Darvas is a Research Fellow at Bruegel, a Research Fellow at the Institute of Economics of the Hungarian Academy of Sciences, and an Associate Professor at Corvinus University of Budapest. He was previously research advisor to the Argenta Financial Research Group in Budapest (2005-08) and researcher and later deputy head of the research unit of the Central Bank of Hungary (1994-2005). He has had visiting researcher positions at the Bank of Finland, Deutsche Bundesbank, De Nederlandsche Bank and the Stockholm School of Economics. His research interests include macroeconomics, international economics and time-series analysis.

Christophe Destais is deputy director of CEPII (since late 2010). Previously, he represented the French Ministry of Finance in Malaysia and the United States during the financial crisis (2006-2010), and worked for the French Government on research and energy policies, economic relations with China, export-credit policy and the economic analysis of emerging countries. He studied public administration at the University of Grenoble and France's Ecole Nationale d'Administration. His main areas of interest are the international monetary relations, the financial sector, the US and China.

Jean Pisani-Ferry is the Director of Bruegel and Professor of Economics at the Université Paris-Dauphine. He was previously executive president of the French prime minister's Council of Economic Analysis (2001-02), senior economic advisor to the French Minister of Finance (1997-2000), director of CEPII, the French institute for international economics (1992-97) and economic advisor to the European Commission (1989-92). His current research focus is economic policy in Europe. He writes regular columns for *Le Monde*, *Handelsblatt* and Chinese magazine *Caixin*.

André Sapir is a Senior Fellow at Bruegel and Professor of Economics at the Université Libre de Bruxelles (ULB). He serves as vice-chair of the Advisory Scientific Committee and member of the General Board of the European Systemic Risk Board (ESRB). Previously, he worked for 12 years for the European Commission, first as economic advisor to the Director-General for Economic and Financial Affairs, then as economic advisor to President Romano Prodi. He has published extensively on European integration, international trade and globalisation, and holds a PhD from the Johns Hopkins University in Baltimore, US.

Shahin Vallée is a Visiting Fellow at Bruegel (since November 2010) and works in the research department of BNP Paribas in London. He focuses on international and European economic policy issues, in particular the intersection of financial markets

and economic policy. He also teaches European economic governance at Sciences Po, Paris. He holds masters degrees from Columbia University, New York and from Sciences Po, Paris.

Foreword

The reform of the international monetary system (IMS) is a speculative and complex issue on which decision makers have widely diverging views. Reform discussions were revived by the 2007-09 global crisis. Although the IMS's direct responsibility for the crisis is a controversial question for academics and practitioners, there is little doubt that some of its features, such as exchange-rate inflexibility, limited trust in multilateral liquidity-provision schemes and subsequent self-insurance through reserve accumulation, or the lack of external adjustment mechanisms, helped create the macroeconomic environment in which excessive leverage and risk-taking took place. Nor is there much doubt that, in the aftermath of the crisis, these same features are an obstacle to a return to sustained and balanced growth in the global economy.

The reform of the IMS was selected as a priority by the French presidency of the G20 in 2011. France, however, has been cautious not to propose a grand reform plan. Rather, it has taken issues one by one and has sought to reach consensus on each individual dossier. At the time of completing this report, discussions at the G20 were evolving around three main topics: (i) the completion of efforts undertaken by the 2010 Korean G20 presidency to strengthen multilateral schemes for liquidity provision in times of crisis; (ii) the strengthening of multilateral surveillance and the search for consensus on the desirable use of capital controls, and (iii) preparations for a change in the composition of the Special Drawing Rights (SDR) basket.

The piecemeal approach is politically astute but analytically perplexing, as it does not help to figure out what the big picture could look like. Indeed, efforts to revamp the system should be considered as small steps in what is bound to be a long march. We believe that the current small steps should be assessed in the light of a longer-term perspective and this is what we are trying to do in this report. Our focus is on where this march could lead to by 2025.

In our view, the most probable scenario is multipolar: in addition to the US dollar, one or several key international currencies will emerge. For this role, the euro and the

renminbi are prime candidates, but we cannot exclude that only one of these currencies achieves international currency status – nor that other currencies emerge, though over significantly longer term.

Such an evolution of the IMS would be positive to the extent that it would imply free capital mobility and exchange-rate flexibility between the different poles, as well as, in each region concerned, the development of a liquid market for benchmark bonds. However, genuine multipolarity would also require that each of the monetary poles stands ready to fulfil international duties in quiet times as well as in times of crisis.

Such preconditions are clearly not met currently by the main economic and currency blocs, albeit for different reasons. China has already taken significant but incomplete steps in the direction of internationalisation. The euro area is under stress but it could possibly emerge stronger from its current crisis. The United States, meanwhile, is far from willing to accept full responsibility for the international repercussions of its macroeconomic actions. Nevertheless, several factors detailed in this report suggest that the prospect of a multipolar IMS is more realistic than often assumed.

If the IMS is in fact moving towards multipolarity in the medium run, the role of international coordination is to accompany this market-based movement in order to reap the full benefits and counter the risks. The discussions surrounding the enlargement of the SDR basket (through the inclusion of the renminbi) and the coordination of bilateral swap arrangements can be understood in this context.

Does this exclude a complete overhaul of the multilateral system organised around a quasi-global currency and centralised management of global liquidity? In the short run, it should be recognised that the conditions for this scenario to materialise are not met, not least because no large country is ready to deviate from domestic priorities. However, such a scenario might be raised again, for instance in the event of another global crisis. We therefore keep the multilateral scenario as one possible outcome, though not the most likely, and investigate its implications for the euro area.

For reasons of history and experience, Europe tends to favour cooperative solutions, and indeed the multilateral scenario would probably be the best for Europeans. As this is unlikely to materialise, the EU might have to decide if it wants to back a multipolarisation of the IMS. Further internationalisation of the euro would involve benefits, but also major policy changes (such as the introduction of safe euro-area-wide assets) and responsibilities (such as the willingness to extend generous swap lines in case of

a liquidity crisis). The euro area may or may not be prepared to envisage such a transformation, but it would be well advised to consider it seriously and to make a conscious choice, rather than be driven to decisions by outside events.

This report was prepared at the request of the European Commission by a joint research team from Bruegel and the *Centre d'Études Prospectives et d'Informations Internationales* (CEPII).

Agnès Bénassy-Quéré, director of CEPII
Jean Pisani-Ferry, director of Bruegel
July 2011

Executive summary

This report examines how the international monetary system (IMS) might evolve and the implications of different scenarios for the euro area over the next fifteen years.

After the collapse of the Bretton Woods system forty years ago, the IMS gradually developed into its present state, a hybrid mix of exchange-rate flexibility, capital mobility and monetary independence. The US dollar retains a dominant, but not exclusive, role and the IMS governance system blends regional and multilateral surveillance. It combines IMF-based and ad-hoc liquidity provision. Although it has proved resilient during the crisis, partly thanks to ad-hoc arrangements, the IMS has serious flaws, which are likely to be magnified by the rapid transformation of the global economy and the increasing economic power of emerging economies.

This report begins by taking stock of two major historical lessons:

- Since the beginning of the twentieth century, the emphasis in most countries has shifted towards internal rather than external stability. This priority is likely to remain pivotal in the coming decades.
- Although the dollar has been dominant for several decades, having succeeded sterling, history demonstrates that multipolar systems based on more than one key currency can exist, and can also persist for several decades.

This report assesses the implications for the IMS of the ongoing shift in the world balance of economic power. By 2020-2030 economic power is likely to be more evenly distributed among key players – the US, the euro area and China – than at any point in time in recent history. This report discusses what factors enable a currency to play an international role, and concludes that neither the euro nor the renminbi are likely to be in a position to challenge the supremacy of the dollar. However, they are likely to come to play a meaningful international role, provided certain conditions are met.

The report then outlines three possible scenarios for the IMS:

- A repair-and-improve scenario in which changes to current arrangements are introduced through incremental reforms.
- A multipolar scenario in which a system structured around two or three international currencies emerges.
- A multilateral scenario in which participants agree to take steps towards a strengthened international monetary order.

The first scenario is the least demanding in terms of both domestic policies and international coordination and the most likely to prevail in the short term, while the third is the most demanding and therefore the least likely of the three scenarios. Though limited in ambition, the first scenario would be an important stepping-stone towards further development of the IMS. The second scenario relies on market forces and domestic policies rather than on international cooperation and the probability of it emerging, although fairly low in the short run, becomes higher within a 10-15 year horizon. The probability of the third scenario emerging is low, but can gain likelihood in case of major international financial crises.

Assessment of the three scenarios on the basis of efficiency, stability and equity suggests that:

- All three would offer improvements compared to the current system.
- Their feasibility negatively correlates to their desirability.
- The multipolar scenario would best correspond to structural changes in the world economy and mitigate some (though not all) of the flaws of the current IMS.

The deeper transformation of the IMS is likely to take a long time. The report analyses three specific issues for the transition and concludes that:

- The renminbi can attain a moderate international role without major changes to Chinese policies, but deeper reforms will be needed to rival the euro and the dollar.
- In the absence of a major overhaul of the IMS, the 'repair-and-improve' scenario (which includes lower incentives to accumulate reserves), together with significant domestic policy shifts, can be powerful in reducing global imbalances.

- Concerning exchange-rate misalignments and asymmetries in the run-up to the multipolar and multilateral scenarios, (i) Chinese developments are not neutral for the euro/dollar exchange rate if China keeps a fixed exchange rate to the dollar, (ii) moving from a dollar-centred to a multi-currency system and more flexibility of the renminbi exchange rate could create more short-term exchange-rate volatility, but reduce the potential for medium-term exchange-rate misalignments, (iii) the internationalisation of the renminbi would be stabilising for the euro/dollar exchange rate.

From the point of view of the euro area:

- The multilateral scenario not only stands out as the most desirable, but is also particularly congruent with the euro area's intrinsic principles.
- The multipolar scenario would be preferable to the repair-and-improve scenario.
- In comparison to the current dollar-dominated system, the euro area could benefit from a move to a bipolar system around the dollar and the renminbi.
- The capacity of the euro to increase its international status requires major decisions by the euro area, such as further governance reform, the creation of a Eurobond market, and the streamlining of external representation.
- Issuing a fully-fledged international currency involves both privileges and duties; increasing the euro's role is a political choice.

1 Introduction

After three decades of apathy, the debate on the international monetary system (hereafter IMS) is back. In the 1960s and 1970s, discussions raged about international liquidity provision, the pros and cons of abandoning the gold exchange standard, and the initial difficulties of the free-floating regime. In the 1980s, interest had already shrunk to correcting large and persistent exchange-rate misalignments between key currencies. In the 1990s discussions about reforming the IMS virtually disappeared from the international agenda. The focus shifted to more specific issues such as the choice of exchange-rate regimes for emerging and developing countries, the management and resolution of balance-of-payment and financial crises, and the set-up of regional exchange arrangements, like the euro or the Chiang Mai initiative. Even among scholars, the topic of the international monetary system lost appeal, gradually moving to the realm of economic history. The predominant view was that a market-driven combination of (managed) floating exchange rates, dollar dominance and a lack of a formal global price anchor was the only viable arrangement in a world where internal objectives, such as full employment and price stability, had superseded external ones on a permanent basis.

Four recent developments have led to a revival of the discussion on reforming the IMS:

- One is the rise of global imbalances and their role in the global crisis. A widespread though far from unanimous opinion among academics (see for example Eichengreen, 2009b; Portes, 2009) and policymakers (see Larosière, 2009; Turner, 2009, and King, 2010) is that the interplay between macro-imbalances and financial market developments and innovation was an essential ingredient in the genesis of the crisis. There is also broad (but again not unanimous) recognition that macro-imbalances were facilitated by the lack of incentives for policy adjustment and the weakness of multilateral disciplines. Hence, discussion about the prevention of future crises put IMS reform back on the agenda.
- Second, dissatisfaction with capital flow volatility has revived the debate about the costs and benefits of free capital mobility. The general consensus established in the

1990s about the benefits of financial globalisation has been undermined, not only because of the crisis but also, and more simply, because many emerging countries have been repeatedly overwhelmed by surges of capital inflows followed by sudden outflows. Also, a large set of countries (China, India and a number of emerging economies) have demonstrated that they could perform economically while retaining tight capital controls.

- Third, the accumulation of very large international reserves by still relatively poor countries raises concerns about the welfare cost of holding reserves and capital allocation at global level. Foreign-exchange reserves are mostly invested in high-quality and low-yielding liquid assets. Such an investment strategy has welfare costs for countries that accumulate reserves and it has implications for international capital flows that are undesirable from an allocative viewpoint. Moreover, there is a growing fear among large official reserves holders that the present system exposes them to the risk of large capital losses, should the dollar depreciate in a disorderly way. In brief, foreign-exchange reserves seem to offer an unfavourable risk-return trade-off. Increasing concerns in the developing and emerging world were vividly exposed in a post widely commented on, by China's central bank governor in March 2009 (Zhou, 2009), in which he unexpectedly called for a reform of the IMS based on a revival of Special Drawing Rights (SDR).
- Fourth, disputes over the pegging strategies of emerging countries, and monetary policies in advanced countries, emphasise the increasingly evident need for an emancipation of monetary policies in large emerging countries. The process started before the crisis with the adoption of inflation-targeting monetary policy strategies by many emerging economies. However, fear of floating and collective-action problems led many other countries to stick with the objective of a stable exchange rate and to sterilise the monetary consequences of increased net capital inflows. In the wake of the crisis, the large growth differential between the 'North' and the 'South' has made such a double-target model unworkable without raising barriers to capital flows. These developments have prompted fears of 'currency wars'.

The common theme running through these developments is the recognition that current international monetary arrangements seem incapable of delivering not only domestic internal and external stability for each individual country, but also global economic and financial stability. Whether such a recognition – well articulated by the report of the Palais-Royal initiative (Camdessus *et al*, 2011) – and the ensuing discussions will lead to reform action soon, or calls for reform will lose strength in the face of the formidable negotiating difficulties that any reform of international monetary relations entails, is

difficult to predict. Sceptics point out that agreements on overhauls of the IMS were only reached in exceptional circumstances, typically following major wars¹.

In this report, we argue that, even though (i) its role in the genesis of the global 2007-09 crisis remains controversial, and (ii) it proved resilient during the crisis, the IMS is ill suited to accompany the accelerated transformation of the global economy and the rising economic power of emerging economies. Existing flaws are likely to become more acute while the global economy becomes multipolar. Sooner or later, the IMS will have to evolve through market developments if not through policy initiatives.

Throughout the report, we consider a broad definition of an IMS: a set of practices, rules and institutions governing international payments, the choice of exchange regimes and the supply, holding and use of international reserves. A well-functioning IMS is expected to facilitate international trade and promote an efficient cross-border allocation of capital by fostering a modicum of monetary stability at national level and in foreign-exchange markets; by preventing or eliminating distortions and excessive external imbalances; and by ensuring an adequate provision of international liquidity, in normal as well as in crisis times. This is a tall order and a major reason for long-standing controversies on reforming the IMS.

The current IMS can be viewed as intermediate between the Bretton Woods system, which was abandoned in 1973, and a pure floating exchange-rate regime with unfettered capital mobility, market-determined exchange rates, independent national monetary policies, and multilateral provisions for surveillance and crisis management. The present system differs from the 'pure' system in three respects. First, not all currencies float freely, capital mobility is not perfect everywhere and monetary independence is accordingly limited in some countries. Second, the multilateral system of crisis management is not fully reliable, or at least it is not considered to be by many emerging countries, which triggers spectacular reserve accumulation in order to self-insure against major shocks. Finally, the dollar has retained a central role in this system whereas it was expected to evolve towards more symmetry after the collapse of the Bretton Woods system.

Starting from this hybrid system, we review three scenarios for the IMS and assess their implications from various perspectives, including for the EU economy. The three scenarios are:

1. The Smithsonian Agreement of 1971, which simply took note of the unilateral decision by the US Government to end the Bretton Woods system, is hardly an exception.

1. A repair-and-improve scenario whereby changes to current arrangements are introduced through incremental reforms. These are *inter alia* enhanced surveillance, a voluntary reform of exchange-rate arrangements, especially in Asia; improved international liquidity facilities; accompanying domestic reforms such as the development of home-currency financial markets; and regional initiatives to complement current IMF facilities. Under this scenario, the international role of key currencies remains broadly constant and the US dollar retains its dominant role, the euro's role remains broadly unchanged, and the renminbi's expands, but remains marginal in comparison to the dollar and the euro.
2. A multipolar scenario in which a system structured around two or three international currencies – presumably the dollar, the euro and the renminbi – emerges over a 10-15 year horizon. Although a move to a multipolar system is generally viewed as a remote prospect, especially in the case of the renminbi, it corresponds to the long-run evolution of the world economy. The Chinese authorities have taken significant steps in this direction through various schemes and their currency has a strong potential for internationalisation. As for the euro, it has already developed as a diversification currency and in this scenario the euro area overcomes its current difficulties and graduates from a mainly regional to a truly global currency. Yet we also examine an alternative bipolar scenario with the dollar and the renminbi, which may occur if the euro remains handicapped.
3. A multilateral scenario in which participants agree to take steps towards a strengthened international monetary order. In contrast with the multipolar scenario, which will largely rely on market forces and national policies, renewed multilateralism would require a fairly intense degree of international coordination and the development of new instruments to help escape the pitfalls of regimes based on the dominant role of one or a few national currencies, foster macroeconomic discipline and provide for international liquidity management. A system of this sort could build on the existing SDR or rely on other, new vehicles.

While recognising the potential merits of a truly multilateral monetary order, we doubt it could materialise in the foreseeable future and therefore conclude that, within a 10-15 year horizon, the probability of the multipolar scenario is relatively high and that this scenario could contribute to mitigating some (though not all) flaws of the present IMS. The transition to a multipolar system however entails some specific risks, such as an abrupt reserve diversification, which would require tighter coordination during the transition.

We believe the euro has the capacity to increase its international status, provided key decisions are taken by the euro area, such as further governance reform, the creation of a Eurobond market, and the streamlining of euro-area external representation. However, issuing a fully-fledged international currency involves both privileges and duties, including the duty to play the role of a global lender of last resort in times of crisis. Should the euro area not be ready to play this role, we argue that the IMS as a whole, and Europe also, would already benefit from a move to a bipolar system around the dollar and the renminbi. Finally, we argue that the first scenario, which is less far-reaching than the other two, would be a key stepping-stone to further development of the IMS, especially since it would facilitate the reduction of global imbalances during the transition towards more radical changes in the IMS.

Of course, these views are highly speculative. In particular, although significant steps have been taken by the Chinese authorities in this direction, the road will still be long before the renminbi can play a similar role to the dollar. Due to domestic constraints or international disruptions, the renminbi may not become a fully fledged international currency within a 10-15 year horizon. Symmetrically, the appetite of governments for multilateral solutions, which is today relatively low, may abruptly decline should a dollar crisis occur. Therefore, we believe the 'repair-and-improve' scenario to be a 'no-regret' option, since it would improve the functioning of the present system while paving the way for an evolution towards either the multipolar or the multilateral scenario.

This report, which presents our main analysis and conclusions, is partly based on five background papers that present novel lines of investigation: Bénassy-Quéré and Pisani-Ferry (2011); Bénassy-Quéré, Carton and Gauvin (2011a and 2011b); Vallée (2011); and Destais and Zdzienicka (2011)². Results from these five papers are summarised and taken into account in the remainder of this report.

2. Bénassy-Quéré and Pisani-Ferry (2011) analyse the potential for exchange-rate volatility in different monetary systems concerning exchange-rate regimes and currency internationalisation. They use a portfolio-choice model, and analyse the United States, the euro area and China. Bénassy-Quéré, Carton and Gauvin (2011a) explore the contribution to be expected from an IMS reform to the reduction of global imbalances by studying various structural reforms in China (pension reform, financial reform, public spending) under alternative assumptions about the Chinese monetary regime. They build a micro-founded macroeconomic model with overlapping generations, nominal rigidities and financial constraints. Bénassy-Quéré, Carton and Gauvin (2011b) use the same model to study policy spillovers from the United States to other countries. Vallée (2011) studies the various steps taken by the Chinese authorities to internationalise the renminbi while maintaining relatively strict capital controls and the inflexibility of the exchange rate. After presenting novel data and an assessment of the measures taken so far, the paper proposes a roadmap for renminbi internationalisation. Destais and Zdzienicka (2011) discusses the identification, measurement and management of liquidity and their connection to the international monetary system.

The report is structured as follows. In section 2 we first review the lessons from history up to the late 1990s. In section 3 we analyse the current regime and assess its role in the crisis as well as its implications for the adjustment of global imbalances and international liquidity provision. This is followed in section 4 by a review of the global trends that are going to affect the balance of economic power and its monetary consequences. Section 5 presents the assessment of alternative international monetary regimes using four main criteria: efficiency, stability, equity and feasibility. Section 6 discusses issues related to the transition from the current system and section 7 assesses the implications for the euro area. Finally, section 8 concludes.

2 Lessons from history

Since the middle of the nineteenth century, the IMS has been through four phases: the gold standard that prevailed until the start of the first world war; the interwar period; the post second world war Bretton Woods system that ended in 1971; and the current dollar-based system that started in 1973 with the advent of generalised floating. We briefly review these four phases up to the late 1990s and examine their performance in terms of internal and external balances³.

2.1 The gold standard period (1870-1914)

The gold standard originated in 1819, when the United Kingdom officially adopted gold as the basis for its currency. Other countries in Europe, but also Japan and the United States, adopted the gold standard later in the century. Given the pre-eminence of the United Kingdom in world trade and finance, London was the centre of the IMS built on the gold standard.

Under the gold standard, the main objective of the central bank was to preserve the official parity between its currency and gold. Maintenance of a fixed price of gold by all participants in the system in turn ensured fixed exchange rates between their currencies. The maintenance of gold convertibility at the official parity required sufficient gold reserves. External balance did not, therefore, consist of attaining a current account target but rather of maintaining the balance of payments (BOP) in equilibrium – or at least limiting sharp fluctuations in the balance of payments – in order to avoid large gold reserve movements.

The gold standard included both an automatic adjustment mechanism (known as the ‘price-specie-flow mechanism’) and an agreement between central banks to buy or sell domestic assets depending on whether their country’s BOP was in surplus or in deficit (known as the gold standard ‘rules of the game’) that contributed to the simultaneous attainment of external equilibrium in all participating countries.

3. See, in particular, Bordo (1993), Eichengreen (2008) and Krugman and Obstfeld (2008).

The gold standard was very much the product of the nineteenth century economic order. It was run by a small group of central bankers in a handful of countries (mainly the UK, France and the US), who gave precedence to the achievement of external balance at the expense of internal balance. Full employment was nowhere an explicit objective of policymakers and, though price stability was generally attained, it was not a natural outcome of the system because changes in the supply of gold, exogenous and unpredictable, inevitably affected the relative prices of gold *vis-à-vis* other commodities. Such disregard for internal balance on the part of the gold standard later prompted Keynes to refer to gold as 'barbarous'.

2.2 The interwar period (1918-1939)

Governments largely freed themselves of the gold standard's constraints during the first world war in order to print the money necessary to finance the war effort. As a result, money supplies and price levels were significantly higher in 1918 than at the start of the war.

The interwar period saw three regimes: general floating from 1919 to 1925; the gold exchange standard from 1926 to 1931; and managed floating from 1932 to 1939.

The US returned to gold in 1919, but other countries, including the UK, continued to let their currencies float freely for several years after the war. After 1925, when the UK returned to the gold standard by pegging sterling to gold at its pre-war parity, the IMS evolved into a gold exchange standard, a variant of the pre-war system. The new fixed exchange-rate system added a new category of international reserves to gold, currencies fully backed by gold, mainly sterling and the dollar, in the hope of avoiding the problem of gold shortage that had at times plagued the gold standard.

The gold exchange standard was an attempt to restore the beneficial features of the classical gold standard in terms of external objectives, while also seeking to fulfil internal objectives, which had become much more prominent in the new socio-political environment that prevailed after the first world war in many countries. However the system suffered from a number of flaws that led to its eventual demise. The main shortcomings were the failure of cooperation between the main countries – the coordination mechanisms were either absent or highly dysfunctional – and the unwillingness of the countries with large balance-of-payment surpluses to follow the 'rules of the game', with the consequence that deflationary pressure was exerted on the rest of the world. The use of two reserve currencies and the absence of leadership by a hegemonic power may have also

played a role⁴. In the end, the system sought to achieve political goals (in dealing with German reparations) and both internal and external equilibria, but succeeded in achieving neither.

The collapse of the gold exchange system after the UK left gold in 1931 – with the US following suit a couple of years later – ushered in a period of managed floating exchange rates and beggar-thy-neighbour devaluations. In 1933, the London World Economic Conference attempted to implement international coordination of macro-economic policies with a view to ending the Great Depression, but it failed miserably and international economic disintegration continued unabated.

2.3 The Bretton Woods period (1945-1971)

The Bretton Woods system was set up to avoid the flaws of the classical gold standard and of the interwar period, and to promote full employment and price stability while permitting countries to reach external balance without trade restrictions.

The system agreed at the Bretton Woods conference in July 1944 was a gold exchange standard, but with the dollar as the main reserve currency, a mechanism for international macroeconomic policy coordination, and with at the centre the International Monetary Fund (IMF). The value of the dollar was fixed to gold at \$35 per ounce of gold, and all other currencies maintained fixed exchange rates against the dollar. Fixed exchange rates were considered necessary to achieve both monetary discipline and external equilibrium, as under the gold standard, but also to avoid competitive devaluations and protectionism as in the 1930s. However, the architects of the system recognised that countries would not be ready to sacrifice the objective of full employment to maintain external equilibrium and free trade, and therefore that external adjustment may be needed at times. Ensuring the necessary adjustment was the responsibility of the IMF, which could lend to countries in need and authorise changes in their exchange rate against the dollar if it found that their balance of payments was in ‘fundamental disequilibrium’. Hence, Bretton Woods was an adjustable peg system combining the favourable features of the fixed exchange-rate system, monetary and exchange-rate stability, with those of flexible rates, monetary and fiscal independence.

The Bretton Woods system went through two sub-periods: before the restoration of currency convertibility in Europe and elsewhere (1946-1958), and after (1959-1971).

4. See Bordo (1993).

In 1946, almost every country, except the US, maintained exchange controls and controls on trade, with no major currency, except the dollar, convertible. In addition, the US held about two thirds of the world's monetary gold. The result was twofold. First, the dollar became the world's key currency, a universal medium of exchange, unit of account and store of value. Second, there was initially a huge shortage of dollars, especially in Europe where production and export capacity had been destroyed by the war and financial markets had limited capacity to finance the rebuilding of Europe, which limited the ability of European countries to finance imports. The key developments in solving the dollar shortage problem were the Marshall Plan and the European Payments Union (EPU). The Marshall Plan involved huge transfers of resources from the US to Europe. The EPU was a system of clearing accounts, using the dollar as unit of account, among European countries that allowed them to reduce their need for dollars for transaction purposes, to move from bilateral to multilateral trade arrangements and to restore the convertibility of their currencies by the end of 1958.

With the restoration of current-account convertibility in Europe, the Bretton Woods system moved into full operation, but instead of functioning as an adjustable peg system it evolved into a quasi fixed exchange-rate system. The reason for this evolution was that monetary authorities were reluctant to accept the risks associated with discrete changes in parities, in particular the pressure of speculative capital flows that increased gradually over time as capital controls were relaxed. In the late 1960s, however, balance-of-payment crises became increasingly frequent and several countries had to change their dollar parities to move closer to internal and external balance.

Because of its special role in the system, the external balance problem of the US was different from that of other countries. As the issuer of the reserve currency, the US was not responsible for pegging dollar exchange rates. Its duty was to keep the value of the dollar fixed at its gold parity and to guarantee that foreign central banks could convert their dollar reserves into gold at this parity, which in principle imposed a constraint on US monetary policy.

Triffin (1960), however, pointed out that foreign central banks were willing to accumulate dollars and therefore to allow persistent US balance-of-payments deficits. The reason was that, barring new gold discoveries, the only way for central banks to maintain adequate international reserves and domestic price levels was to accumulate dollar assets, which also have the advantage over gold that they pay interest. This meant that, in practice, the external constraint on US monetary policy was less than for

other countries. Triffin understood that this situation posed a fundamental problem for the Bretton Woods system and formulated what would later become known as Triffin's dilemma. On the one hand central banks welcomed persistent US deficits so that they could avoid deflation; on the other hand such deficits created a confidence problem because central banks realised that their growing holdings of dollars might eventually exceed US gold reserves. Knowing that the US authorities might be unable to redeem these dollars at the agreed parity, central bankers could become reluctant to continue to accumulate dollars, which would call into question the whole system.

The creation of the SDR by the IMF in 1969 was meant to be a solution to Triffin's dilemma by introducing a fiat reserve asset which was not linked to one country. However, it was too little, too late to save the Bretton Woods system. By that time, US macroeconomic policy had become inappropriate for a key currency, as a result of the expansionary effect exercised by the simultaneous financing of the Vietnam war and the increase in spending on social programmes by the Johnson administration (the so-called 'Great Society'). While the Federal Reserve failed to foresee the build-up of inflationary potential, rising US inflation after 1965 triggered a speculative attack on the world's monetary gold stock in 1968, which led to the creation of a two-tier gold market, one private and the other official. The official price of gold remained at \$35 an ounce for a while, but it had lost economic significance. The Bretton Woods system collapsed three years later, in 1971, when the US ended the link between the dollar and gold. After two turbulent years on foreign-exchange markets marked by exchange-rate realignments and speculation, fixed exchange rates among the dollar, the yen and the currencies of most European and other industrial countries were replaced by floating rates.

2.4 Post-Bretton Woods (1971-late 1990s)

Here we only consider the period until the late 1990s, while subsequent developments will be examined in section 3.

For a while, the system of floating exchange rates put in place during the mid-1970s seemed well suited to achieving policymakers' goals of full employment, stable prices and sustainable current-account positions. Gradually, however, this hope dissipated, notably because the key players' macroeconomic policies were often not consistent with international monetary stability, and foreign-exchange markets have a tendency to overshoot before adjusting to equilibrium.

Major problems emerged first in the early 1980s, when the monetary policy conducted

by Federal Reserve chairman Volcker led to a sharp appreciation of the dollar against the Japanese yen and the German mark, which was accompanied by a serious recession and a large current-account deficit for the US economy. This led to the Plaza Accord of September 1985 by the then G5 nations (France, Japan, the United Kingdom, the United States and West Germany). The G5 agreed to devalue the US dollar in relation to the Japanese yen and German mark by intervening in currency markets. The depreciation of the US dollar led to the Louvre Accord of February 1987 when the G6 (Canada, France, Japan, the United Kingdom, the United States and West Germany) agreed to stabilise the international currency markets and halt the appreciation of the yen and the mark caused by the Plaza Accord.

Although the Plaza and the Louvre Accords are generally credited for having (temporarily) ended volatility and misalignment of the US dollar, the period between the two agreements is often regarded, not only in Japan but also in China, as the beginning of Japan's lost decade. During this period, the yen appreciated sharply against the dollar, causing a recession and importing disinflation into Japan. Japanese policymakers reacted by expanding both fiscal and monetary policies. These policy actions reversed the economic situation but contributed to creating an asset price bubble in the late 1980s, with sharp rises in stock, real estate and other asset prices.

Hence, although viewed as successful by US advocates of exchange-rate management, with some even calling for the establishment of target zones defended by interest-rate policies and intervention (Bergsten, 1988), the Plaza episode is generally regarded with suspicion by others, including nearly all Asian economists (see McKinnon and Ohno, 1997; Hamada and Okada, 2009).

2.5 Two key lessons from history

Our survey of the history of the IMS leads to two key conclusions that are important for thinking about the present and future system.

First, there has been a clear shift of emphasis on the part of domestic policymakers from external to internal stability, which seems difficult to reverse given the evolution of political systems and the preferences of national electorates. The Bretton Woods system was a brave attempt to correct the excesses of the past and to seek a balance between external stability, which prevailed during the gold standard period, and internal stability, which dominated the minds of domestic policymakers during the ill-fated interwar period.

Unfortunately, the perception of a balance achieved during the Bretton Woods era was short-lived, mainly because of flaws in the design of the system which gave an 'exorbitant privilege' to the dominant country, the United States, and its currency, the US dollar. Once a serious conflict between internal and external stability emerged, the US government chose the former and the system collapsed, paving the way for the non-system that has existed since 1971, which has largely ignored external stability, apart from exceptional circumstances in the 1980s.

The second conclusion concerns the role of currencies as foreign-exchange reserves. During the gold standard, gold was the dominant reserve asset but countries had an incentive to keep some of their reserves in interest-bearing assets denominated in foreign currencies that were convertible to gold. In theory many currencies fulfilled this need since they were all convertible to gold. In practice, however, the most popular currency was the British pound because of the size and liquidity of sterling-denominated assets issued by the London market.

After the establishment of the US Federal Reserve System in 1913 and the increased attractiveness of dollar-denominated assets issued by the New York market, the dollar started to also play an important role as a reserve currency. However, contrary to the view that there can be only one international currency at any point in time, several economic historians have shown that the sterling and the dollar coexisted as reserve currencies until well after the US economy overtook the British economy, and even after the establishment of the dollar-based Bretton Woods system⁵. Schenk (2009) shows that it took ten years after the second world war before the share of dollar reserves exceeded that of sterling reserves, with the latter still accounting for 30 percent of international foreign-exchange reserves until the late 1960s. Her explanation of the prolongation of sterling's reserve position until the late 1970s attributes an important role not only to holders of sterling reserves but also to the United States, which was keen to ensure the stability of the international monetary system and the global economic system in general during the Cold War and to share it with a close military ally.

5. See Eichengreen (2005) and Eichengreen and Flandreau (2009).

3 The current regime

3.1 Main features

Significant changes occurred in the functioning of the international monetary system in the late 1990s. Following crises in the second half of the 1990s and early 2000s, a series of emerging countries, especially in Latin America but also in East Asia, gave up exchange-rate pegs and moved to more flexible exchange-rate regimes, although they generally tried to avoid large exchange-rate variations, while another group, including dominant players like China and most oil-exporting, Middle-East countries, maintained various kinds of fixed exchange-rate regimes. The late 1990s was also the beginning of a historically unprecedented emergence of global imbalances, both in terms of current-account surpluses and deficits and reserve accumulation. This development occurred in part as a response to the emerging market crises of this period. In 1999, the introduction of the euro, an extreme form of monetary integration among several European countries, also marked a significant change to the IMS.

Consequently, the present regime is characterised by:

- Almost universal current-account convertibility.
- Increasing financial-account convertibility. While, however, it is complete or nearly complete in large parts of the world (especially in Europe and Latin America), a large group of emerging countries (especially in South and East Asia) retains financial-account controls.
- Mostly free floating amongst advanced economies or zones, but the persistence of 'fear-of-floating' behaviour in a large part of the emerging and developing world.
- The continued build-up of foreign-exchange reserves by emerging and commodity-exporting countries. This tendency, which started in the late 1990s, has so far not been checked by multilateral initiatives.

- Infrequent coordinated foreign-exchange market intervention among major central banks, generally in response to extreme events or market disruptions.
- A still-dominant role of the US dollar for all three international currency functions: store of value, unit of account and means of payment.
- Consistent with the still-central role of the dollar in the system, the persistence of the 'exorbitant privilege' of the United States – easy external financing contributing to a positive return differential between external assets and liabilities⁶.
- The provisioning of liquidity in case of emergencies through IMF facilities, but also ad-hoc agreements. Bilateral arrangements played a key role during the financial crisis and the provision by the US Federal Reserve of large-scale dollar liquidity lines to partner central banks can be seen as the 'exorbitant duty' implications of issuing the main international currency⁷.
- Monetary surveillance and macro-economic policy cooperation at regional (EU) or multilateral (G20, IMF) levels, with a mixed track-record in terms of effectiveness⁸.

It is important to observe that in spite of its frequently noted shortcomings (to which we return below), the system performed well during the global crisis. Disruptions in wholesale currency markets were swiftly remedied by central banks, at the level of currency zones but also across borders. The bilateral swap agreements between central banks agreed upon in 2008-09, in which the Federal Reserve played a key role (Table 1), proved effective in ensuring continued access to dollar liquidity to non-US financial institutions that usually relied on the US money market. Disruptions in foreign-exchange markets were minimal. And a significant step towards cooperation between multilateral and regional institutions was taken in 2010 with the provision of financial assistance to Greece and the later formalisation of European regional crisis management and resolution arrangements.

6. The expression 'exorbitant privilege' was coined in 1965 by Valéry Giscard d'Estaing, then de Gaulle's finance minister. Gourinchas *et al* (2010) note that Jacques Rueff referred to the dollar as a 'boomerang currency': 'The money it [the United States] pays to foreign creditors comes right back home, like a boomerang' (Rueff, 1971). This is because the dollars earned by partner countries on trade are reinvested in the United States.

7. See Gourinchas *et al* (2010).

8. See Angeloni and Pisani-Ferry (2011).

Table 1: Bilateral swap lines activated in response to the 2008-2009 financial crisis

Dollar swaps (USD billions)		Euro swaps (EUR billions)	
Federal Reserve		European Central Bank	
Euro area (ECB)	Without limit*	United States	80*
Japan	Without limit	Denmark	12
United Kingdom	Without limit	Sweden	10
Switzerland	Without limit	Euro repos (EUR billions)	
Australia	30	European Central Bank	
Canada	30	Poland	10
South Korea	30	Hungary	5
Mexico	30	Euro swaps (EUR billions)	
Singapore	30	Nordic countries	
Sweden	30	Iceland	1.5
Brazil	15	Latvia	0.5
Denmark	15	Swedish krona swap (SEK billions)	
Norway	15	Sveriges Riksbank	
New Zealand	15	Estonia	10
		Renminbi swaps (RMB billions)	
		People's Bank of China**	
		Hong Kong	200
		South Korea	180
		Indonesia	100
		Malaysia	80
		Argentina	70
		Belarus	20

Source: Amended from Allen and Moessner (2010) using data from central banks. Notes: * The 'unlimited' supply of dollars by the Fed is from 13 October 2008, while the €80 billion from the ECB is from April 2009. ** People's Bank of China entered swap agreements with four other countries in 2010-11 (Iceland, Singapore, New Zealand and Uzbekistan), see Vallée (2011).

3.2 Is the current regime unipolar or multipolar?

The current regime has alternatively been characterised as a multipolar regime (in which several currencies play international roles) or as a unipolar one (in which there is a dominant international currency). Some authors (for example Rose, 2007) 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. Others (for example Padoa Schioppa, 2010, or, implicitly, Zhou Xiaochuan, 2009) see the current international monetary regime as one where the US retains the privileges (as well as duties) accruing to the issuer of the international currency. Others again (for example Dooley *et al*, 2004) 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.

To clarify this debate, it is useful to refer to data on the international role of major currencies. Table 2 shows how the use of the euro and that of the dollar have changed between 1999 and 2009⁹. First, the table reveals that the euro has gained importance as a reserve currency for both the official and the private sectors. An analysis of yearly data suggests that this happened primarily in the early years of EMU, while in later years the euro's shares have stabilised. A parallel increase occurred in the international securities and loan markets. By all measurements, the euro had by the end of its first decade achieved a significant market share, but it is far from challenging the primacy of the US dollar. For instance, once exchange-rate variations are accounted for, Dorrucci and McKay (2011) show that the share of the dollar in global, allocated foreign-exchange reserves remained stable at around 60 percent between 2002 and 2010, and that of the euro also stable at just below 30 percent. The share of the yen slightly declined (from 5 to 3 percent) while those of sterling and residual currencies slightly increased. At current exchange rates, the share of the dollar declines but remains largely dominant.

9. More detailed statistics and analyses are contained in the report 'The international role of the euro', published annually by the ECB.

Table 2: Share of the euro (percent) in global markets, 1999-2009

	US dollar		Euro	
	1999	2009	1999	2009
Stock of global foreign exchange reserves (countries reporting to the IMF)	71.0	62.1	17.9	27.6
Currency anchor, <i>de facto</i> (trade-weighted)	32.4	38.3	6.6	6.2
FX turnover* (out of 200%)	90.3	84.9	37.6	39.1
Stock of international debt securities (narrow measure**)	49.0	45.8	20.7	31.4
Stock of cross-border loans*** (narrow measure**)	n.a.	53.8	11.8	20.3
Denomination of trade with non euro-area countries†				
Euro-area exports				
Euro-area imports			45.4	56.9
			44.4	46.7

Sources: Bracke and Bunda (2011), Dorrucci and McKay (2011), Goldberg and Tille (2009), BIS (2010), ECB (2009). Notes: * April 2001 and April 2010 data. ** The narrow measure refers to issuance of international bonds and loans in foreign currency by non-residents of the country issuing the currency in which the issuance is denominated. *** At constant end-2009 exchange rates. † Unweighted average for eight countries, 2001 and 2007.

As for the unit-of-account functions, the dollar remains key for commodity and energy markets, although it is less so for manufacturing trade. It also remains dominant 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 basket¹⁰. 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. This is evidence of the importance of the 'Bretton Woods 2' regime of Dooley *et al* (2004)¹¹ and also confirms that the euro is still a regional rather than a

10. 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 transformed the corresponding intermediate (ERM) regimes into hard pegs.

11. Dooley *et al* (2004) suggest that the pre-1971 Bretton Woods arrangement, with the US at the centre and a 'periphery' of high-growth areas (Europe and Japan) fixing the exchange rate and holding reserves in dollars, tended to reproduce itself in the last ten years giving rise to a similar arrangement, with China and other rising economic powers pegging their currency to the dollar and equally (or more) willing to hold dollar assets.

global currency (Pisani-Ferry and Posen, 2009). On the whole, the dollar remains the main pivotal currency for all three monetary functions (means of payment, unit of account, store of value), while the euro's role grew to about one-third/one-half of that of the dollar in the early years of its existence, but has not developed further in later years. This still-central role of the dollar contrasts strongly with the emergence of a tripolar economy in which the US will weigh no more than either Europe or East Asia in the next decades, as we will analyse in section 4.

3.3 Shortcomings of the current regime

Shortcomings of the current monetary system have been repeatedly emphasised (see, for a recent discussion, Camdessus *et al*, 2011). They can be summarised as follows.

- *Lack of discipline on the part of dominant players and lack of external adjustment mechanisms*: a monetary system can be regarded as setting the 'rules of the game' for participating countries (McKinnon, 1991), yet the IMS works asymmetrically. It does not provide incentives to countries in external surplus to adjust, nor does it, because of the international role of the dollar, include such incentives to the United States when it is in deficit. Discipline is enforced only on non-dominant deficit countries, yet frequently with a long lag and abruptly when adjustment is enforced, which leads to unnecessary macroeconomic volatility. International surveillance, which is a mission of the International Monetary Fund, has failed to substitute for market-led, disruptive adjustments (a recent case in point was the failure of the IMF-led multilateral consultations on global imbalances of 2006-07). Although the role of global imbalances in the genesis of the global crisis is a matter for controversy (see section 3.4), there are good reasons for tackling 'excessive' imbalances *per se*, and the IMS may have a role to play in this respect.
- *Exchange-rate misalignments*: research into the effects of currency fluctuations has shown that moderate, short-term exchange-rate volatility has no significant disadvantages (see eg Clark *et al*, 2004). However, pronounced and persistent currency misalignments, possibly resulting in disorderly adjustments, may have serious consequences because they lead to distortions in economic decisions (as regards trade, investment, savings, employment, industry developments: see eg Sallenave 2010). This argument has long been used against floating exchange rates, but while these can durably depart from balance, they usually end up reverting to the long-term mean (Rogoff, 1996). Misalignments are now more often regarded as an argument against the rigidity of fixed exchange rates, especially in the case of China.

- *Volatile capital flows*: 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 an increased volatility of capital flows, which have often caused macroeconomic instability. Recent developments have confirmed the findings of Kose, *et al* (2006). Moreover, they have led a growing number of countries to depart from financial-account convertibility and to introduce capital controls of various sorts (Ostry *et al*, 2011).
- *Excessive accumulation of reserves*: the inefficiency of accumulating foreign-exchange reserves in emerging countries cannot be ignored. The accumulation of foreign assets is welfare-enhancing for countries that benefit from temporary revenue increases, notably commodity producers. It can help prevent excessive appreciation when facing a surge in capital inflows. But when used as form of self-insurance, in response to a lack of trust in multilateral mechanisms, reserve accumulation for precautionary motives involves unnecessary welfare costs (Rodrik, 2006). The poor countries' large-scale investment in low-yielding reserve assets and the associated savings flows from emerging to advanced countries (when reserves are financed by excess savings) involve significant macroeconomic costs.
- *Undetermined global stance*: sometimes confused with 'international liquidity' (access to credit in the event of capital outflows), 'global liquidity' refers to the level of credit at global level (Box 3.1). One of the essential tasks of the IMS is to ensure adequacy of the global stance. Whether the combination of independent, domestically centered policies conducted at national level is sufficient to ensure global price and financial stability is a matter for discussion. The issue was viewed secondary in importance during the 'great moderation' of the 1990s and the 2000s, but is returning to the fore in the context of scarce resources (BIS, 2011).

Box 3.1: Liquidity management

The lack of a global monetary anchor is repeatedly mentioned as one major flaw of the IMS. The increased popularity of inflation targeting, at least up to 2007, implied that central banks tended to downplay the role of monetary and credit aggregates in the conduct of monetary policy. Experience shows that in this situation the world economy can experience a succession of periods of excess liquidity (accompanied by asset-price bubbles) and liquidity shortages.

The lack of international coordination in the supply of global liquidity is not new. The gold standard was eventually abandoned due to the scarcity of gold and the tendency of surplus countries to accumulate it at the expense of deficit countries. The gold-exchange standard did not solve this problem since surplus countries increasingly preferred to accumulate gold rather than dollars. The SDR was created as a new, multilateral source of liquidity. However it never played the prominent role it was supposed to play and now represents less than five percent of official reserves.

The lasting difficulties in building a consistent scheme for liquidity management at the global level are not surprising considering not only the externalities and spill-overs arising from domestic liquidity creation, particularly by large countries, but also problems of definition, measurement, and institutional support. Conceived at a time of low capital mobility, the traditional definition of international liquidity ('all the assets of monetary authorities that can be used, directly or through assured convertibility into other assets, to support its rate of exchange when its external payments are in deficit' [Group of Ten, 1965]) focuses on official reserves and ignores liquidities held by the private-sector in countries that have an open capital account. Therefore this definition fails to apprehend the transnational use of liquidities by the private sector and its consequences.

Kenen (1983) has proposed a distinction between official and private liquidities. However, the divide tends to be blurred when a central bank provides liquidity to another central bank in order for the latter to lend reserve currencies to domestic financial institutions. Additionally, sovereign wealth funds have emerged as major investors who accumulate liquid reserve assets as well.

Aside from the difficult distinction between public and private liquidity, that between liquid and illiquid assets tends to be contingent to market appreciation of the

counterparty risk. In times of stress, the notion of liquidity tends to narrow, whereas in calm times a wide variety of assets is considered liquid, even when not denominated in a key reserve currency.

Finally, global liquidity, which is a monetary-policy concept, should be distinguished from international liquidity, a balance-of-payment concept. Global liquidity can be thought as the sum of international and domestic liquidities.

Destais and Zdzienicka (2011) provide a discussion of the identification, measurement and management of liquidity and their connection to the international monetary system.

An important question is whether a new version of the famous Triffin dilemma has arisen in the present system through the build-up of foreign-exchange reserves in emerging countries, and its unintended consequences. First, these reserves make it possible for the US to run otherwise unsustainable fiscal policies; but there is a potential discrepancy between the amount of bonds the US government can safely issue and the global demand for safe, or seemingly safe, US dollar-denominated bonds. Second, as suggested by Farhi *et al* (2011), the declining fiscal capacity of the US (in parallel to that of the relative size of the US economy) will progressively undermine the ability of the US government to back up the provision by the Federal Reserve of dollar liquidity in times of crisis, which could reduce the attractiveness of the dollar as the key international currency. In both interpretations, the core of the issue is the growing gulf between the global monetary and financial role of the US and the relative size of the US economy.

3.4 The IMS, global imbalances, and the global crisis

Global imbalances and the crisis

Beyond the now well-documented deficiencies of financial regulation, it has been suggested that global imbalances were a key factor in the genesis of the 2008-09 crisis: 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). However, this view is controversial, and there are several versions of it that remain disputed.

Eichengreen (2009b) spells out the case by arguing that the simultaneous presence of excess domestic demand in the US and savings in emerging Asia, coupled with the portfolio preferences of investors in surplus countries, generated large and persistent capital flows that contributed to maintain exceptionally lax financial conditions in the US for a long period. Starting from a similar premise, King (2010) elaborates on the macroeconomic policies that would have been needed to reabsorb the global imbalances, thus contributing to maintaining financial stability. Portes (2009) goes further considering global imbalances to be 'the ultimate cause of the current financial crisis'. Borio and Disyatat (2011) have challenged these views, arguing that what matters for generating credit and asset-price booms is not current account imbalances, but rather the underlying financing channels. This objection seems to some extent semantic, however. Given different portfolio preferences of surplus and deficit countries, and in particular the higher propensity of surplus countries to invest in liquid fixed-income assets issued by major financial centres (the US and, to a lesser extent, the euro area), it follows that sizeable current-account imbalances leading to the transfer of large amounts of wealth from deficit to surplus countries, imply sizeable increases in the demand for dollar-denominated safe assets, which in turn encourages the issuance of such short-run assets by financial intermediaries, hence leverage, risk-taking and asset-price booms.

Why imbalances?

Global imbalances are, however, a mere symptom. There have also been discussions about the respective roles of US monetary policy and asset demand in the creation of global imbalances.

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 (Caballero and Krishnamurthy, 2009) assigns responsibility to the high demand for triple-A rated dollar-denominated assets. In this interpretation, the high demand for safe assets had two effects. The first was to depress yields on Treasury Bills, contributing to the rise of debt. The other was to encourage the production of seemingly safe assets, via the securitisation and tranching of

subprime mortgages. According to this view, the international monetary regime can also be held *directly* responsible, because a large share of the demand for triple-A rated assets came from the central banks of countries pegged to the dollar¹². Dollar reserves declared to the IMF by developing countries rose from \$255 billion at the beginning of 1999 to \$1353 billion at the end of the second quarter of 2008, just before the collapse of Lehman Brothers¹³. Warnock and Warnock (2009) find that official capital flows into the United States could have depressed long-term yields by as much as 100 basis points in 2005, which is a significant effect. In addition, a substantial share of this foreign capital was invested in securities issued by agencies (Fannie Mae and Freddie Mac), which further contributed to the expansion of the real-estate bubble. Bernanke (2011) considers that the demand for safe assets ‘provided additional incentives for the US financial services industry to develop structured investment products’.

Beside their possible role in the genesis of the crisis, Blanchard and Milesi-Ferretti (2011) argue that, although they may reflect optimal capital allocation at global level (as well as consumption-smoothing on a country-by-country basis), external imbalances should be a cause for concern. This is the case when they result from domestic distortions, such as financial repression or exuberance, the lack of social safety nets or the lack of exchange-rate flexibility (Box 3.2), and when their eventual abrupt unwinding threatens financial stability through sudden stops and currency crashes. Finally, due to asymmetric incentives to adjust in deficit and surplus countries, global imbalances may introduce deflationary pressure at global level if adjustment efforts in deficit countries lead to a shortfall in global demand¹⁴.

12. 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.

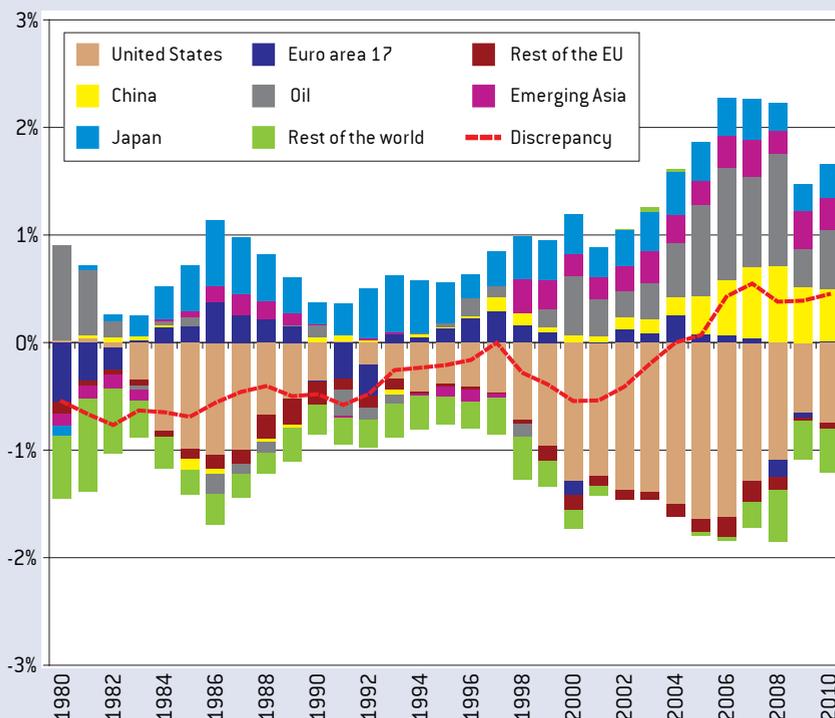
13. Source: IMF COFER database. Not all reserves are recorded, as some countries, such as China, do not notify the composition of their holdings.

14. On top of these economic arguments, the political economy of global imbalances may prove detrimental since they tend to reinforce demands for protection in deficit countries, while favouring the build-up of powerful groups of exporters lobbying against adjustment in surplus countries.

BOX 3.2: Magnitude and drivers of global imbalances

Since the mid-1990s, current account imbalances have widened across the global economy (Figure 1). Several factors account for this widening.

Figure 1: Current account imbalances (percent of world GDP), 1980-2010



Source: Adapted from Figure 1 of Blanchard and Milesi-Ferretti (2010) using data from the IMF's World Economic Outlook Database.

Note. The composition of country groups is as follows:

Euro area 17: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovak Republic, Slovenia, Spain.

Rest of the EU: Bulgaria, Czech Republic, Denmark, Hungary, Latvia, Lithuania, Poland, Romania, Sweden, United Kingdom.

Emerging Asia: Hong Kong S.A.R. of China, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan province of China, Thailand.

Oil exporters: Algeria, Angola, Azerbaijan, Bahrain, Republic of Congo, Ecuador, Equatorial Guinea, Gabon, Iran, Kazakhstan, Kuwait, Libya, Nigeria, Norway, Oman, Qatar, Russia, Saudi Arabia, Sudan, Syria, Trinidad and Tobago, United Arab Emirates, Venezuela, Yemen.

Rest of the world: remaining countries.

Drivers of surpluses

In emerging and developing countries, domestic savings may exceed domestic investment for several reasons^{15,16}:

- *Intertemporal consumption-smoothing* in countries benefitting from rising oil and raw material export revenues. This primarily applies to Middle Eastern countries.
- *Demographic factors*, such as ageing and, in China, the delayed impact of the one-child policy.
- *Limited social safety nets* that result in high household saving rates. This also applies to China, though the increase in its surplus can also be ascribed to corporate and government savings.
- *Self-insurance against crises* in countries such as South Korea that experienced balance-of-payment crises in the past and prefer self-insurance to running the risk of an IMF programme.
- *Export-led growth strategies*: this primarily applies to China where the fixed or nearly-fixed exchange-rate policy is only one element of a broader economic strategy. Distortions in favour of the traded-goods sector, state-owned enterprises and exporting companies are also instrumental in creating external surpluses.
- *Underdeveloped or inefficient financial markets*, which reduce the possibility for non-financial agents to borrow¹⁷. Also, financial markets may not offer appropriate investment vehicles, leading local investors to invest in US assets (the so-called ‘asset shortage hypothesis’ of Caballero, 2009). This hypothesis was initially developed to account for Latin American behaviour (Mendoza *et al*, 2008) but has relevance for other countries.

15. Cultural factors in some Asian countries are also sometimes given as a possible reason. However, while these certainly play an important role in economic decisions, it may not explain the change in many Asian countries from more or less balanced current accounts to very high surpluses over relatively short periods.

16. Blanchard and Milesi-Ferretti (2010) discuss three phases of the build-up of global imbalances between 1996 and 2008 and the role played by different factors during these phases.

17. It should be recalled that in many countries, including China and India, large segments of the population do not have access to the formal financial system (Prasad, 2009).

- *Domestic distortions*: in China, state-owned enterprises accumulated large saving balances because they had until 2008 no obligation to distribute dividends and benefitted from market distortions (Huang and Wang, 2010).

Drivers of deficits

Various theories have been offered to account for the US current account deficit:

- A first explanation blames an exceedingly lax monetary policy, either in the US (Taylor, 2008) or globally (BIS, 2008). According to this view, policy rates in the aftermath of the 2001 recession remained too low for too long, triggering both asset-price inflation and generalised leverage. The resulting fall in domestic savings and the increase in consumption widened the trade and current-account deficits.
- The second explanation is the ‘global savings glut’, ie excess foreign demand for safe US assets. According to this view, first put forward by Ben Bernanke (2005), net capital flows into the US lowered long-term interest rates, which in turn favoured leverage, the housing bubble, excessive risk-taking, and a decline in savings^{18,19}. However self serving for the US, Bernanke’s thesis pointed out that financial globalisation and the foreign appetite for US Treasury bonds had to be considered when analysing the current account deficit²⁰.

As Blanchard and Milesi-Ferretti (2010) point out, many of the factors mentioned above are interrelated. For example, rapid growth in China and other emerging markets drove up oil and other commodity prices, thereby increasing the bill for commodity importers and revenues for exporters. Savings from oil revenues contributed to the fall in interest rates and thereby the emergence of unsustainable booms.

18. The ‘global savings glut’ hypothesis was challenged by Laibson and Mollerstrom (2010), on the basis that it should have caused a boom in global savings and investments and also an investment boom in countries that imported capital, which by and large have not happened.

19. Although the US dollar continues to be the world’s dominant currency, safe assets can also be produced by eg Germany and Japan, but these two major economies have not experienced current account deficits.

20. A variant of the savings-glut explanation of the US deficit is the role of the United States as a ‘world venture capitalist’ that invests in high-yield, risky foreign assets while financing itself through riskless bond issuance. With higher remuneration on the asset side than on the liability one, the country can afford a deficit over a long period. The (dis)equilibrium is self-sustaining due to the difference in sophistication in financial markets (see Gourinchas and Rey, 2005; Cooper, 2008).

The IMS and the prevention of global imbalances

Whatever the reasons for global imbalances, it is difficult to understand why relative prices did not respond to them: even when nominal exchange rates are fixed, prices should have adjusted (Box 3.3). The reason this did not happen can be found in the combination of nominal exchange-rate rigidity (notably in China) and capital controls (Jeanne, 2011). The ability of a central bank to control both the nominal exchange through foreign-exchange interventions, and domestic inflation through sterilisation rests on the existence of capital controls: should they be relaxed, large capital inflows would limit the central bank's ability to sterilise its interventions. The 'rules of the game' may therefore impact both the emergence and the duration of imbalances.

Summing up, the role of the IMS in the build-up of the pre-2008 global imbalances should not be downplayed, but its direct responsibility for the crisis remains disputed.

BOX 3.3: The IMS and external adjustment: concepts and evidence

The classic theories of the balance of payments, originating from the works of Harberger, Johnson, Meade and Mundell on external adjustment, from Branson, Dornbusch, Frankel, Henderson and Kouri on exchange rates, and from more recent refinements and extensions by 'new open economy' theorists such as Obstfeld and Rogoff, postulate that external imbalances arise and are subsequently brought back to equilibrium by a combination of adjustments of exchange rates, aggregate demand and output. These adjustments are triggered either by spontaneous market forces or by policy actions, undertaken by governments or central banks.

While we do not wish to present an extensive survey²¹, it is useful to briefly recall how these mechanisms operate, and then focus on how they might interact with the IMS.

Real exchange-rate adjustment is the most direct and immediate factor behind balance-of-payment changes. The relationship between the real exchange rate and the current account can be understood in various ways. First, assuming trade elasticities are sufficiently large, a real depreciation, by making domestic tradables cheaper relative to foreign ones, tends to boost exports and reduce imports, hence to move the trade balance into surplus or to eliminate an existing deficit. This is the

21. Among the countless references, a comprehensive one is the textbook by Obstfeld and Rogoff (1996).

traditional competitiveness effect.

Second, a real depreciation tends to shift domestic demand from tradable goods to non-tradable goods, thereby improving the current account. Note that this remains the case even if tradables are subject to the law of one price.

Finally, to the extent that it makes the relative price of foreign assets higher than domestic assets, a currency depreciation reduces net capital outflows or encourages net capital inflows.

Importantly, real exchange-rate changes can be the result of nominal exchange-rate adjustment and/or of inflation differentials. The first channel is faster than the second one, but in the long run, the exchange-rate regime should not affect the real exchange-rate, provided adjustments in the latter are not impeded by a combination of capital controls and sterilised foreign exchange interventions (Jeanne, 2011).

Nominal exchange-rate changes can be market driven or policy driven. In the first case, the exchange-rate variation derives from the implications of the balance-of-payment imbalance on foreign exchange markets: a deficit country will see the demand for its currency decline relative to the demand for other currencies. Note, however, that such an adjustment may be delayed if the current-account imbalances are automatically counterbalanced by systematic capital flows in the opposite direction, as has been argued to be the case in recent years between the US and its creditor countries. In any event, empirical analyses of recent current-account imbalances between the US, the euro area and Japan confirm that, sooner or later, external adjustment requires considerable changes in real exchange rates (see eg Chinn and Lee, 2005; Obstfeld and Rogoff, 2006).

The second adjustment channel works through demand, income and employment. A deficit in the home country shifts income from the domestic economy to the rest of the world. Under normal conditions, this shift gradually raises the level of foreign absorption compared to the domestic one, which reduces the deficit through lower imports and higher exports. The extent and the speed of the mechanism depend on private spending behaviour and on possible changes in macroeconomic policies (monetary and fiscal) that may occur in the meantime. The income-adjustment channel implies, empirically, that balance-of-payment deficits should be preceded by output expansions and followed by corresponding contractions. The extensive evidence provided, for example, by Edwards (2004, 2005) clearly confirms that the

major current-account adjustments in the post-Bretton Woods era were accompanied by sizeable GDP fluctuations, according to the pattern just described. Faruquee *et al* (2006) suggest that a qualitatively similar result holds for the US.

It is important to keep in mind that the income-adjustment channel is not in practice separate from the *real* exchange-rate channel: a shift in aggregate demand from deficit to surplus countries will itself trigger a real exchange-rate adjustment, since relative demand is weakened in the deficit country (which is deflationary) and boosted in the surplus country (which is inflationary).

These mechanisms operate differently depending on the IMS, notably depending on whether international payments are made (and reserves kept) in an externally created monetary instrument ('outside money'), or in the currency of the dominant country ('inside money', for example the dollar in the post-1973 dollar standard). In an 'inside money' arrangement, the dominant country faces no constraint in setting its policies, such as the availability of the 'outside asset'. The lack of incentive to readjust tends to increase the size and persistence of external deficits (Eichengreen and Adalet, 2005). This incentive effect is asymmetric because it acts only in case of a deficit – in the case of a surplus, policies are not constrained regardless of the payment arrangement.

After the Asian crisis, the precautionary demand for reserves among emerging countries increased, and the demand for dollars was further boosted by the recurring episodes of financial instability after the late 1990s (safe-haven effect)²². As described above, the trend increase in the demand for dollars effectively delayed the working of the exchange-rate mechanism. Still, the real exchange-rate adjustment should have taken place through the demand and portfolio channels: countries with undervalued exchange rates should have experienced higher inflation and higher capital inflows (due to the low relative price of domestic assets). This did not take place for different reasons: depressed domestic demand due to high saving rates (China) or low investment rates (other emerging Asia countries) and capital controls that prevented private investors from exploiting expected return differentials.

22. The evidence was particularly stark after the recent crisis, when, despite the US being the main initial source of financial risks, the demand for dollar assets increased at the peak of the financial turmoil and the dollar appreciated. Yet this conclusion is to be nuanced, as Jeanne (2011) observes, since the US produced two kinds of safe assets before the crisis: US Treasuries and AAA-rated complex market securities. At the outbreak of the crisis there was a complete and sudden stop in the second asset class and an increased demand for Treasuries.

3.5 IMS reform and the G20

In the wake of efforts by the Korean G20 presidency in 2010 to create ‘international financial safety nets’, France made reform of the IMS one of the priorities of its G20 presidency in 2011. Its aims were:

- To reinforce macroeconomic coordination based on the Framework for Strong, Sustainable and Balanced Growth.
- To reduce the need for reserve accumulation through reinforcing financial safety nets.
- To give the IMF oversight authority on capital flows.
- To provide support for the internationalisation of major emerging countries’ currencies, through changes in exchange-rate regimes and/or SDR-related schemes²³.

The strategy followed by the French presidency has been to open discussion on the flaws of the IMS and proposals for partial reforms without promoting any general comprehensive blueprint. In particular, the French authorities have been careful to stress that there was no willingness to return to a fixed exchange-rate system or to impose target zones. Rather, they have presented IMS reform as a way to complement G20 efforts to reduce global imbalances and to reduce the risk of ‘currency wars’.

The French emphasis on the IMS was widely shared after the rise of the ‘currency wars’ theme in autumn 2010, following the announcement by the Federal Reserve of a new round of quantitative easing, and moves towards intervention and capital controls in the emerging world. However, among G20 countries there is a tendency for each country to point to different flaws in the IMS and to promote different reform options. For instance, the United States insists on the need for Chinese reform of its exchange-rate regime, whereas China emphasises the need to develop new reserve assets to supplement the dollar. Other emerging countries are especially concerned by carry trades and the risk of exchange-rate overshooting. Hence, the initial agreement on general principles has tended to evaporate when specificities have started to be discussed [Box 3.4].

23. Source: <http://www.g20-g8.com/g8-g20/g20/english/priorities-for-france/the-priorities-of-the-french-presidency/sheets/international-monetary-system-ims.351.html>

BOX 3.4: IMS reform under the French presidency of the G20

Three G20 meetings shaped the IMS debate in the first few months of 2011. On 19 February 2011, the final communiqué of the Paris meeting of the G20 finance ministers and central bank governors concentrated on capital flows and on the countries' access to liquidity when facing sudden stops or capital flow reversals²⁴:

“Today we agreed on a work program aimed at strengthening the functioning of the IMS, including through coherent approaches and measures to deal with potentially destabilizing capital flows, among which macro-prudential measures, mindful of possible drawbacks; and management of global liquidity to strengthen our capacity to prevent and deal with shocks, including issues such as Financial Safety Nets and the role of the SDR.”

On 31 March 2011, a high-level G20 seminar on IMS reform was hosted in Nanjing (China) to discuss these issues openly. The discussion was organised around the same two items (liquidity and capital controls) but touched upon several other aspects of IMS reform.

On 14-15 April 2011, the final communiqué of the meeting of finance ministers and central bank governors in Washington DC was more specific on liquidity provision and capital controls, while also mentioning the need for broadening IMF surveillance (including through oversight on policy spillovers and exchange-rate policies):

“To strengthen the international monetary system, we agreed to focus our work, in the short term, on assessing developments in global liquidity, a country specific analysis regarding drivers of reserve accumulation, a strengthened coordination to avoid disorderly movements and persistent exchange rates misalignments, a criteria-based path to broaden the composition of the SDR, an improved toolkit to strengthen the global financial safety nets, enhanced cooperation between the IMF and regional financial arrangements, the development of local capital markets and domestic currency borrowing, coherent conclusions for the management of capital flows drawing on country experiences. We also agreed on the need to strengthen

24. The communiqué's vocabulary is somewhat confusing as the notion of 'global liquidity' usually refers to the global monetary stance. Access to liquidity in times of stress through bilateral, regional or multilateral facilities is usually referred to as 'international liquidity'.

further the effectiveness and coherence of bilateral and multilateral IMF surveillance, particularly on financial sector coverage, fiscal, monetary and exchange rate policies.”

However, emerging countries have so far objected to giving to the IMF a mandate to oversee policies affecting the financial account in the same way it oversees policies affecting the current account²⁵.

At time of writing (spring 2011), the debate was evolving around three key issues among a wider set of potential deliverables (Table 3):

- *Policy coordination and surveillance*: because large capital flows from advanced to emerging economies could be explained both by push factors (eg US quantitative easing) and pull ones (high interest rates in emerging countries), it had become clear that G20 partners could only agree on a symmetric approach to surveillance where capital controls would be treated as one of several policy tools along with monetary and fiscal policies. However, while there is little appetite to modify Article 6 of the IMF Articles of Agreement, there is still a possibility for the Fund to exercise surveillance over capital controls within the broader framework of multilateral and bilateral (Article 4) surveillance, and for the G20 to address the issue as part of global policy coordination.
- *Liquidity*: there was broad agreement to continue improving a country's access to liquidity when facing reversals of capital flows. This would possibly include improved coordination of regional and multilateral financial safety nets, for which experience with euro-area crisis may provide a template; clarification of the conditions for accessing bilateral swap lines in the case of crises; and procedures for assessing global liquidity so that global liquidity stress could possibly trigger liquidity provision to countries in need of it.
- *SDR basket*: while ambitious projects such as the development of the SDR as a

25. It was agreed at the Bretton Woods conference to treat differently the IMF members' commitments as regards the current account and as regards the financial (at the time called the capital) account. The preservation of the members' right to maintain capital controls was deemed essential, not least by John Maynard Keynes, to ensure policy autonomy. In the late 1990s an attempt was made to broaden the IMF mandate to include the surveillance of the financial account, but it did not succeed. In recent international discussions major emerging countries emphasised that they could not agree to submit their capital control policies to international oversight because such an approach would not treat them and the advanced countries symmetrically.

reserve asset had been abandoned, discussions were going on about the possible inclusion of new currencies in the SDR basket, depending on their status vis-à-vis criteria for inclusion (and the interpretation of the ‘freely usable’ requirement). The inclusion of the renminbi in the basket was viewed as a way to encourage China to open up its financial account while allowing the People’s Bank of China to progressively diversify its reserves and simultaneously reinforcing the capacity of SDR central banks to swap SDRs for hard currencies. China, however, was careful not to appear as calling for this.

Table 3: Main G20 deliverables on IMS reform

Aim	Possible deliverables
Improve IMF surveillance	More effective IMF surveillance of national economic policies, especially for systemic countries. ‘Teeth’ for surveillance (formal recommendations, possibly sanctions). In addition, more effective multilateral surveillance via spillover reports. Changes in IMF governance, eg relating to the IMF statutes (stronger and restructured Executive Board, greater role for ministers, possibility of sanctions)
Supervise capital controls	Non-binding code of conduct for capital controls policies. Possible extension of IMF mandate to surveillance of financial accounts.
Modify exchange-rate regimes	Non-binding code of conduct for FX intervention policies. Move towards more flexible exchange-rate regimes. Coordinated FX interventions in case of market turmoil (as for yen on 17 March 2011).
Strengthen financial safety nets (international liquidity)	Institutionalisation of bilateral or regional swap lines. Reserve pooling at regional or multilateral levels. More frequent SDR allocations. Debt issuance by the IMF in case of necessity.
Develop SDR as a reserve asset	Issuance of SDR-denominated debt by official and private entities. Substitution account to offset exchange-rate impact of changes in the composition of reserves. Use of SDR as a unit of account for exchange-rate pegs, commodities quotation. SDR invoicing (eg for energy, commodities). ‘Criteria-based path’ to broaden the composition of the SDR.
Manage global liquidity	Strengthened coordination between central banks.

Source: Bruegel/CEPII.

There is evidently a trade-off between the strength and effectiveness of an international monetary regime's basic rules and the reliance on discretionary surveillance. The G20 has clearly opted for the latter path. Following up on the *Framework for Strong, Sustainable and Balanced Growth*, the G20 had already decided to endorse the IMF proposal for *Spillover Reports* on five systemically important countries or areas (the United States, the euro area, Japan, the United Kingdom, and China); and to operationalise the *Mutual Assessment Process* (MAP) launched at Pittsburgh by identifying specific criteria and indicators, to be used in a two-step procedure (Box 3.5).

BOX 3.5: International surveillance and the G20 Mutual Assessment Process (MAP)²⁶

The aim of the 'Mutual Assessment Process' (MAP) launched by the G20 in 2009 is to develop 'a forward-looking analysis of whether policies pursued by individual G20 countries are collectively consistent with more sustainable and balanced trajectories for the global economy'. The name of the game is to make all participating governments more conscious of the international spillover effects of their actions and, through peer pressure, to lead them to amend policy course in case of global inconsistency. The MAP is not about introducing systemic reforms but ensuring ongoing surveillance and policy coordination.

The strategy for making coordination work was to ask each country to submit medium-term policy frameworks and plans. The IMF was entrusted with the task of checking consistency of national assumptions and policy directions, providing feedback to G20 members and evaluating policy alternatives.

The MAP exercise has been carried out twice, in spring 2010 for the preparation of the Toronto summit and in autumn 2010 for the preparation of the Seoul summit. It is intended to carry out another MAP round for the preparation of the Cannes summit. To support it, a set of indicators and guidelines intended to help tackle global imbalances through policy adjustment in the key countries was adopted in April 2011 at the G20 ministerial in Washington, DC.

The MAP is a cumbersome exercise technically that results in projections of uncertain accuracy. Open discussion may or may not trigger policy action. The strategy is to help focus the policy discussion within the G20 on the most significant

26. This box draws on Angeloni and Pisani-Ferry (2011).

cases while avoiding singling out problem countries. Only facts will tell whether this has proved a fruitful approach.

It is important to note that the MAP is institutionally distinct from IMF surveillance. Because the IMF provides support to the G20 and carries out the technical work, the two processes are coordinated, but the Fund remains responsible for its statutory task and it has recently launched new processes for improving its own surveillance (for instance vulnerability assessments and spillover reports on the major economies).

What these procedures will in the end deliver is uncertain. On the one hand they create a framework for a learning process, which is important for countries not used to discussing their domestic economic policies. On the other hand there is a risk that they may have very little effective traction on actual policy choices. Only a significant change to the IMF Articles of Agreement to give its surveillance more teeth could guarantee the effectiveness of surveillance.

4 Economic conditions and the monetary order

In this section we address the economic background of international monetary perspectives. There are four dimensions to this analysis:

- The first one, which is also the most straightforward, is that of sheer economic strength; throughout recent history there has been a link (albeit a complex one) between such strength and monetary leadership, and this is likely to apply in the decades to come.
- The second one has to do with the ability of a country or a group of countries to exercise monetary leadership. Beyond strength, this ability depends on financial development, on the quality of economic and financial institutions, on the nature and effectiveness of governance, and on an economic power's political might and commitment to global leadership.
- The third one relates to the likely evolution of global financial conditions: whether the world economy will continue moving towards financial openness and which countries will be capital exporters or importers.
- The fourth and final one, which is of a somewhat different nature, concerns the evolution of monetary and exchange-rate policy regimes. These are evidently endogenous to the evolution of the international monetary system, but national choices of policy doctrines and regimes also depend on other factors, such as the experience gained from policy episodes and the priorities assigned to monetary and exchange-rate policies.

In what follows we take up each of these dimensions in turn.

4.1 The changing balance of economic power

Figure 2 provides a bird eye's view of the evolution of the world economy and the distribution of economic power from 1870 to 2050, at 2005 exchange rates²⁷. Throughout the nineteenth and twentieth centuries, the share of the largest economy in world GDP (at real exchange rates of 2005) consistently remained above 15 percent. For most of the Gold Standard period (1879-1913), the sterling area composed of the UK and its main colonies met this criterion. It 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, with a weight consistently over one-fourth of world GDP.

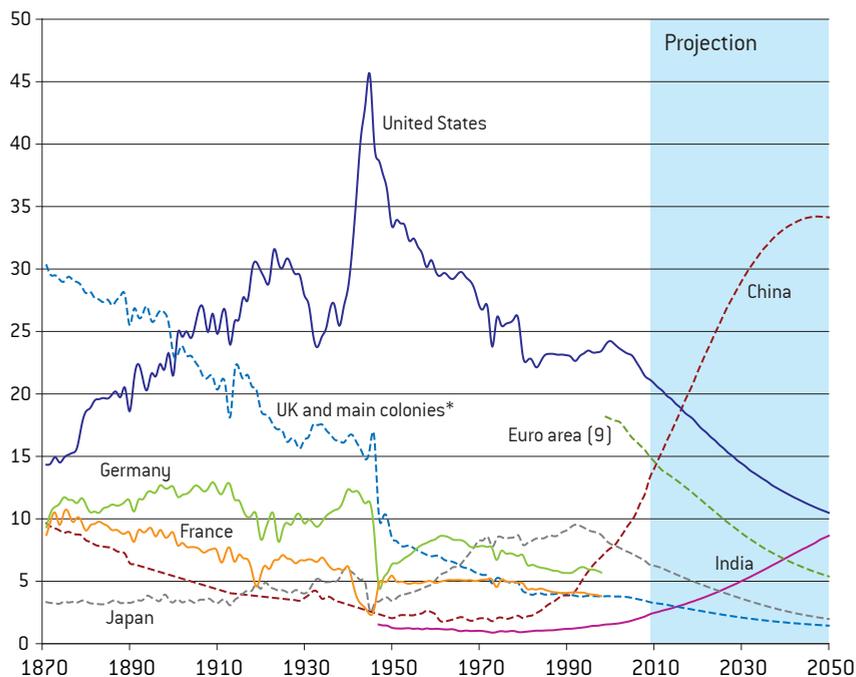
But according to long-term projections, the world economy in the twenty-first century is likely to see the emergence of two new dominant players: China and India. China should overtake the US around 2035, at constant relative prices. By the middle of the century, US weight should be down to less than 20 percent and, unless significant enlargements take place, the eurozone's weight will be down to 10 percent. Even assuming enlargement of the euro area to the current EU and beyond, its weight is unlikely to reach 15 percent. In contrast, China could weigh one fourth of the global economy at the 2050 horizon, and India almost as much as the euro area. In the meantime – say, in the next 10 to 20 years – there will be an interregnum during which economic power will be much more evenly distributed amongst a core group of countries. It is in this period that the new IMS will take shape on the basis of policy choices now discussed.

It should be noted here that the shortcoming of current monetary arrangements mentioned in the previous section would be likely to become more acute as the global economy moves further in the direction of multipolarity. For instance, the global demand for liquid, riskless international reserves would probably grow faster than the supply the United States could provide while keeping public finances on a sustainable track. Similarly, the Federal Reserve would probably become less willing to extend large enough volumes of international liquidity in times of crisis, and the US Treasury

27. The figure is based on Angus Maddison's historical statistics (available from the *Groningen Growth and Development Centre* at www.ggd.cnet) 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. Since monetary and financial power is related to international rather than domestic purchasing power of GDP, we prefer to work at observed exchange rates of 2005 rather than in purchasing power parity standards. Using current exchange rates would even be preferable, but historical series are not available.

may become less able to back it up if it does. The benign-neglect stance of US authorities concerning the value of the dollar could be reconsidered once the US is no longer a price-maker, increasing the risk of ‘currency wars’. In a nutshell, the US might no longer be powerful enough, or determined enough, to play the role of a ‘benevolent hegemon’. Conversely, the lack of monetary autonomy in emerging countries will increasingly put macroeconomic and financial stability at risk in these countries, as exemplified recently in China. Finally, the rising size of China will *de facto* increase the size of the dollar bloc in the global economy, reducing the scope for exchange-rate led balance-of-payment adjustments. We come back to these issues in section 5. What is important to note here is that the deep transformation of the global economy will exert market pressure for a transformation of the IMS.

Figure 2: Percentage shares of selected countries and areas in world GDP, 1870-2050 (at 2005 exchange rates)



Sources: Angus Maddison’s historical statistics and CEPII projections. Notes: * 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. Euro area (9): Austria, Belgium, Germany, Spain, Finland, France, Italy, the Netherlands, Portugal. Since data for some small economies are not available for some earlier years before 1980, the world total suffers from compositional changes. However, since the share of these countries is small, the bias in shares before 1980 is also small.

The implications for monetary arrangements of changes in economic power should, however, be discussed with caution. The experience of the first half of the twentieth century indicates that the British pound retained a key monetary role long after the UK had lost its economic dominance. This suggests that incumbency matters and that the impact of economic power on monetary power is likely to be delayed. Furthermore, two international currencies can coexist for extended periods of time, and reversals of fortune are even possible (Eichengreen and Flandreau, 2009).

Economists generally ascribe the time lag between the acquisition of dominant economic weight and its monetary counterpart to ‘network externalities’: the benefits of using currencies internationally actually increase with their use, which favour the incumbent currency²⁸. But path-dependency is not the only factor. State-dependent factors matter too: economic size is far from being the only determinant of international currency status.

4.2 Critical determinants of currency status

The example of Japan in the 1980s and the 1990s is indicative of the fact that economic ascendancy is not sufficient for a currency to acquire international status. Whereas Japan had reached number two status in terms of GDP – and was projected to rise further – and in spite of it being a major trading power, the yen never became a major international currency. At its peak in 1991 the yen only accounted for 8 percent of world reserves. By end 2010 its share in allocated reserves was down to less than 4 percent²⁹.

Critical factors for acquiring international currency status are several. The list certainly includes:

- The size, depth and openness of financial markets, especially the sovereign bond market. International asset-holders value the existence of a deep and liquid bond market, where they can trade in large amounts without having a material impact on prices.

28. According to Eichengreen and Flandreau (2010), network externalities should however not be overstated, while the role of financial regulations and public support (through the behaviour of the central bank) proved to be of key importance in the race between the pound and the dollar in the interwar period. Even the actual importance of currencies in different historical periods is often contentious. For example, Eichengreen and Flandreau (2010) argue that, although the dollar overtook the pound sterling as the leading reserve currency in the mid-1920s, the pound regained the first place after the deviation of the dollar in 1933 and kept it till the mid-1950s.

29. Sources: Eichengreen (2011) and IMF COFER database.

- The reliability of the rules and institutions that provide the legal basis of financial transactions and ensure the enforceability of contracts. A financial asset is underpinned by a contract between a borrower and a lender, and whether or not this contract can be enforced in a predictable way matters considerably to investors.
- The quality and predictability of fiscal and monetary policies. The rating and value of sovereign debt securities depend on whether budgetary policy is sustainable and on whether monetary policy is geared towards maintaining price stability. Both affect the country's exchange rate.
- The ability of policymakers to respond to unexpected financial shocks and in particular the ability of the central bank to act as a lender of last resort vis-à-vis domestic and international institutions. Also of importance is the ability of financial intermediaries to carry out cross-border operations as well as to absorb shocks, as well as the stance of policymakers vis-à-vis the internationalisation of the currency: in influencing market expectations, it matters whether the authorities are favourable or reluctant to its internationalisation.
- Non-economic factors such as political cohesion and sheer geopolitical power. It matters for investor whether the political institutions underpinning a currency are strong enough to cope with geopolitical risks³⁰.

Table 4 summarises the respective situations of the US dollar, the euro and the renminbi with respect to these criteria. It indicates that there are several reasons why the dollar remains unrivalled. Its main, not negligible, weakness arises from concerns over the sustainability of budgetary policy and the possible monetary consequences of debt unsustainability.

The euro has several attributes that could make it a good candidate for a major international role, but 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

30. Eichengreen (2011) mentions a remark by Susan Strange, the political economist, according to whom a major difference between the US dollar and the German mark until the 1990s was that it was possible to imagine a Russian invasion of Germany but not a Canadian invasion of the US. Posen (2008) emphasises the importance of military power among the determinants of international currency status. The lack of military power may have been one factor behind the limited internationalisation of the yen in the 1980s and 1990s, the other factor being the low level of Japanese interest rates that failed to make yen-denominated bonds attractive reserve assets but rather triggered carry trade (hence capital outflows).

regime to cope with unexpected shocks is being tested. Furthermore, the euro area authorities are officially neutral vis-à-vis a broader international use of the euro and discourage the unilateral adoption of the euro by non-EU countries³¹.

Beyond technicalities, a bigger issue is that the euro is a currency without a state. The financial crisis and its aftermath have proved that this does not need to be a fatal flaw. But they have also shown that Tommaso (Padoa-Schioppa, 2004, p181) was right to say that 'ultimately, the security on which a sound currency assesses its role cannot be provided exclusively by the central bank. It rests on a number of elements that only the state, or more broadly, a polity can provide' (Padoa Schioppa, 2004, p181). Whether this polity is in the process of being formed is a major question for the future of the euro as an international currency.

Table 4 suggests that the renminbi has significant handicaps in the short term, due to the limited openness and development of China's financial markets, a weaker legal system, and a weaker policy record, but it has strong political underpinnings. Provided that legal financial reforms are carried out in China and expectations for continued strong economic growth are fulfilled, it could gradually become a major challenger, and ultimately the main challenger to the dollar (see Dobson and Masson, 2009; Thimann, 2009; Vallée, 2011).

There is therefore a dominant incumbent and two potential rivals. The first, the euro, has many of the attributes of an international currency and already a sizeable share in foreign exchange reserves and international bond issuances, but weak governance and political foundations. The second, the renminbi, has strong underpinnings in terms of economic potential and coherence in policymaking but it is still far from having acquired the characteristics of an international currency. In short, for the time being the euro will not be dominant and the renminbi cannot, and this gives the dollar a still-unrivalled status. But this situation is unlikely to last beyond the 10-15 year horizon.

31. Stark (2010) states unequivocally the position of the ECB: 'Countries which unilaterally introduce the euro would do so in their responsibility and at their own risk, without committing the EU or the ECB. The ECB would thus pursue a policy of non-engagement and non-support towards these countries.'

Table 4: The incumbent and the challengers: state of play in 2011

	US dollar	Euro	Renminbi
Size	27% of world GDP, decreasing	20% of world GDP, decreasing (but potential for enlargement)	7.6% of world GDP, increasing
Financial markets and openness	Unrivalled liquidity and depth, full capital mobility	Second after the US, but bond markets remain fragmented in the absence of unified Eurobonds. Full capital mobility	Underdeveloped markets and restricted capital mobility
Legal system	Strong	Strong	Weak
Budgetary and monetary policy	Increasing concerns over the sustainability of budgetary policy and the risks of debt monetisation	Strong monetary record and institutional independence. Concerns over solvency of some individual state borrowers	Strong fiscal position. Good monetary policy track record but at risk, in part because of currency peg
Ability /willingness of policy system to respond to unexpected shocks, LLR* function	Strong	Strong for central bank but broader capacity limited by institutional arrangements	Strong
Stance towards international currency role	Incumbent	Officially neutral. Unilateral euroisation by non-member countries actively discouraged	Support for early steps of RMB internationalisation
Political cohesion and geopolitical power	Strong	Limited by political fragmentation	Strong and in ascendance

Note: * Lender of last resort.

4.3 Global financial conditions

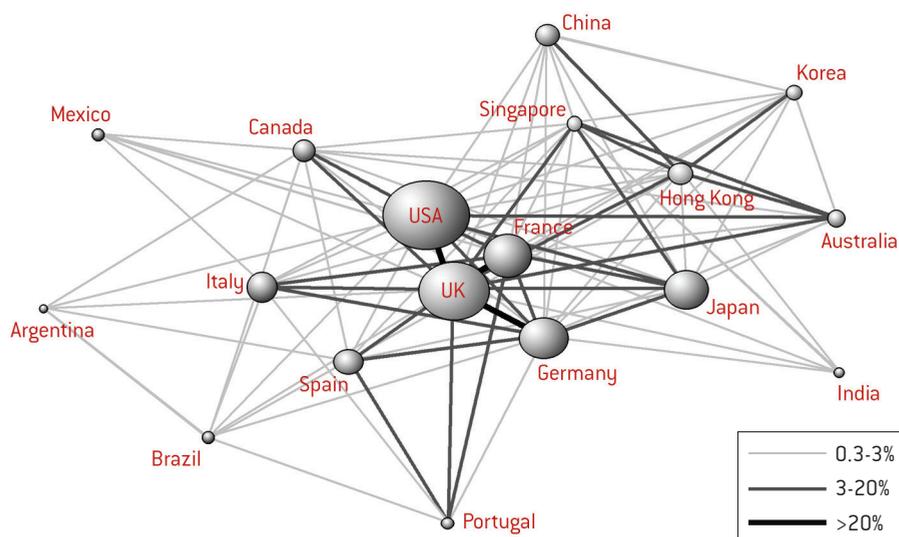
Global financial conditions and the international monetary regime are closely linked, in at least three ways. First, following Mundell's 'Impossible Trinity', a regime of free capital mobility is not compatible with an IMS based on fixed exchange rates. Second, the IMS is partly shaped by the direction of capital flows that in turn depend on macro- and microeconomic factors, such as differences in demography and development level, financial technology, wealth, and the appetite of asset-holders for diversification. Third, there is ample evidence that financial and monetary crises are intimately related, the causality running both ways.

Financial openness

The last quarter of century has been characterised by the movement of all advanced countries and a subset of emerging countries to free capital mobility (see Box 4.1). As a consequence, gross capital flows and bilateral cross-border asset-holdings among these countries have grown considerably: by 2005, two-way asset-holdings between the UK and either the US, Germany or France each amounted to more than 20 percent of the cumulated GDPs of the partner countries (see Figure 3). These advanced countries are thus dominant in financial networks. However, a few key financial centres in emerging countries – first and foremost Hong Kong and Singapore, but also Korea and China and, to a lesser extent, the major Latin American countries and India – were also involved in this global network.

A major question for the future is whether the trend towards integration will continue and lead to the full inclusion of emerging countries into the global financial network. As discussed in Box 4.1, the appetite for unfettered liberalisation has significantly diminished in the wake of the 1997-98 Asian crisis and of the 2008-09 global crisis. An increasing number of emerging economies have reintroduced capital controls or are contemplating such a move. The resumption of capital flows after the crisis nevertheless suggests that these controls are more defensive than offensive; they convey a more cautious approach to liberalisation by emerging and developing countries rather than a U-turn on global financial integration. This is compatible with the strengthening of a few key financial centres in the major economic regions, but also with continued threats to conventionally fixed exchange-rate regimes.

Figure 3: International financial networks, 2005



Source: Kubelec and Sá (2010). Links are given by the sum of bilateral assets and liabilities divided by the sum of the GDPs of the source and host countries. The size of the nodes is proportional to the country's financial openness, measured by the sum of its total external assets and liabilities.

Direction of capital flows

Another, largely independent, question is what will be the direction of *net* savings. A striking characteristic of the last decade is that, in net terms, while private capital has been flowing 'downhill', from relatively richer to relatively poorer countries, official reserve hoarding has reversed the direction of total net flows 'uphill'. Although they abated somewhat in the aftermath of the global crisis, there are reasons to believe that 'South-North' capital flows are going to remain strong. First, projections for the short run (eg for the IMF's *World Economic Outlook*) suggest a stabilisation of global imbalances around their post-crisis level, with net savings by China and oil producers representing about 1.5 per cent of world GDP. Second, higher oil prices should lead in the medium term to a further transfer of net savings from oil producers to oil importers³². Third, projections suggest that in the coming two decades the share of high savers (the 45-

32. See Chapter 3 of the April 2011 *World Economic Outlook*.

BOX 4.1 Financial openness and its discontents

The literature on capital controls and financial liberalisation is particularly prolific but is also remarkably politicised. Although the literature was overall somewhat inconclusive on the benefits of financial liberalisation (see the reappraisal by Kose *et al*, 2009), the international financial community and in particular the IMF worked over the years to forge a consensus on the merits of financial globalisation. In particular, despite criticism (Bhagwati, 1998), free capital mobility grew to be understood as the flipside of free trade. In the late 1990s, a movement took hold to modify the Fund's articles along the lines of Article 8 which prescribes the opening up of the current account. This led to a relatively activist policy from the IMF to promote what was then called 'orderly capital account openness'.

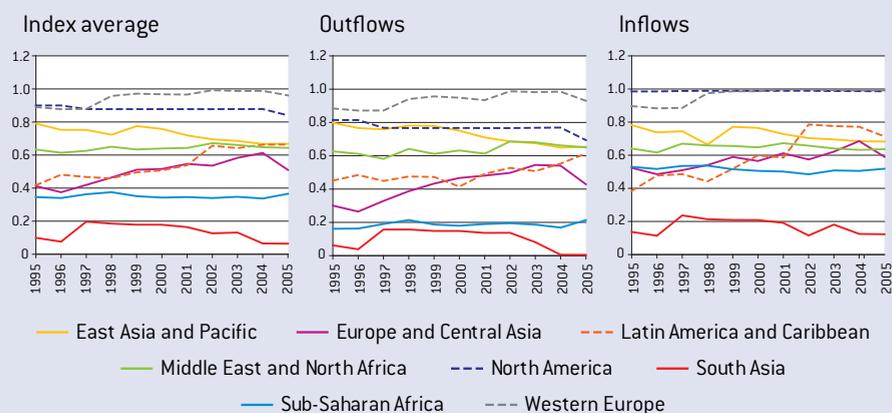
In October 1997 the Fund's Annual Meeting was held in Hong Kong as the Asian crisis started to unwind, exposing some of the shortcomings of financial liberalisation. Yet there seemed to be little doubt (Fisher, 1997) that the amendment of the Article of Agreement would be completed regardless. But the severity of the Asian crisis and the reluctance of the US Congress to hand more authority to the Fund overlooked the amendment venture and, to this day, capital controls remain a national prerogative over which the IMF has little authority outside of its surveillance mission.

Measuring capital-account openness in fact remains technically difficult. Alesina, Grilli and Milesi-Ferretti (1993), augmented in Grilli and Milesi-Ferretti (1995), proposed the first financial integration index, relying essentially on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) which still remains an essential sourcebook for this body of work. Chinn and Ito (2008) constructed one of the most often-cited indexes using a set of four binary variables based on the AREAER. The AREAER database itself was enhanced in 1997 allowing a new body of work to flourish (see Mody and Murshid, 2005; Miniane, 2004; Schindler, 2009; Brune and Guisinger, 2006, building on Johnston and Tamirisa, 1998).

This empirical literature highlights a few important features of financial globalisation beyond that of its fairly intuitive proliferation through the 1990s, in particular the extent to which financial liberalisation progressed in Europe through the EU single market and the creation of the monetary union while it was stagnant in the Middle East and Africa or even declined in Asia following the Asian crisis (Figure 4).

However this literature focuses on *de jure* controls and ignores whether those controls are actually enforced and the extent to which financial openness did actually occur despite those controls. Work on capital flows and nations' balance sheets has gone beyond *de-jure* openness and looked at *de-facto* openness. An ambitious dataset by Lane and Milesi-Ferretti [2009] has helped to clarify this and shown that financial globalisation has actually been even more prominent than the literature on *de-jure* controls suggest (Figure 5).

Figure 4: *De jure* indices of financial openness, 1995-2005



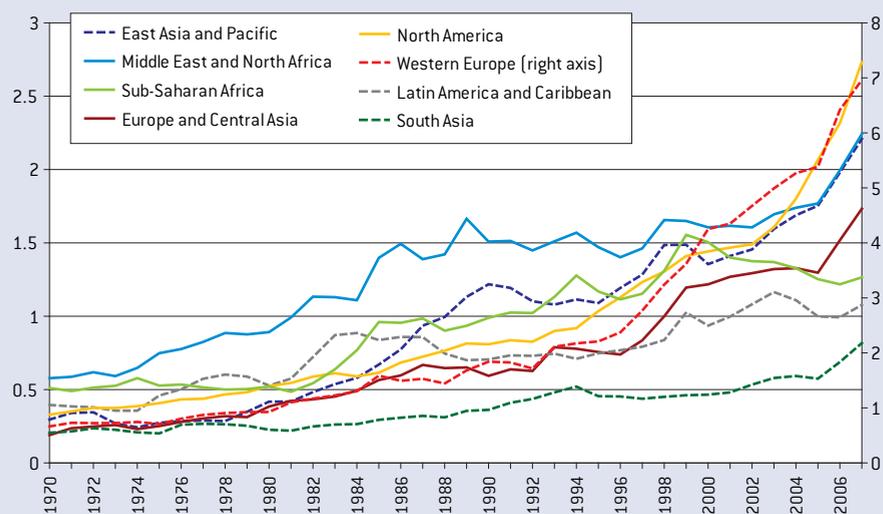
Schindler (2009) disaggregated index of *de jure* restrictions on inflows and outflows.

Note: Schindler's index of financial restrictiveness (here presented as financial openness) is calculated as the average of binary variables indicating the existence of restrictions on 13 types of capital-account operations (ingoing and outgoing).

The most recent literature on financial globalisation accounts for a couple of decades of acute financial instability (Mexico 1995, Asia 1997, Russia 1998, central Europe 2009), and of nascent doubts about the very fact that the main challenge facing developing and emerging economies would be financial constraints when institutions seem to be playing such a crucial role in economic development (Rodrik, 1997). Gourinchas and Jeanne (2007) suggested that financial integration increased volatility. Rodrik and Subramaniam (2008) have initiated a proper attack on the dogma and syllogism that they say led to the advent of financial globalisation. More recent events suggest that large, relatively financially closed economies (such as China and India) have achieved superior economic performance while preserving financial stability. Recent work by the IMF has taken the recent facts and literature

on board by suggesting that capital controls were a legitimate macroprudential tool in some specific cases (Ostry *et al*, 2010) although with the caveat that there needs to be a framework in place to govern and coordinate them (Ostry *et al*, 2011).

Figure 5: *De-facto* indices of financial openness, 1970-2007



Source: Lane and Milesi-Ferretti (2009) and authors' calculations. Note: Western Europe on right axis.

Yet, reaching a consensus on capital controls is difficult. On the one hand, allowing for capital controls opens the door to legitimising existing distortions and creating new ones in the international financial system. On the other hand, emerging economies are keen to keep what they consider a national prerogative. They argue that a comprehensive approach should in fact focus as much on capital recipients and their controls as on the policies in advanced economies that make those flows possible.

The next intellectual and policy challenge is therefore not so much to make capital controls intellectually acceptable, since we seem bound to live with them, but rather to make them practically operational in an effective and coordinated international framework to avoid possible negative externalities associated with uncooperative implementation. What is more dangerous to the world economy and to the international monetary architecture is the coexistence of two self-referencing and competing frameworks governing capital flows: one based on free-floating currency regimes and free movement of capital, the other based on managed exchange rates

and incomplete capital movement. Reconciling those two worlds (which both account for roughly half of the world's population and soon half of its economic output) into one internationally coherent monetary system governing global capital flows is the intellectual and policy challenge of our time.

69 age bracket) in total population is set to increase sharply in the developing and emerging countries while it will remain stable or start to decline in the advanced countries³³. Saving in the 'south' should therefore increase relative to advanced economies even if from a low base. Fourth, judging from IMF data, the average investment rate in emerging and developing countries is already at a historically high level, which suggests it is unlikely to rise much further³⁴. We therefore posit that the world saving-investment balance pattern is not going to reverse dramatically over the next 10-15 years.

Financial instability

The 2007-09 financial crisis made clear the importance of the key currency of the IMS being supported by a strong financial safety net, which in this case took the form of generous domestic and selective cross-border liquidity provision by the Federal Reserve. The decisions taken by the G20 (SDR allocation, tripling of IMF resources, new liquidity lines provided by the Fund) have also demonstrated how international cooperation can help take swift action when necessary. However the jury is still out on the relative ability of a single country and of the international community to cushion major liquidity droughts. This is likely to remain true in the future, given in particular the major shifts in the global economy outlined in section 4.1.

The jury is also out on the ability of the international community to cooperate on financial regulation and supervision, as well as on macroeconomic policies. Assuming such cooperation fails, it is difficult to imagine how a multilateral solution to IMS flaws could emerge. It should be recalled here that currencies are ultimately backed by fiscal authorities, the latter being the ultimate backstop of systemically important financial institutions.

Summing up, although the financial crisis has shifted attention to the resilience of the financial system, we do not consider it necessary to take as an assumption that the world economy is poised to experience any major discontinuity in the pattern of global

33. Source: simulation with the INGENUE model of CEPII, OFCE and CEPREMAP.

34 Although investment in the Asian newly-industrialised countries never really recovered from the Asian crisis.

financial integration, whereas the jury is still out on the effectiveness of enhanced international cooperation in the future. This, therefore, needs to be a key area for the reform of the IMS.

4.4 The changing template of monetary and exchange-rate policies

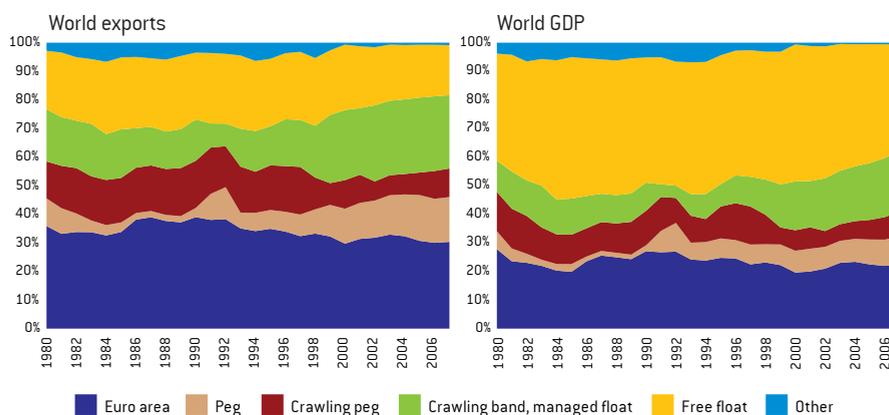
In the 1990s and the 2000s there was a remarkable degree of policy consensus among advanced and some emerging countries (with the notable exception of China and Middle Eastern oil-exporting countries) on the institutional set-ups and the mandates of central banks. It seemed that the so-called flexible inflation-targeting regime (whereby the central bank aims to stabilise consumer-price inflation around its target, but also at minimise the output gap) under floating exchange rates or broadly similar strategies could provide for a wide array of countries the right mix of internal and external stability. Extrapolating from the success of this scheme, Rose (2007) developed the view that it provided a template for an international monetary regime ‘without a central role for the US, gold or the IMF’.

The popularity of inflation-targeting could indeed be regarded as the triumph of the ‘own house-in-order’ doctrine in the international monetary field. International stability would be achieved as a simple sum of domestic stability. This bottom-up approach made traditional approaches look *passé*.

There were, however, more than a few problems with this view. To start with, convergence on the inflation-targeting flexible-exchange template would eliminate some issues – such as the relative role of global currencies as anchor currencies or the accumulation of reserves for mercantilist purposes – but not all. It would not, for example, eliminate the asymmetry between safe-asset issuers and safe-asset investors, and the externalities associated with the use of a national currency as international vehicle currency. Furthermore, correcting the present system to make it a ‘pure’ free-floating regime with domestic, inflation targeting-type monetary anchors would not solve the major issue of liquidity provision to countries facing sudden capital outflows.

Second, at the time of the crisis convergence on the free-floating template was far from overwhelming, as indicated by Figure 6: if anything, the share of countries under a flexible exchange-rate regime in world GDP and even more in world exports was declining. This was in no small part due to the growing weight of China and East Asian countries.

Figure 6: Shares of countries under alternative exchange-rate regimes in world exports and world GDP, 1980-2007



Source: Authors' calculations on the basis of the Ilzeztki-Reinhart-Rogoff classification. Euro-area countries are treated separately throughout in order not to introduce a break in the series.

Third, since the crisis the inflation-targeting model has been under attack for having led to neglect of financial stability. Monetary policy post crisis is in a state of flux and a template that commands consensus within the central banking community no longer exists. Some advocate a 'leaning-into-the-wind' approach whereby interest-rate setting by the central bank takes into account concerns over financial stability, while others advocate complementing inflation-targeting through recourse to a macroprudential instrument (see Blanchard, Dell'Ariccia and Mauro, 2010). In the process, the simplicity and uniformity of the pre-crisis template risks being lost.

Fourth, the inflation-targeting template assumes away spillover consequences from national monetary policies through carry trade and other forms of capital inflows which have recently raised alarm in emerging countries.

Lastly, the move to a less benign environment, in which worldwide resource scarcity results in regular inflation upsurges, raises major questions for a template that focuses on domestically generated inflation and neglects spillover effects through global commodity prices.

Summing up, both the crisis and changes in the global environment are prompting questions and reflections on the appropriate policy response at national and

international levels. This makes the reference to an intellectually coherent, but simplifying, model less adequate and suggests that international monetary discussion needs to take on board a series of new questions.

5 Assessment of alternative regimes

Assessing international monetary regimes is an especially difficult task. One reason for this is that, by definition, such a regime covers the whole world. Thus, there are few historical examples of regime change; hence there are few opportunities to compare performance. Another reason is that an international monetary regime is rarely as pure as in the textbooks. For instance, not all of the world's currencies were pegged to the dollar under the Bretton Woods system. As for the present regime, it combines floating regimes, pegs to the US dollar and regional arrangements.

Research has therefore to rely on the observed performance of a small number of hybrid systems, each of which is difficult to evaluate. Claims that the world would have performed better with a different monetary system are typically irrefutable, so any assessment will necessarily be tentative. Here we start by defining three basic scenarios for the future and by discussing their likelihood (section 5.1). We thereafter move to a normative assessment of the pros and cons of alternative regimes on the basis of criteria inspired by the Musgravian analysis of public finances (section 5.2).

5.1 Three scenarios for the next decade

Based on the analysis in the previous sections, we postulate three scenarios for the future evolution of the IMS over a period of 10 to 15 years. These scenarios are intended to map out possible evolutions but they clearly do not exhaust the range of possible outcomes. They can actually provide a basis for building a wider range of hybrid scenarios.

Scenario 1: Repair and improve

Our first scenario assumes the continuation of current policy efforts to improve the functioning of the system through incremental reforms. We posit that the IMS remains organised around the US dollar but that attempts are made to correct its major flaws

within the framework of existing institutions and with the help of existing instruments.

As discussed elsewhere in this report, efforts so far – be they to build consensus on exchange-rate regimes and the management of capital inflows, create financial safety nets or strengthen surveillance – are not negligible. In view of the limited achievements of the surveillance process launched at the Pittsburgh summit, it is hard to imagine that gradualism will deliver a breakthrough but it is reasonable to expect some progress on the basis of the momentum created by the crisis response and the institutionalisation of G20 summits.

The key assumptions for the scenario are:

- The global monetary order remains based on the predominance of national or regional choices: there is no major shift in the distribution of competences between national and supranational institutions.
- The US dollar retains its present role in the system (which, in turn, supposes that the sustainability of US fiscal policy is not considered at risk). The euro's role remains broadly constant, or possibly declines following lasting effects of the euro-area sovereign debt crisis.
- China gradually aligns its monetary regime on those of other Asian emerging countries, which can be characterised by 'dirty' float and a limited use of capital controls. Building on its experience with the creation of an offshore market for the renminbi, it continues to foster the international role of its currency, but at a gradual pace.
- Incremental steps are taken to further reinforce financial safety nets at multilateral level. This may take the form of the strengthening of IMF low-conditionality facilities for countercyclical purposes, of enhanced cooperation between multilateral and regional schemes, or of more predictable bilateral swap agreements between central banks. More frequent SDR allocations are also possible, though not likely.
- Because few emerging countries are on a pure free-float regime, and because their trust in multilateral, regional and bilateral financial safety nets remains limited, reserve accumulation remains widespread.
- Multilateral surveillance is improved and reformed to involve a broader range of policies, including capital controls. Political endorsement of IMF surveillance by the

G20 is improved, strengthening policy coordination. However surveillance and coordination processes remain non-binding³⁵.

Although it involves considerable continuity with the current state of affairs, scenario 1 should not be regarded as a status-quo scenario. It is based on cautious assumptions but nevertheless assumes progress along the road opened up in the aftermath of the global crisis.

Scenario 2: Move towards multipolarity

Our second scenario envisages a more significant change in world monetary geography. In this scenario we posit that the US dollar remains the main key international currency, but that the euro and the renminbi also play a key role in the IMS – as reserve currencies, anchor currencies and on international markets for goods and assets.

Unlike scenario 1, which is essentially policy driven, scenario 2 can be regarded as driven by a combination of policy and market forces. As indicated in the previous section, we consider it likely that the world economy will develop in the direction of growing multipolarity, and we regard scenario 2 as congruent with this pattern of economic evolution. Of course, a number of policy decisions are required for this to materialise. But assuming these decisions are taken, market forces are likely to contribute to the emergence of scenario 2.

The key assumptions behind this scenario are that the euro area and China both move in a direction that leads to the emergence of their currencies as partial substitutes for the US dollar.

For the euro area, this requires first and foremost overcoming uncertainties surrounding sovereign risk and economic governance. We assume that the euro-area authorities effectively foster the euro's international role by enacting economic reforms (in the direction of a strengthening of economic integration), financial reforms (such as more effective and centralised supervision or the creation of a reference fixed-income asset at euro area level) and policy reforms (more effective governance, streamlined external representation, enhanced monetary cooperation with neighbouring countries). Not all these reforms are needed for the euro to play a more meaningful international role, but a critical mass is certainly required to convince investors worldwide that they can rely on the future of the European currency.

35. We assume that surveillance does not reach the effectiveness envisaged by Truman (2010).

Enlargement would also help broaden the economic base for the euro and buck the trend towards relative decline. Over a 10-15-year period, there is significant potential for this among the countries that joined the EU in 2004 and 2007 and, over a longer term, in the rest of Europe³⁶.

We posit China moving at a sustained pace towards the internationalisation of its currency. Changes are initially gradual (for example, we suppose an extension of the 'pilot' project of renminbi internationalisation launched in 2009, the promotion of one or several active financial centres and initiatives towards increased financial account openness), but they create momentum and trigger enough two-way capital mobility for an internationalisation of the renminbi to take place despite the continuation of current-account surpluses, still-existing limitations to capital mobility (see Vallée, 2011, for details on recent Chinese initiatives and their potential). Such moves would probably enable the renminbi to reach a level of international usage equal or perhaps superior to that of the yen at the turn of the millennium or of the Swiss franc.

The more difficult question is under what conditions the renminbi can achieve the status of third or second international currency. It is often argued that, short of full capital mobility and a freely floating exchange rate, a currency cannot attain an international status³⁷. We disagree with the strict formulation of this view: the renminbi may achieve significant international status *before* China's financial account has been fully opened up, and a free floating currency is not a precondition either. However, reaching the end-point where the renminbi is on an equal footing with the dollar, will require a clean break. Given the dynamics of currency reforms under way, we posit that over a 15-year period the renminbi can be a floating currency underpinned by fairly complete capital mobility.

We do not make any particular assumption about the US. Clearly, the diversification of public and private dollar holdings would be encouraged by lasting difficulties in the United States in adjusting its public finances (in this case, an abrupt diversification accelerating the switch to multipolarity following a dollar crisis cannot be excluded). But this is not a necessary assumption.

An important question is how non-dominant monetary players would behave, should a few international currencies emerge. We do not envisage a partition of some sort into regional blocks. We think it is likely that some countries will join regional monetary

36. The policy implications for the euro area are spelled out in more detail in section 7.

37. See Vallée (2011) for a review of the arguments.

arrangements or peg their currency to the regional hegemon; but others will float freely or adopt dirty floats with reference to *ad-hoc* baskets, while developing their local-currency financial markets. So there could be significant heterogeneity across countries, and an enhanced role played by non-core currencies, with adequate development of local-currency financial markets.

Other features of the scenario (financial safety nets, capital controls, surveillance) would basically be the same as in scenario 1. However there would be less reserve accumulation by China, because it would be in a floating regime, and by countries that would choose to take part in formal regional arrangements. There would also be more diversification of official reserves worldwide.

Finally, variants of scenario 2 in which only one currency develops as a substitute for the US dollar can be considered. In particular, there is a scenario in which only the renminbi develops as an international currency, whereas the euro is held back by lasting uncertainties over governance and the management of sovereign risks, the lack of willingness of the European authorities to internationalise the currency and the relatively low dynamism of the euro-area economy. We label as scenario 2a this bipolar, US dollar-renminbi scenario.

Scenario 3: Renewed multilateralism

Our third scenario envisages renewed, possibly crisis-led, momentum towards international monetary cooperation that would result in the building of a multilateral monetary order, where assets denominated in a non-national currency or quasi-currency would develop and the provision of global liquidity would be steered by the centre while agreed rules would determine, or at least strongly influence, the sharing of the burden of international macroeconomic and monetary adjustment.

Blueprints for such systems have been on offer at least since the demise of the Bretton Woods order. The idea has been revived in recent contributions by the Stiglitz United Nations Commission (2009) and, in a more allusive way, by the IMF (Mateos y Lago *et al*, 2009) and the Palais-Royal report (Camdessus *et al*, 2011). We do not consider an evolution of this sort likely, because we do not see much room for acceptance of stronger international institutions and tighter international discipline. Even initiatives by the G20 summit, admittedly a significant step forward in the direction of co-ordination, have been characterised by intergovernmentalism and a refusal to delegate power to supranational bodies. But it is useful to map out a multilateral scenario and to compare it to the others (Table 5).

The starting point for scenario 3 is that neither the renminbi nor the euro emerge as major international currencies and that the need for diversifying official and private reserves is met by the development of the SDR. This requires that international financial institutions, but also national governments and, later, multinational firms, issue debt denominated in SDR so that there is a sufficient supply of such assets to meet the demand for liquid, riskless assets. Market infrastructures are also gradually organised to support SDR trades, and hedging products are eventually developed. Accordingly, the SDR is increasingly used as an invoicing currency for commodities, energy and carbon markets and emerging countries gradually move to using the SDR rather than the dollar or the euro as an anchor currency. Official reserves are progressively converted into SDRs, possibly with the help of a 'substitution account' at the IMF.

The emergence of the SDR as a widely used quasi-currency would favour the strengthening of multilateral financial safety nets as the IMF would have better access to SDR financings in case of necessity.

The building of a multilateral order would also require a strengthening of multilateral surveillance over and above what is envisaged in the other two scenarios. The arrangement considered here does not imply an 'outside currency' in a proper sense, such as Keynes' *bancor*, which would guarantee, at least theoretically, a fully symmetrical adjustment mechanism and a full control of global reserves. We regard such a scheme unrealistic under present conditions (though it could be the eventual solution, also according to the IMF Articles of Agreement; see Padoa-Schioppa, 2010). We postulate instead a strengthening of the SDR, which can be viewed as a 'quasi-currency', and a parallel strengthening of multilateral surveillance through the setting of agreed policy principles and the creation of effective enforcement mechanisms³⁸. This hypothesis alone is bold enough in view of the almost-exclusive focus by policymakers in the major countries on domestic issues which results in the strong reluctance to submit their domestic choices to international disciplines.

38. Truman (2011) proposes a series of such mechanisms.

Table 5: Main features of the scenarios

	Current regime	Scenario 1 (repair – improve)	Scenario 2 (multipolarity)	Scenario 3 (multilateralism)
Main international (quasi-) currency(ies)	USD	USD	USD, EUR, RMB*	USD, SDR
Other currencies	Mainly floating, but pegs on USD widespread <i>de jure</i> or <i>de facto</i>	Move towards greater flexibility	Pegs to regional hegemons, flexibility between hegemons	SDR gradually emerges as main anchor
Financial account liberalisation	Incomplete and uneven in EMs	Incomplete and uneven in EMs	Opening up of China	Coordinated and gradual
Local-currency financial markets in EMs	Limited	Yes	Yes	Yes
Financial safety nets	Perceived as unreliable	Somewhat strengthened based on existing instruments	Strengthened based on existing instruments and inclusion of RMB in SDR	Strengthened based on existing instruments and further development of SDR
Reserve accumulation	Motivated by self-insurance and exchange-rate management purposes	Somewhat less scope for self-insurance	Less scope for self-insurance and exchange-rate management, better diversification	Less scope for self-insurance, better diversification
Surveillance and coordination	Weak	Improved by inclusion of capital controls in surveillance and better endorsement at political level	Improved by inclusion of capital controls in surveillance and better endorsement at political level	Improved by inclusion of capital controls in surveillance, better endorsement at political level and central bank coordination on global liquidity

* USD, RMB only in scenario 2a.

A major issue in any scheme of this sort is the determination of the global monetary stance. Clearly, no system can be envisaged in which there would be an additional centre of independent liquidity creation in addition to national central banks. Therefore, central banks should cooperate in the management of global liquidity. In case of excess liquidity worldwide, they would tighten their cross-border liquidity provision

schemes and recommend the IMF to withdraw SDR allocations and to reduce SDR bond issuance; in the case of liquidity shortage they would proceed symmetrically. More generally, this scenario relies on a major strengthening of international institutions and governance.

Before assessing these different scenarios, we need to discuss their respective likelihood and their interconnection: are these scenarios substitutes, sequential or complementary? How can they be hybridised?

Likelihood

The first scenario is the least demanding in terms of both domestic policies and international coordination, since it 'only' requires the G20 to carry on with coordination and foster progress on financial safety nets, and the United States to reassure the rest of the world about its fiscal sustainability. Hence it is the most likely in the short term. In contrast, the third scenario requires an exceptional amount of policy cooperation. Such cooperation is not on offer today but could emerge at a later stage, for instance after a deep dollar crisis or a major rift over exchange rates. The second scenario relies on market forces and domestic policies rather than international cooperation. Its probability is low in the short run, but significant over 10-15 years.

One should not neglect small-probability events that could have far-reaching consequences for the IMS, for example a sovereign debt crisis in the US, or debt monetisation on a large scale (or expectations of such developments). This could suddenly accelerate the move from the current system or scenario 1 to either scenario 2 or 3. Similarly, an aggravation of the crisis in the euro area, or its mere perpetuation, eventually leading to a partial break-up, could cancel out any prospect of further development of the euro as an international currency. Finally, the Chinese economy and economic policy have not yet proved their resilience in an open and deregulated landscape. For instance, the ability of the People's Bank of China to manage the inflation rate and of the Chinese financial system to finance the economy has not yet been tested within a western-type system. More generally, the present willingness of the Chinese authorities to move towards currency internationalisation may at some point be halted by internal difficulties in achieving financial stability.

Sequencing

Since the most likely scenario in the short term is the first (not counting the status

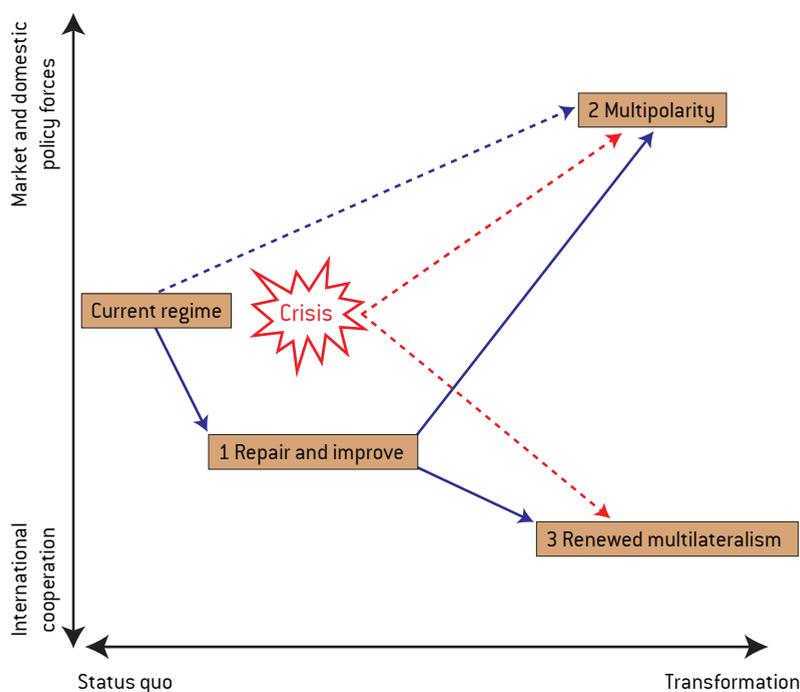
quo), and since scenarios 2 and 3 include various features of scenario 1, scenario 1 can be viewed as a first step towards either scenario 2 or 3. Indeed, developments along the lines of scenario 1 would raise the likelihood of the advent of either scenario 2 or 3:

- Scenario 1 can pave the way for scenario 2 through the development of local-currency financial markets, the extension of exchange-rate flexibility and the reduced motivation for reserve accumulation. Indeed, looser links with the US dollar and lower fears of being plagued with a liquidity shortage could favour the diversification of foreign-exchange reserves and the shift of monetary anchors towards more regional concerns.
- Scenario 1 can however also pave the way for scenario 3, since it already includes some improvements of the multilateral system, based on existing instruments³⁹.

However, scenarios 2 and 3 can also be achieved directly from the status quo. One possibility would be an abrupt shift following another major financial crisis that would undermine the central role of the US dollar in the monetary system. Another possibility would be that market forces and domestic policy decisions are strong enough to promote scenario 2, even without any accompanying coordination at the multilateral level. This possibility of a smooth transition from the current system directly to a very different one is less likely in the case of scenario 3. Indeed, if the appetite for coordination is not strong enough to improve on the current system based on existing instruments, there is little chance that it will be strong enough to design new, more ambitious coordination instruments. Figure 7 summarises the possible sequencing of the different scenarios.

39. The same could apply to scenario 2. Once the international currency status is more evenly shared across the world and local-currency markets have developed, scenario 3 might appear less as a direct threat to the dollar and more as a way to improve the functioning of the IMS. Furthermore, the incentives to cooperate might become more symmetrical.

Figure 7: Sequencing of the three scenarios



Note: solid lines represent the possible transitions through scenario 1; dotted lines represent direct transitions from the status quo to scenarios 2 and 3.

Hybridisation

Scenarios 2 and 3 should be viewed as substitutes rather than complements. However, this does not mean that some elements of multilateralism could not be introduced in scenario 2. For instance, the management of global liquidity could be carried out through appropriate coordination between the key central banks of a multipolar world. Reciprocally, some elements of multipolarity, such as the inclusion of the renminbi and possibly other currencies in the SDR, could easily be imagined within scenario 3.

Hybridisation could also take place along a geographic divide. For instance, a number of emerging countries could increasingly rely on the SDR for monetary anchoring and reserve managements, the multipolar game being limited to two or three big players and a number of smaller regional satellites.

5.2 Assessing the scenarios: criteria

In this section, we propose an assessment of the three scenarios for the global economy as a whole. To be the issuer of an international currency also involves benefits and costs that are specific to the issuing countries or zones. These benefits and costs are discussed for the euro area in section 7.1.

To assess the three scenarios defined above, it is necessary to rely on a set of generally accepted criteria. The most universal criteria for assessing economic policy are the efficiency, stability and equity triad of Musgrave and Musgrave (1989). Their application to the assessment of monetary regimes is straightforward.

Efficiency

Efficiency criteria relate to the long- or medium-term consequences of alternative arrangements.

- *Economies of scale*: To serve efficiently as a means of payment, international currencies should be limited in number (to minimise transaction and information costs); and they should be the currencies of large countries or areas (so that the currencies are already used by a large number of agents).
- *Savings on reserve accumulation*: The system should minimise the need to build up costly official reserves⁴⁰. It should favour an efficient allocation of capital worldwide: it should be consistent with savings flowing in line with differentials in the marginal productivity of capital after taking into account limiting factors (eg political risk) and return volatility.
- *Limitation of exchange-rate misalignments*: 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).

40. The cost of official reserves results from the spread between their remuneration and that of alternative investments. As argued by Landau (2009), individual countries, however, do not internalise the total cost of reserves, which includes the cost of global imbalances and subsequent crises.

Stability

A major lesson from the crisis is that financial stability is a public good that should be sought 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 in avoiding the build-up of imbalances and in mitigating the impact of crises. The key issues here are:

- *Global anchor*: 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 deflation⁴¹. This essentially boils down to avoiding situations of excess or too little liquidity at global level.
- *Discipline*: The IMS should also provide incentives to all governments to conduct policies consistent with the avoidance of excessive imbalances and the build-up of large, unsustainable net foreign-asset positions⁴².
- *Resilience to shocks*: Crisis mitigation involves ensuring resilience when confronted with major economic and financial shocks, such as sudden capital surges and stops. What can be expected from the international monetary system is that it leaves sufficient autonomy to governments and central banks to respond with national policy instruments and that it ensures the provision of international liquidity when necessary.
- *Limitation of exchange-rate volatility*: A final aspects of stability 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 spillover effects, such as when a shock to country A has destabilising effects on the exchange rate between countries B and C. By the same token the system should discourage and, if necessary, punish beggar-thy-neighbour policies, including 'currency wars' in situations of global demand shortage.

41. We do not enter here the well-known discussion about 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.

42. The precise meaning of 'excessive imbalances' and 'unsustainable net foreign-asset positions' is obviously a matter for discussion. Again, this applies to all international monetary systems. We do not claim to have a yardstick to determine what external balances should be, we only claim that it belongs to the international monetary system to provide incentives for appropriate balances.

Equity

- *Adjustment symmetry*: The system should ensure the symmetry of adjustments, so that balance-of-payment adjustments do not fall only on a specific category of countries (deficit countries whose currency has no international status).
- *Limitation of exorbitant privilege*: Equally, it should avoid granting one country the ‘exorbitant privilege’ of being relieved of international constraints, unless these are the counterpart of corresponding duties.
- *Distribution of global seignorage revenue*: In a more equal system seignorage arising from the global use of currencies should be shared.
- *Limitation of policy spillovers*: Finally, the IMS should either allow for a coordinated policy response to shocks, or for a minimisation of international spillover effects of domestic policies.

5.3 Assessing the scenarios: comparison of alternative regimes

Table 6 summarises our assessment of the three scenarios on the basis of our set of criteria, taking the current system as a benchmark. The table also includes a reminder of their feasibility (on the basis of section 5.1).

A first glance at the table suggests that (i) any scenario would offer improvements compared to the current situation, (ii) the feasibility of the scenarios seems negatively correlated to their desirability, at least in the short run, and (iii) the multipolar and the multilateral scenarios both seem superior to the more modest ‘repair-and-improve’ scenario, although their pros and cons vary across the different criteria. We now detail the assessment for each criterion.

Efficiency

- *Economies of scale*: This first criterion is the most straightforward, since more key currencies necessarily involve a loss in terms of transaction and information costs. This criterion is detrimental to the multipolar scenario, although it should be borne in mind that transaction costs are already very low between existing key currencies (especially between the dollar and the euro, and between the dollar and the yen). Should the SDR play a prominent role as a means of payment, this first criterion would also involve, in the long term, a loss for the multilateral scenario.

- *Reserve accumulation*: The first scenario, which offers improvements on financial safety nets, encourages exchange-rate flexibility and provides more surveillance, would reduce, although not eliminate, the incentive for emerging countries to accumulate large reserves. Since these features are also presents in scenarios 2 and 3, any of these scenarios would represent improvements as far as the reserve criterion is concerned. By providing further strengthening of the multilateral scheme for liquidity provision, scenario 3 would further reduce the scope for reserve accumulation. As for scenario 2, it would reduce reserve accumulation by the most active country in this regard, namely China. Finally, both scenarios 2 and 3 would allow for better diversification of official reserves, hence a better risk-return profile.
- *Exchange-rate misalignments*: With smaller reserve accumulation and more exchange-rate flexibility around the world, real exchange-rates would more quickly reflect changes in economic fundamentals, hence scenario 1 would yield an improvement compared to the current regime. The improvement would be greater with a multipolar regime since each key currency would bear its share of real exchange-rate adjustments, and the scope for long-lasting misalignments would be limited to smaller currencies. In the case of a multilateral system, the scope for misalignments would also be limited due to more symmetrical pegging behaviours [based on the SDR].

Stability

- *Global anchor*: Only scenario 3 addresses the problem of the lack of a global anchor, through the development of a jointly managed source of international liquidity as well as monetary cooperation among central banks. The other scenarios do not preclude monetary cooperation (and in an optimistic view such cooperation could be made easier within a small group of key central bankers), but it is not logically implied by the basic scenarios.
- *Discipline*: While scenario 1 relies on enhanced surveillance to improve the discipline of macroeconomic policies, the other two scenarios directly address the Triffin dilemma. In both cases, the idea is to develop an alternative source of riskless, liquid reserve assets, to prevent the eventual deterioration of the quality of dollar-denominated ones. Competition amongst reserve-asset issuers then can contribute to discipline. Suppose, for instance, that the sustainability of US public finances is under threat. Because there are alternatives to US treasury bonds, international investors (including central banks) will switch to other assets displaying similar levels of liquidity. This will put pressure on the US authorities to adjust, through a

higher interest rate, a lower dollar or a combination of the two⁴³. Note that such a stabilising property of a multipolar system is still debatable, as exemplified by the concept of 'hegemonic stability' (Box 5.1). On the contrary, this effect is enhanced in scenario 3.

Table 6: An assessment of the three scenarios

Criterion	Scenario 1 Repair and improve	Scenario 2 Multipolarity	Scenario 3 Renewed multilateralism
Efficiency			
Economies of scale	0	-	0/-
Savings on reserve accumulation	+	++	+++
Limitation of FX misalignments	+	++	++
Stability			
Global anchor	0	?	+
Discipline	+	++	+++
Limitation of FX volatility	0	-	-
Resilience to shocks	+	+	++
Equity			
Adjustment symmetry	+	++	+++
Limitation of exorbitant privilege	0	+	++
Global seignorage	0	+	+
Limitation of policy spillovers	+	++	+++
Feasibility	+++	++	+

Note: Gains (+) or losses (-) are those implied by moving from the current IMS to each of the alternative regimes.

43. It can be asked if scenario 2 would enhance discipline, or just spread the Triffin dilemma over a group of key players (see Mateos y Lago *et al*, 2009). Only a supranational currency could fully eliminate the Triffin dilemma (see United Nations, 2009). However, as Eichengreen (2009) 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). See also remarks by Fred Bergsten (in Pisani-Ferry and Posen, 2009, p186): 'I believe it would be healthy for the United States to move to a bipolar monetary system where there is competition. There is no reason why the United States and Europe could not cooperate effectively to manage a bipolar monetary system. The competition it would promote might be a healthy element', and sceptical comments by Larry Summers. This is consistent with an attenuation of the Triffin problem. In the case of scenario 3, there would still be a risk of reducing rather than enhancing discipline if reserve holders were no longer to hold the currency risk (the latter being socialised through a substitution account).

- *Exchange-rate volatility*: The competition across reserve-asset issuers mentioned above could also give rise to *more* exchange-rate volatility in scenario 2, when compared to the current regime. This is because the allocation of liquid portfolios would become more sensitive to changes in expected asset returns [Box 5.2]. To the extent that the SDR would be a substitute for dollar assets, the same kind of outcome could be observed in scenario 3. It must be recalled, however, that short-term exchange-rate volatility may not be too detrimental to the real economy since it can easily be hedged, as opposed to long-lasting exchange-rate misalignments⁴⁴. Also and importantly, adverse spillovers onto third-country exchange rates would likely be reduced in a more symmetrical system. For instance, the euro/dollar exchange rate would no longer be affected by a shock affecting trade relations between China and the United States (Bénassy-Quéré and Pisani-Ferry, 2011).
- *Resilience to shocks*: The strengthening of financial safety nets assumed in scenario 3 would presumably help improve resilience to shocks more than in the other two scenarios.

BOX 5.1: Hegemonic stability in a unipolar system?

Scholars of international relations often point out that a unipolar system exhibits ‘hegemonic stability’ properties (see Kindleberger, 1981, or the critical assessment by Eichengreen, 1987). The idea is rooted in the inter-war experience, a period where ‘the international economic system was rendered unstable by British inability and United States unwillingness to assume responsibility for stabilising it’ (Kindleberger, 1973, p292). The rationale for hegemonic stability is that the hegemon is supposed to internalise the externalities involved in the provision of a particular global public good – monetary stability in a broad sense, including through the provision of liquidity in times of stress, see Table 7 – 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.

A ‘leaderless’ currency system could theoretically manage to produce the global public good, provided there is effective coordination between the different players. However, such coordination was missing during the interwar period (Eichengreen, 1987), and is unlikely to be more effective with more than two players, all the more

44. On the real effects of exchange-rate volatility and misalignments, see eg Clark *et al* (2004), Sallenave (2010).

so since one player (the euro area) has not yet resolved its problem of external representation (Cohen, 2009).

According to Cohen (2009), the major risk of monetary power fragmentation is that of ‘formal leadership aspirations’, ie a state-driven rather than market-based leadership struggle. The risk is both economic (eg increasingly antagonistic relationships between currency blocs, possibly leading to de-globalisation) and geopolitical (eg a breakdown of fragile equilibria, such as oil and support for the US dollar in return for military protection in the Middle East).

Although attractive, the ‘hegemonic stability’ theory neglects the possibility for the hegemon to exploit its monetary power rather than internalising global stability in its decision-making process. It does not account for the actual behaviour of past hegemonies such as the UK under the gold standard or the US in the post-war period. True, the US often acted as a crisis coordination leader, for example at the time of the Asian crisis, and the Federal Reserve supplied US dollars to partner central banks through swap agreements at the time of the global crisis. But the loose monetary policy during the Greenspan era may not have fully internalised the worldwide impact of cheap credit. By the same token, the choice by the US Federal Reserve to embark on quantitative easing in the aftermath of the crisis may have failed to internalise fully the impact on emerging countries as a consequence of hot-money inflows. Furthermore, the legislative branch has demonstrated markedly less willingness to let the US play the role of the benevolent hegemon and incur the corresponding costs.

In fact, the hegemonic stability approach starts from the assumption that the hegemon enjoys undisputed economic predominance and therefore has an unambiguous incentive to preserve and nurture international stability. 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 7).

Table 7: Roles of the monetary hegemon and their current relevance

Hegemon’s role	Relevance	Does size matter?
Enforcer of rules of the game (eg 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

Hence, when the dominance of the monetary hegemon is no longer backed up by relative size and economic power, there are grounds to question the stability to be expected from a continuation of a unipolar monetary system. In contrast, as already argued by Kwan in 2001: ‘The emergence of international currencies that compete with the dollar may help impose discipline on the macroeconomic policy of the United States by rendering the international environment less forgiving of its mistakes’ (Kwan 2001, p7). The traditional arguments in favour of a hegemonic system are therefore weaker than they appear at first sight. They may have provided a fair rationalisation of the first phase of the post-war Bretton Woods order, but fail to offer a guide for the assessment of alternative arrangements in a radically different world situation.

BOX 5.2: Reserve-asset competition, macroeconomic discipline and exchange-rate volatility

A simple, three-country portfolio model helps identify what might be the consequences for exchange-rate volatility of moving towards a multipolar world.

Bénassy-Quéré and Pisani-Ferry (2011) consider a world made up of three countries (the United States, China and the euro area), and three currencies (the dollar, the renminbi, and the euro). US assets are assumed riskless, whereas Chinese and European ones involve a liquidity risk. The representative investor is assumed to maximise the expected variation of his/her utility, which is a concave function of the variation of his/her wealth. Utility maximisation then determines the optimal share of each type of asset in the investor’s wealth.

It is further assumed that Chinese investors can hold the three types of assets, but that due to Chinese capital controls, US and European investors cannot hold renminbi-denominated assets. The model can be solved to find out how a change in relative returns affects the share of currency j in the portfolio of country i ’s representative investor (f_j^i):

US investor:
$$f_{\epsilon}^U = \frac{\Delta r_{\epsilon S}}{a^U(\sigma_S^2 + \sigma_{\epsilon}^2 - 2\sigma_{\epsilon S} + \varphi_{\epsilon}^2)}$$

European investor:
$$f_S^E = \frac{\Delta r_{S\epsilon}}{a^E(\sigma_S^2 + \sigma_{\epsilon}^2 - 2\sigma_{\epsilon S} + \varphi_{\epsilon}^2)} + \frac{\varphi_{\epsilon}^2}{\sigma_S^2 + \sigma_{\epsilon}^2 - 2\sigma_{\epsilon S} + \varphi_{\epsilon}^2}$$

Chinese investor:

$$f_s^C = \frac{s_2 \Delta r_{\$Y} - (\varphi_Y^2 + \sigma_s^2) \Delta r_{\text{€Y}} + a^C \varphi_Y^2 (\varphi_\text{€}^2 + \sigma_\text{€}^2 - \sigma_{\text{€\$}})}{a^C [s_1 s_2 - (\varphi_Y^2 + \sigma_{\text{€\$}})]}$$

$$f_\text{€}^C = \frac{s_1 \Delta r_{\text{€Y}} - (\varphi_Y^2 + \sigma_s^2) \Delta r_{\$Y} + a^C \varphi_Y^2 (\varphi_\text{€}^2 - \sigma_{\text{€\$}})}{a^C [s_1 s_2 - (\varphi_Y^2 + \sigma_{\text{€\$}})]}$$

Where a^i is the risk aversion of country i 's representative investor ($i=U, E, C$), Δr_{ij} is the expected return differential between currencies j and j' , σ_i^2 is the risk on the exchange rate between currency j ($j=\$, \text{€}$) and the renminbi, φ_j^2 is the liquidity risk on the assets denominated in currency j , $s_1 = \varphi_Y^2 + \sigma_s^2$, and $s_2 = \varphi_Y^2 + \sigma_\text{€}^2 + \varphi_\text{€}^2$.

Two main conclusions can be derived from these results:

- Absent return differentials, $f_\text{€}^U = 0$ but $f_s^E, f_s^C > 0$. Irrespective of relative returns, there is a demand for dollar-denominated assets which results from the liquidity risk on non-dollar assets. The higher the liquidity risk on euro assets, the higher the demand for dollar assets. Conversely, exchange-rate volatility tends to reduce this liquidity-seeking demand.

- The demand for foreign assets rises with their expected return, but liquidity and exchange-rate risks affect negatively the sensitivity of optimal shares to return differentials.

Then, enhancing the liquidity of euro and/or renminbi-denominated assets (ie reducing the liquidity risk of both types of assets) would reduce both the bias towards dollar holdings and increase the sensitivity of portfolio allocations to expected return differentials. Raising the flexibility of the renminbi (ie increasing the volatility of the renminbi-dollar exchange rate) would reduce the bias of the Chinese investor in favour of the dollar while reducing their responsiveness to return differentials.

Equity

- *Adjustment symmetry*: Provided the key currencies are truly allowed to float, a multipolar system would reduce the asymmetry of balance-of-payment adjustments among the major currencies, hence removing the deflationary bias related to the pressure to adjust exerted only on deficit countries. Asymmetry would, however, still prevail at regional level. The multilateral scenario would not

yield similar benefits if some major players were to peg their currencies to the SDR: surplus countries would accumulate SDRs rather than dollar reserves, with no more incentive to adjust than in the current system. However, the pooling of official reserves within some form of substitution account would allow liquidity to be redistributed to those countries in need, hence erasing the deflationary bias caused by asymmetric adjustment (see Stiglitz Commission, 2009). The bias could also be reduced by a smaller incentive to accumulate reserves, although it can be argued that the diversification of foreign-exchange reserves through the SDR could in fact increase the willingness to accumulate more reserves. Finally, in all three scenarios, enhanced surveillance and financial safety nets could contribute to more symmetry in the three scenarios, compared to the current IMS.

- *Exorbitant privilege and global seignorage*: In both scenarios 2 and 3, the 'exorbitant privilege' of issuing international reserve assets would be shared, as well as seignorage.
- *Policy spillovers*: In all scenarios, the focus of multilateral surveillance on policy spillovers from 'systemic' countries would contribute to reducing the scope for detrimental spillover effects. In scenario 2, the move to more flexible exchange-rate regimes would further reduce the spillovers from foreign policy shocks since the countries concerned would no longer 'import' foreign interest rates. It would also reduce the scope for indirect spillovers, as explained in Box 5.3. The move from dollar pegs to regional pegs would also alleviate the spillover problem to the extent that economic cycles are more regional than global. In turn, the use of SDR pegs would dilute the problem of policy spillovers.

BOX 5.3: Direct and indirect policy spillovers

Bénassy-Quéré, Carton and Gauvin (2011b) use a macroeconomic model with explicit microeconomic foundations to study the international policy spillovers in a three-country framework (the United States, China and the euro area). The model has overlapping generations and nominal rigidities (Calvo pricing). Monetary policies are modelled using Taylor rules. Fiscal policies consist of setting the level of pensions, given the exogenous tax rate on labour endowment so that the debt-to-GDP ratio converges at a certain pace towards its long-run, exogenous target level.

In the model, China differs from the two other areas through two financial frictions: (i) a constraint on firms' borrowing, and (ii) a constraint on international capital inflows and outflows. Additionally, it is assumed that China can run either a fixed exchange-rate regime, or a free-floating regime. In the former case, the Chinese monetary rule is adjusted to account for the impact of imperfectly sterilised reserve accumulation. The model is used to successively study two policy shocks in the United States (a cut in the public debt target, and a monetary tightening) and one structural shock in China (an increase in the generosity of the pay-as-you-go pension system). These policy shocks are successively studied under three different monetary regimes in China:

- a fixed exchange rate against the US dollar with (incomplete) capital controls.
- a fixed exchange rate against the US dollar with a relaxation of capital controls.
- a free-floating exchange rate with a relaxation of capital controls.

It is found that policy spillovers from the United States to China critically depend on its monetary regime: a flexible exchange rate insulates the Chinese economy (for GDP, employment, consumption, although not the trade balance) from US fiscal and monetary shocks, whereas in a fixed peg to the dollar, China 'imports' the US monetary policy and exchange rate against the euro, and all the more as capital controls are relaxed.

Policy spillovers from the United States to the euro area do not depend on the Chinese monetary regime for fiscal shocks. In the case of monetary shocks, however, they are magnified by an asymmetric monetary regime in China, since the renminbi co-moves with the dollar against the euro without this being compensated for by demand variations in the other direction.

Finally, it is found that pension reform in China has a relatively similar impact on the US and on the euro-area economies even when the Chinese monetary regime is asymmetric. The reason for this is the high level of capital mobility between the United States and the euro area. It is also found that spillovers are magnified by a relaxation of capital controls in China.

On the whole, scenario 3 appears somewhat superior to scenario 2 for efficiency and stability, and to some extent also for equity. But it is also much less likely to materialise. The main good news from our analysis, however, is that, should there be little appetite for a multilateral solution, there is plenty of scope for improving the functioning of the IMS through fostering the emergence of a multipolar system⁴⁵.

It should be emphasised, though, that the gains from multipolarity can only materialise if key currencies are truly allowed to float (although maybe in a dirty way), and if third countries move towards more flexibility or regional pegs. Although the internationalisation of the renminbi will make its flexibility more acceptable for both China and its regional partners, many emerging countries will be likely to continue to value exchange-rate stability (as part of their 'fear of floating', see Calvo and Reinhart, 2002). To the extent that each country tries to monitor its competitiveness through foreign-exchange interventions, this could trigger more frequent 'currency wars' that are a direct consequence of a collective action failure⁴⁶.

Our multipolar scenario should therefore not be regarded as an easy way out of the intricacies of recent international monetary debates. Fostering the emergence of a multipolar monetary world would only help because such a world would probably be conducive to finding responses to the very same issues.

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

46. See Darvas and Pisani-Ferry (2010) for an assessment of the 'currency war' that broke out in the autumn of 2010.

6 Transition

In the previous section we discussed the pros and cons of three scenarios, as compared with the present, hybrid system. We concluded that the most ambitious scenario in terms of cooperation (scenario 3) would probably deliver the largest improvements, but that its likelihood is currently limited. In the short run, given the directions taken by the G20, the 'repair-and-improve' scenario (scenario 1) seems the most likely, whereas in the medium term (10-15 years), market forces should favour scenario 2. Finally, scenario 3 may be revived at some stage, for instance after major monetary turmoil. In all cases, the transformation of the IMS is likely to take some time.

In this section we concentrate on the transition from the current state of affairs to new arrangements. Shedding light on this process is necessary for at least two reasons. First, the likelihood of the scenarios depends on the difficulties of the transition toward them. Second, history can be path dependent, which means that past and current developments may affect the eventual outcome.

To some extent transition is already underway. On the policy front, the IMF has introduced new liquidity facilities and plans further additions to its toolbox. The suggestion was made, though not upheld in subsequent discussions, to institutionalise the central bank swap agreements reached during the crisis. Significant steps have been made to reform surveillance at global level, by the IMF and through mutual assessment among G20 countries. The governance of the IMF is being reformed. There is a new debate on capital controls and more generally the management of capital flows. Financial regulatory reform is likely to have repercussions on the functioning of the IMS. At regional levels, surveillance and liquidity provision are undergoing major reforms in the euro area. China, also, is gradually implementing various reforms to internationalise the renminbi. And there are many more initiatives both at global and regional levels.

Concerning market-driven changes, as discussed in section 3, the IMS has already moved away from a pure dollar-based system and this process is bound to continue. The global crisis and its aftershocks are reshaping the world economy and the roles of

the major currencies. The sovereign debt crisis in the euro area and concerns about US fiscal sustainability are leading investors worldwide to reassess their priorities. The same applies to renewed concerns over the persistence of global imbalances. More fundamentally, the changing balance of global economic power is destined to trigger changes in the roles of international currencies.

In this section, we focus mainly on the transition towards a multipolar system (scenario 2), because we want to explore its feasibility and likelihood. However, our third scenario, renewed multilateralism, though somewhat remote, cannot be excluded. Hence we will, when needed, mention the corresponding costs and benefits and the conditions required to attain it.

We first discuss the prospects for renminbi internationalisation (section 6.1). Then, acknowledging that the transition to a multipolar system will take at least a decade, we discuss the potential for rebalancing (section 6.2) and exchange-rate instability (section 6.3) within the present IMS. Issues specific to the euro area are discussed in section 7.

6.1 The path of renminbi internationalisation

The potential for internationalisation of the renminbi is a central issue for the evolution of the IMS: without this, our multipolar scenario is not feasible, and even some of the benefits of the repair-and-improve scenario require some (limited) opening up of China's financial account.

Since 2009 China has started experimenting, with characteristic caution, a limited internationalisation of the renminbi. Initiatives in this direction include renminbi cross-border trade settlement, the issuance of renminbi-denominated bonds in Hong Kong, the establishment of an offshore RMB market, the settlement of overseas direct investments in renminbi, and an expansion of the so called 'qualified foreign institutional investor scheme'⁴⁷. China has also taken steps to increase its role as a provider of last-resort liquidity by participating in the Chiang Mai multilateralisation process. In addition, the People's Bank of China entered renminbi-based bilateral swap agreements with six countries in 2008-09, which were joined by two additional countries in 2010 and two more in 2011. This is, at least, a plain declaration of intent⁴⁸.

47. The 'qualified foreign institutional investor' scheme was introduced in 2002 and allowed selected international investors access to Chinese A shares denominated in RMB on the stock exchange, up to a fixed quota.

48. See Vallée (2011) for details.

Yet broad-based capital controls, both for inflows and outflows, are maintained. In spite of unambiguous international pressure the Chinese authorities are still reluctant to open their financial account more decisively, make their currency more flexible and liberalise their domestic financial system.

Are Beijing's initiatives too cautious to have impact? Or will Chinese gradualism once again prove effective? There is widespread consensus among academics and policy players that the renminbi will only gain a meaningful international role if China concedes on the flexibility of the exchange rate, the convertibility of capital and financial account and the opening of the domestic financial sector to enhanced foreign participation. Vallée (2011), however, argues that the renminbi could achieve significant internationalisation and play an important anchor role regionally, within the next 5-10 years, in spite of China keeping a relatively closed financial system and a moderate degree of currency flexibility and convertibility.

We consider that China's gradualist strategy can lead to achieving limited international status for the renminbi. To this end, China would have to progress on three fronts:

- *Develop offshore financial markets:* China will need to take steps to deepen and broaden its capital markets to start establishing the renminbi as a unit of account and store of value. The creation of the renminbi offshore market addresses this challenge, but the future of the renminbi as an international currency is very much tied to the liquidity, depth and diversity of its market, which by all measures remains in its infancy. As long as the distinction between onshore and offshore currency exists, it is likely that some actors (foreign central banks in particular) will prefer accessing the domestic onshore financial system. It is essential for China to manage this tension if it wants to internationalise its currency while maintaining a large degree of control over its financial account.
- *Enhance China's regional monetary role:* for the renminbi to gain an even limited international role, it needs to be established as a regional anchor with the responsibilities that this entails (such as lender of last resort and beacon of economic stability). The multilateralisation of the Chiang Mai Initiative and the central role that China intends to play in it can be seen as an important, but most likely insufficient, step in this direction. The activation of the bilateral swap arrangement, which has so far only been used by the Hong Kong Monetary Authority in the context of the trade settlement scheme, will be a testing experience. Given regional political tensions and the testing experience of the euro area, it is unlikely that hopes of currency union will materialise in the coming years, but the renminbi

could nonetheless gradually become the *de-facto* anchor of the Asia currency bloc.

- *Reform the domestic financial system*: China will have to engage in a deep and wide reform of its internal financial system, including a thorough regulatory overhaul, ending its financial repression and fiscal dominance, enhancing private-sector involvement in the distribution and allocation of credit, and modernising and developing market infrastructures. The plan to establish Shanghai as a leading financial centre by 2020, potentially building on the lessons learned from Hong Kong and Singapore's experiences, could function as a catalyst for financial market deepening in China.

While these steps will naturally complement initiatives launched so far and help achieve a limited international role for the currency, more significant reforms will be necessary if the renminbi is to become a truly global currency. At present, it is unclear if China intends to take this further step in the foreseeable future. However, the currency internationalisation process is to some extent self reinforcing: after the first steps are taken, China's policymakers will face difficulty remaining in mid-course; forces will be set in motion that will encourage further steps forward. These would need to include:

- *Currency convertibility, full financial openness, and exchange-rate flexibility*: major reforms of the Chinese exchange-rate system and financial account openness are indispensable if the renminbi is to compete for a premier international currency role⁴⁹. The distinction between offshore and onshore transactions which allow Chinese authorities to maintain a high degree of controls will have to diminish over time and eventually be eliminated. In addition, a dominant international currency cannot be pegged unilaterally.
- *Issuance of high-quality assets*: the issuer of a major reserve currency needs to issue a large amount of high-quality assets (a precondition for serving as a store of value), which China cannot supply while it remains a net creditor and maintains controls on financial outflows. In this context, China will have to reduce capital controls to allow for bi-directional capital flows and/or to convincingly complete its ongoing internal rebalancing in order to decrease its savings ratio.
- *Rule of law*: Beijing will need to establish an internationally trusted rule of law and

49. Financial openness will be especially needed if China continues to run a current-account surplus, hence it will be unable to disseminate renminbi-denominated assets without two-way capital mobility.

a legal system that ensures predictability and enforceability of all legal claims. An option, chosen by some countries, is to keep their financial/business laws separate from their standard legal system so that the liberal principle of a free and fair trial does not become a feature of domestic national law. However, such a half-way solution for China would also carry political stability risks.

- *International engagement*: China will have to embrace the idea of a bigger role in global financial and monetary affairs and to accept commensurate responsibilities. This commitment will need to translate into a policy of international engagement with the intention of increasing the international role of the renminbi. This will imply a new form of international financial diplomacy and a more active leadership role in the international financial institutions, for example in the definition and implementation of appropriate adjustments through the G20 framework for growth.

Such decisions by China, if and when they materialise, are unlikely to be driven by domestic considerations alone. This is where the cooperative element enters the picture, and can play an important role in shaping future IMS reform. If any progress is to be made, in the time horizon we consider, towards a stronger role for the SDR, it is inconceivable that this can happen without the active participation of China. As we have already noted, scenario 3 has a negligible probability of materialising at present, but its likelihood would increase in an environment of monetary turmoil characterised, for example, by disorderly dollar depreciation and renewed unstable financial-market conditions. These are precisely the conditions in which monetary cooperation would become more likely, and in which the potential rewards for the Chinese authorities to enter the cooperation game would increase.

We consider it highly conceivable that, if all these policy choices are made, the renminbi will acquire a key international currency status and become a serious challenger to the euro in the next decade, eventually possibly succeeding in overtaking both the euro and the dollar as the hegemon by 2050 if not before. However, each and every one of those steps implies challenges and trade-offs, and hard decisions that the Chinese authorities may not be able, or not willing, to make at the right moment. If that were the case, the potential for the renminbi would be more limited. China's currency could nonetheless establish itself as a leading second-tier international currency (like the yen or sterling today) with a significant and growing regional importance.

BOX 6.1: The RMB in the SDR: When and what consequences?

In April 2011 in Washington, the G20 finance ministers and central bankers agreed to work on a 'criteria-based path to broaden the composition of the SDR' (final communiqué). This process is linked to a broader discussion about the role of emerging economies in the IMS and the need to take into account the growing role that they play in the world economy.

This decision raises two issues: (i) is the inclusion of the renminbi in the SDR a true possibility in the short or medium run? and (ii) what difference would it make for the IMS?

The selection of the currencies included in the SDR is not carved in stone and has changed a number of times in the last 50 years. It can be changed by the IMF's Executive Board with by a majority of 85 percent (the valuation method, including the weight of the different currencies being itself reviewed every five years by 70-percent majority).

In October 2000, the Board of the IMF decided that four currencies would be included in the SDR: those of the four largest exporters (exports being measured over the five years preceding the effective date of the revision of the basket) with 'freely usable' currencies. The definition of 'freely usable' relies on Article XXX of the IMF's Articles of Agreement:

"A freely usable currency means a member's currency that the Fund judges, in fact, (i) widely used to make payments for international transactions, and (ii) is widely traded in the principal exchange markets." [IMF Articles of Agreement, XXX (f)].

The precise interpretation of this article is left to the IMF's Executive Board and has varied over time. The concept of 'free usability' differs from that of full convertibility (Vallée, 2011). In the past, some currencies were often included in the SDR basket with some remaining constraints on their convertibility. However, it is important for the proper functioning and usefulness of the SDR that the currencies included in the basket are widely traded internationally and can provide a meaningful interest-rate benchmark, in order for the SDR return to be meaningful.

In the absence of consistent data on trade invoicing, the first criterion (widespread use for international transactions) has so far been assessed on the basis of the

share of the country in global exports of goods and services. Although those transactions are still primarily settled in US dollars, China qualifies as the first exporter in the world and is undoubtedly making progress towards increased use of the renminbi as an invoicing and payment currency.

The second criterion (trades in exchange markets) is assessed through the share of the currency in official reserves as well as in foreign-exchange market turnover and denomination of international bonds and bank loans. In this respect, the Chinese currency is still far from being 'freely usable'. In its last review in 2010, the Executive Board considered the 'freely usable' criterion was not met yet for the renminbi precisely on these grounds but decided to keep the matter under close review, thereby potentially paving the way for the renminbi to be included during the next review in 2015.

If we posit that the inclusion of the renminbi in the SDR is a possibility, the next question is what effect it would have on the IMS. In order to make this assessment, it may be useful to rely on the same taxonomy used in section 5: efficiency, stability and equity.

Efficiency: the original purpose of the SDR in 1969 was to supplement the US dollar as a source of international liquidity. Including the renminbi in the SDR would be consistent with the role the People's Bank of China has started to play as a liquidity provider through the development of bilateral swap lines with foreign central banks. More importantly, the inclusion of the renminbi in the SDR and the associated reduced volatility of the SDR against the renminbi would work as an incentive for the People's Bank of China to provide dollars in exchange for SDR on a voluntary basis, which would reduce its dollar exposure (although the potential for diversification through SDR holdings will remain limited unless there are more active allocations in the future). Hence, including the renminbi in the SDR could contribute to enhancing the international financial safety net.

Stability: offering China a way to diversify its reserves with little market impact and without the use of a controversial substitution account would be an achievement in terms of stability. However, to the extent that the renminbi stays more or less pegged to the USD, having the renminbi in the SDR would, all else being equal, raise the volatility of the basket for currencies that are not *de jure* or *de facto* pegged to the dollar. This could reduce the incentive for the corresponding countries to use the SDR. Rather, it could increase the incentive to peg currencies to the dollar around the world and accumulate dollars as a liquid proxy of the SDR.

Equity: including the renminbi in the SDR can be viewed as a way to have China take more responsibility in the functioning of the global monetary system. However, it would also be a way to allow international investors to take long positions in the Chinese currency even before it is made convertible. This could encourage rather than discourage reserve accumulation (in the form of SDRs). More importantly, it would amount to socialising the exchange-rate risk. Assume, for instance, that when allowed to float, the renminbi appreciates against the other currencies of the SDR basket. Then, any country holding SDRs will be able to convert them into key currencies at an inflated exchange rate, the loss being borne by the central bank that makes the swap.

Overall, the main motivation for considering the inclusion of the renminbi in the SDR basket through a 'criteria-based path' may be to encourage China to embrace the multilateral liquidity-provision framework as opposed to bilateral arrangements seen so far. It is also important to encourage China to gradually improve the flexibility of its exchange rate and eventually relax restrictions on financial transactions which will help establish the renminbi in financial markets and in international reserves. Finally, having the five major international currencies in the SDR could be conducive to creating a G5 monetary group for consultation on exchange-rate and monetary issues.

6.2 Global rebalancing

We have noted that a serious flaw of the current international monetary regime is that it lacks a powerful mechanism for adjusting external imbalances. Discipline is enforced only on non-dominant external-deficit countries, but does not provide incentives to countries in external surplus to adjust, nor does it include incentives for the United States.

To substitute price-led adjustments, the G20 partners are trying to enhance surveillance through the Mutual Assessment Process, and the IMF is following a parallel path through the preparation of 'spillover reports' for 'systemic' countries.

In this section, we assess what rebalancing can deliver. This is intended to shed light on what can be expected from the 'repair-and-improve' scenario. However, broader lessons can be drawn about the possibility of adjustment under alternative exchange-rate and capital-mobility assumptions.

We rely on model-based simulations as in Box 5.3, except that now the model is reduced to only two countries: a deficit country (the US), and a surplus one (China), with a fixed nominal exchange rate and capital controls between the two (see Bénassy-Quéré, Carton and Gauvin, 2011a). We successively examine rebalancing policies in China and in the US and compare their implications under the fixed exchange-rate regime and the alternative regimes defined in Box 5.3.

Rebalancing in China

The Chinese response to international calls for rebalancing has been to start addressing one major cause of high household savings, namely the weakness of the social safety net⁵⁰. The structural reforms considered are an increase in the generosity of China's pension system, a financial reform that facilitates the access of private companies to debt markets while removing capital subsidies, and an increase in the government debt target.

The results indicate that a fall in China's saving rate would contribute to global rebalancing whatever the exchange-rate regime, provided international capital flows react to interest-rate differentials (which implies less-than-complete capital controls in China). Under a flexible exchange-rate regime, the reduction of the bilateral current-account imbalance between the United States and China is eventually not stronger than under a fixed exchange-rate regime. However, it is quicker (because the renminbi appreciates in nominal terms against the US dollar, instead of appreciating in real terms through domestic inflation). Moreover, only under a flexible exchange-rate regime would China be able to control inflation stemming from more dynamic domestic demand. These findings indicate that the country that would benefit most from China moving away from its fixed peg when it implements demand-enhancing reforms is China itself. For the United States the advantage of such a move will only be transitory⁵¹.

50. After setting the goal of 'universal social security coverage for urban and rural residents by 2020' in 2006, the Chinese authorities took decisive action especially concerning health insurance (see Li, 2011) and the pension system (Herd, Hu and Koen, 2010). In particular, it was decided in 2005 to reduce the share of the 'individual account' in the calculation of pension benefits, thereby raising the replacement rate for urban households, and in 2009 a new rural pension programme was launched with the aim of progressively extending the coverage from 10 percent of the counties at end-2009 to 50 percent in 2012 and complete coverage by 2020. The twelfth 5-year plan approved in 2011 has confirmed the extension of social-security coverage as a top policy priority.

51. The results also show that, should the US Federal Reserve refrain from reacting to the reduction in global savings, the rebalancing would be muted and the exchange-rate regime of China would gain in importance. This point is important to understand the sensitivity of the exchange-rate issue in the US before monetary policy has been normalised.

One interpretation of global imbalances is that of ‘forced savings’: by accumulating foreign exchange reserves while controlling capital outflows, the Chinese authorities manage to control the aggregate net savings rate of the nation. This interpretation is consistent with fast reserve accumulation that can hardly be explained by excess savings in the private sector (Cova, 2009). The model confirms the importance of reserve accumulation as a key driver of current-account surpluses. Importantly, it is found that simply reducing the objective of reserve holdings is capable of cutting the current-account surplus, even when the exchange rate is not allowed to float. The reason is that reducing reserve accumulation forces the central bank to reduce its interest rate if it wants the nominal exchange rate to stay constant. Such a cut in the interest rate boosts domestic demand, hence reducing the current-account surplus.

On the whole, the various simulations suggest that the combination of (i) demand-enhancing reforms in China and (ii) reduced willingness to accumulate official reserves could be a powerful driver of global rebalancing, should the Chinese authorities be active in the implementation – this result holds whatever the exchange-rate regime, provided capital controls are not complete. This is relatively good news for the ‘repair-and-improve’ scenario which includes domestic structural and macroeconomic policies (through the MAP) and a reduction in the incentives to accumulate reserves. Furthermore, these results suggest that the type and pace of renminbi internationalisation envisaged in the previous section is not necessarily contradictory with China’s contributing to global rebalancing, provided further structural reforms take place.

Rebalancing from the US

Since the US has the largest current-account deficit, an important question for global rebalancing is what to expect from an increase in public savings in the US and monetary tightening. The same model is used to answer this question (see Bénassy-Quéré, Carton and Gauvin, 2011b). Specifically, the analysis of US public savings assesses the impact of the reduction of the US debt target through a transitory cut in pensions. The main counterpart of this debt contraction is the fall in US households’ holdings of public bonds. However, foreign households also reduce their holdings of US bonds. On the whole, the US net foreign-asset position rises. Not surprisingly, the rebalancing effect of the shock is larger when Chinese capital controls are relaxed than with the status quo.

A temporary monetary contraction in the US does not have a permanent impact. In the fixed exchange-rate regime, China imports the monetary stance of the US, especially when capital controls are relaxed. In this case, relaxing capital controls without allowing the RMB to float leads the rebalancing to be muted.

We conclude that the ‘repair-and-improve’ scenario, which monitors significant domestic policy shifts while reducing the incentive to accumulate official reserves, can be powerful in rebalancing the global economy even without a major shift in exchange-rate and capital regimes. However, it should be borne in mind that monetary policy is unable to produce any rebalancing between countries linked by a fixed exchange rate. In terms of the transition, our analysis reinforces the case for scenario 1 as a temporary arrangement before scenario 2 emerges.

6.3 Exchange-rate instability

The transition from the current, largely unipolar, system toward a multipolar one raises the important issue of the potential for exchange-rate volatility and exchange-rate misalignment. Using a three-country portfolio-choice model with the US, the euro area and China as the three participants, Bénassy-Quéré and Pisani-Ferry (2011) show that a rise in Chinese wealth, a diversification of China’s portfolio, or more generally shocks affecting China are not neutral for the euro/dollar exchange rate as long as China keeps a fixed exchange rate against the dollar, whereas they are neutral both in a flexible regime and if the renminbi is pegged to a symmetrical basket. They also show that a large Chinese bias in favour of dollar-denominated assets can reverse the impact of wealth transfers on the euro/dollar exchange rate, but these destabilising impacts can be moderated by an internationalisation of the renminbi. Hence, before the Chinese currency is internationalised, and unless China’s peg moves from a bilateral to a multilateral one (possibly on the SDR), the euro-dollar exchange rate (as well as other bilateral rates) will suffer volatility coming from this third country.

Additionally, the transition to a multipolar monetary system involves a diversification of official reserves, with a possibly disruptive impact on the euro and other alternatives to the dollar (yen, sterling, Swiss franc, but also miscellaneous currencies whose share has risen in recent years, see section 3). Fortunately, there is a strong incentive for central banks, especially those holding large amounts of reserves, not to act in a destabilising way on the foreign-exchange market. But one cannot exclude reserve diversification triggering large, although temporary, misalignments. In this respect, tighter coordination of exchange rates could be useful during the transition: scenario 3 can itself be viewed as a stepping-stone towards scenario 2, with more generous SDR allocations helping central banks to diversify their reserves without too much impact on exchange rates, before the renminbi can step in as a new reserve asset.

7 Implications for the euro area

We have emphasised in the preceding sections that future monetary developments will depend on economic fundamentals and on market forces, but also on the main players' policies and strategic choices. In particular, we have emphasised that in comparison to the US and China, governance weaknesses and the absence of official support for an increased role of the euro as an international currency (see Table 4 in section 4) have been characteristic of the euro area.

This characterisation does not automatically translate into policy prescriptions, however. Currencies are not primarily instruments of diplomacy. Nor is the prestige of an international currency a goal to be pursued unconditionally. The so-called exorbitant privilege of issuing an international currency is less significant than often thought, especially taking into account that it comes with 'exorbitant duties' (Gourinchas, Rey and Govillot, 2010). Rather, policy prescriptions have to be grounded in a comparative assessment of the economic costs and benefits of the three scenarios *from the point of view of the euro area*, using the same criteria as used for the comparative assessment of chapter 5: efficiency, stability and equity. Only on this basis can policy options be outlined.

7.1 Scenario assessment from the euro-area's viewpoint

Why should the assessment of the three scenarios differ for the global economy and for individual countries? There are three main reasons for this: (i) 'exorbitant' privileges and duties, (ii) asymmetric starting points, and (iii) different relative weighting of the efficiency, stability and equity criteria.

Privileges and duties

As underlined by Gourinchas, Rey and Govillot (2010), to be the issuer of an international currency involves both benefits and costs. Benefits mainly relate to seignorage and reduced risks for residents in their trades with the rest of the world. They have been widely discussed in the literature (see, eg Papaioannou and Portes, 2008). Costs are less straightforward. Beyond the traditional fear of a loss of control

over monetary aggregates (which may not be well founded given the relative stability of foreign holdings in normal times), the main duty of the international reserve-issuer is the responsibility to provide the global economy with international liquidity in times of crisis, as was experienced during the 2007-08 liquidity crisis when the Fed did not hesitate to extend generous swap lines to a number of foreign central banks.

Gourinchas *et al* further argue that the 'exorbitant privilege' of the United States materialises in excess return on assets relative to liabilities due to the 'world banker' structure of the US balance sheet, with risky assets and riskless liabilities. This structure is admittedly only partially attributable to the international role of the US dollar, but it is strongly correlated with it because the issuer of the international currency has to rely on a deep and sophisticated financial system that is able to offer safe assets to the rest of the world. The counterpart of this 'exorbitant privilege' is an 'exorbitant duty' that materialised during the crisis through a collapse of the US net foreign-asset position as a consequence of the collapse of stock prices and of the appreciation of the dollar resulting from the safe-haven effect. Gourinchas *et al* hypothesise that only a country with relatively low risk aversion and a high recovery rate on domestic bonds can play this role of a global banker and accrue the associated privileges and duties. This raises the question of whether the euro area would be ready for the job.

Asymmetric starting points

Another reason why the euro-area viewpoint could differ from that of China or the United States is that the starting point is highly asymmetric, as indicated in Table 6 (page 70) by the low grade given to the 'repair-and-improve' scenario concerning equity. The euro area may have a special interest in a reform of the IMS since it suffers from the fixity of the dollar-renminbi exchange rate. However, moving from a unipolar to a multipolar IMS would imply that the demand for euro-denominated assets would to a great extent be determined by non-residents and could be subject to abrupt changes; it would probably also imply more exchange-rate volatility, as portfolio diversification away from or into the euro would give rise to exchange-rate movements.

Different weightings

Europe has a tradition of emphasising stability. This has been especially apparent in its monetary choices since the breakdown of the Bretton Woods system: from the European snake to monetary union, the Europeans have expressed dislike of exchange-rate volatility. This is also the case in China, but much less in other countries especially the United States, whose motto has been benign neglect. The risk of

increasing exchange-rate volatility across monetary blocs may reduce the incentive for the euro area to act in favour of scenario 2, although this scenario would also reduce the scope for big currency crises. By the same token, Europe has developed mainly through building a network of rules and surveillance, a predictable world very much in line with scenario 3.

On the whole, given its revealed preferences, scenario 3 would probably be the preferred option for the euro area. However, as already mentioned, this is the least likely scenario given the present appetite for international cooperation. If the choice is between the two other scenarios, scenario 2 would in principle be preferable to scenario 1 because it would yield less scope for exchange-rate misalignments, more discipline and more resilience to shocks. But the likely increase in exchange-rate volatility, combined with the 'exorbitant duty' related to the international currency status, may reduce the attractiveness of this scenario.

The attractiveness of scenario 2 is also reduced by its short-term implications: as long as access to renminbi-denominated assets remains limited, reserve diversification away from the US dollar risks being overwhelmingly into the euro.

The real choice, however, may not end up being between scenario 1 (repair and improve) and scenario 2 (tripolarity), rather between scenario 2 and what we have called scenario 2a, bipolarity with the dollar and the renminbi as the two poles, with the euro remaining a regional currency for eastern Europe, a region that has already achieved a high level of trade, financial and labour market integration with the euro area, which is not expected to be reversed even in the absence of enhanced internationalisation of the euro. Scenario 2a could in fact present several attractive economic features for the euro area in that it would reduce the asymmetry of the IMS and increase its efficiency without burdening the euro area with 'exorbitant duties'. But it would mark the end of Europe's ambition to export its policy principles and preferences.

As indicated in chapter 5, the evolution towards multipolarity is likely to be largely market-driven, but market forces alone are not enough for a currency to grow internationally, as shown by the examples of the dollar at the beginning of the twentieth century, or the yen in the 1980s. The development of world-class capital markets and financial stability are key. Both require determined policy action. For the euro to acquire a similar status to the dollar, significant policy decisions would need to be taken in the euro area, with the additional complexity of its multi-country structure. Refraining, or failing, to do so could cause the IMS to end up as a bipolar, dollar-renminbi configuration, in other words scenario 2a.

To the extent that exchange-rate misalignments and adjustment asymmetries are sourced out of the euro area, scenario 2a would be almost as good as scenario 2 as far as stability is concerned, while not being very different for efficiency. However, there would be a trade-off between benefitting from a share of the 'exorbitant privilege' (and taking responsibility for part of the 'exorbitant duties') and remaining a secondary player. This is, in essence, a political choice.

7.2 Policy implications

What gave international currency status to the US dollar was not primarily a deliberate policy by the United States government to internationalise its currency. At the beginning of the twentieth century it was to stabilise the economy and boost financial activity, not to rival sterling, that the Federal Reserve System was created and financial activity deregulated. Similarly, the steps taken today by China primarily aim at creating a bond market, reducing reliance on foreign markets and institutions and preparing for a new monetary regime. The internationalisation of the renminbi may help attain these internal objectives, but renminbi internationalisation is neither necessary nor sufficient. Similarly, the overriding priority for the euro area is to put its house in order through a comprehensive strategy:

- The euro area should first and foremost improve its growth outlook, correct internal real exchange-rate misalignments and restore the sustainability of public finances; these are essential conditions for the area's integrity and prosperity.
- Second, it should continue improving its internal governance so that policy failures of the kind experienced in the 2000s are avoided.
- Third, the architecture of financial integration within the euro area should be strengthened, and the reform of financial regulation should be completed, in order to make sure that the benefits of market integration do not come at a price in terms of financial stability.

This is a straightforward agenda and movement on these three fronts would be instrumental to succeeding in a scenario of gradual and limited international reform (scenario 1) as well as in a more ambitious scenario where the euro area is expected to become one of the major pillars of the world monetary order (scenarios 2 and 3).

However, a major difference between the euro area and its two partners is the lack of political union. For reasons indicated in section 4, monetary leadership may imply an

ability to take decisions and commit resources, which does not belong to the remit of the managers of a currency without state backing. Hence, additional reforms would be necessary to enable the euro to become a fully fledged international currency. In order to play such role, the euro area would have to do the following:

- *Streamline external representation*, with a view to consolidating it in the main international monetary institutions. A single chair in the IMF board is not on the short-term agenda but it remains a possibility for which the euro area has to prepare and take preliminary steps.
- *Address its inability to supply reserve assets*. As indicated in Table 4 (page 46), the fragmentation of the euro-area sovereign bond market is a major obstacle to a wider international role for the euro. In comparison to US Treasury bonds, euro-area government securities suffer from two significant handicaps. First, sovereign-debt markets are significantly less deep and liquid because of the fragmentation effect; and, second, they involve greater default risk because of the absence of monetary backing⁵². Being less liquid and less safe at the same time is a major shortcoming. If the euro is to develop as an international currency, the euro-area authorities should seriously consider options for creating a new class of euro-wide safe assets along the lines proposed by Delpla and von Weizsäcker (2010).
- *Recognise and accept the implications of being the issuer of an international currency*. The 'neither-encourage-nor-discourage' stance has, in the first decade of EM Economic and Monetary Union, helped the euro gain some success as an international currency, without burdening the European Central Bank with external responsibilities at a time when it had to build its reputation. But the crisis has already, in many respects, overtaken that position. Partner central banks and market participants have been given access to exceptional euro liquidity in situations of liquidity dry-up. So far these operations have remained exceptional, reserved for use in crisis management mode, not becoming part of the standard operational toolkit. If the use of the euro starts to extend, significantly and systematically, beyond the geographical boundary of the euro area, the central bank operational reach will need to expand more as a matter of routine.

52. The absence of monetary backing is, however, a guarantee against the monetisation risk. Overall, the real value of US government securities may well be less secure than that of high-quality euro-area securities, but their nominal value is more secure, which also matters for investors.

8 Conclusions

The debate on the international monetary system is dominated by a series of immediate issues, such as the reform of the IMF and its facilities, the enhancement of international surveillance, the strengthening of international financial safety nets, the definition of a regime for managing capital flows, and the exchange-rate policies of some key emerging countries. These are all important and urgent problems. But adding up the responses to each and every of them does not necessarily provide a response to a more fundamental issue: how should monetary relations evolve in a fast-transforming world economy?

This report includes an assessment of the shortcomings of the current regime, and possible improvements. But instead of limiting ourselves to discussing which reforms are feasible in the short run we have taken a longer-term perspective, starting from an analysis of the lessons from economic and monetary history and an evaluation of future trends in the distribution of international economic power. Based on this approach we map out a number of possible scenarios for the horizon 2020-25, the assessment of which is then used to derive insights and priorities that the relevant authorities could take into account in policy making in the shorter term

Lessons from history

The history of the IMS tells us that, consistent with the evolution of modern societies and international relations, there has been since the beginning of the twentieth century a clear shift of emphasis from external to internal stability. This shift is visible among the countries that participated in the gold standard and it is only strengthened by the emergence of new players that were not directly part of the monetary order of the nineteenth century. The Bretton Woods system represented a brave attempt to strike a balance between the two goals of external and internal stability. But this balance was relatively short lived, and once a serious conflict between internal and external priorities emerged, the US government opted for the former and the system collapsed. The recent behaviour of key international players suggests that the emphasis on internal stability will be likely to remain pivotal in the decades to come.

Another important conclusion from history is that a multipolar system may be able to persist for several decades. Contrary to the view that there can be only one international currency at any point in time, economic historians have shown that sterling and the dollar coexisted as reserve currencies until well after the US economy overtook the British economy, and even after the establishment of the dollar-based Bretton Woods system. Even though a global rival of the dollar has not yet emerged, the prospect of a multipolar world may be less remote than generally thought.

Recent developments

The current system, or 'non-system' as some sneeringly call it, emerged painfully from the ashes of the Bretton Woods regime. But this emergence was accompanied by major policy reforms at national level such as widespread financial liberalisation, the generalisation of central bank independence, the definition of policy regimes aimed at delivering domestic stability and the gradual acceptance of exchange-rate fluctuations. For some observers and policy players it was deemed to be not just the only viable system, but also the most desirable one. A system of generalised floating and flexible inflation-targeting with full capital mobility, at least in the advanced world, seemed well suited to achieving policymakers' goals of full employment, stable prices and sustainable current-account positions. In this setting, their main task was to 'keep their own house in order'. International coherence was expected to result from the consistency of national self-centred policy rules.

Gradually, however, this hope dissipated. To start with, not all major players were equally committed to exchange-rate flexibility and financial-market openness. Indeed, as pointed out in this report, the share of exchange-rate fixers in global trade has increased in recent times, not decreased. Second, the volatility of capital flows to and from emerging markets and the resulting currency crises of the 1900s led to changes in the policy preferences of several key emerging countries. In the late 1990s, an unprecedented process of reserve accumulation started, which had far-reaching consequences for the functioning of the international monetary system. Third, the desirable properties of the system rested on the assumption that the key players' macroeconomic policies would remain disciplined and consistent with maintaining the system in balance, and this proved to be a questionable hypothesis. Partially as a consequence of these factors, global imbalances widened substantially, and while there were structural factors rather than monetary factors behind these imbalances, the IMS made it possible for them to persist. To put it simply, there was no in-built mechanism to contain the build-up of external imbalances and to ensure policy correction at national level. Finally, emerging countries have recently been walking

away from the 'corner solutions' of the impossible trinity (ie combinations of two items among fixed exchange rates, free capital mobility and independent monetary policies). They have developed mixed strategies involving fear of floating, targeted capital controls and 'dirty' inflation targeting, with increasing scope for international conflict.

Mapping the future

Both policy- and market-driven changes in the IMS can be expected to take place in the years next few.

Policy-driven changes will be the most visible. The IMF, the G20 presidencies of Korea and France, and a number of G20 members are keen on reforming the current system. However, different players tend to favour different reforms, and what these significant policy initiatives will in the end deliver remains uncertain. More significant will be national, domestically motivated policy changes such as the significant steps taken by China to progressively internationalise its currency through the development of an offshore market and simultaneous stimulation of re-denomination of Chinese trade.

At the same time, powerful market forces will inevitably shape the evolution of the international monetary regime. Ultimately, the changing balance of global economic power is bound to affect the roles of international currencies. Concerns about fiscal sustainability in the US and, in parallel with the decline of the relative size of the US economy, the inexorably diminishing ability of the US Treasury to back up dollar liquidity provision by the Federal Reserve to the rest of the world will most probably gradually drive demand away from US dollar assets, even in the absence of major policy reforms. While neither the euro nor the renminbi is ready to rival the dollar, nor will they be for many years, these forces cannot be ignored.

A major thrust of our report is to define and assess scenarios for the future evolution of the international monetary system. Within a 10-15-year horizon we envision three scenarios whose respective emphases are on:

- Repairing and improving the existing system through incremental reforms.
- Moving towards a multipolar system structured around either three (tripolarity) or two (bipolarity) international currencies.
- Establishing a strengthened international monetary order based on multilateral rules and mechanisms.

The first scenario is the least demanding in terms of both domestic policies and international coordination. Hence it is the most likely in the short run. The third being the most demanding in terms of both domestic policies and international coordination, and is then the least likely – barring, at least, a major upheaval that would lead to a reconsideration of priorities. The second scenario relies on market forces and domestic policies rather than international cooperation. Its probability is low in the short run, but significant at the 10-15 year horizon.

We have assessed the three scenarios on the basis of their efficiency, stability and equity. All would offer improvements when compared to the current system. Comparing the three scenarios to each other, we conclude that the feasibility of the scenarios seems negatively correlated to their desirability, at least in the short run. We assess the multipolar and the multilateral scenarios as both superior to the more modest ‘repair-and-improve’ scenario, although their pros and cons vary across the different criteria. But they are also less likely.

On the whole, we take the multipolar scenario as the most interesting to explore, and the one that would best correspond to structural changes in the world economy – hence the title of this report. We think that policy should take this perspective into account through taking steps in this direction – for example, the envisaged inclusion of the renminbi in the SDR basket – but also, and more importantly, through making preparations through reforms at national or regional level.

The transition to a new regime

The transition from the status quo or the repair scenario to a more deeply transformed IMS is likely to take a long time and to raise a number of policy issues that we could not address in their full complexity. Instead, we focus on three specific issues.

The first is the pace of renminbi internationalisation. We foresee a chance for internationalisation of the Chinese currency that, towards the end of the current decade, would bring its international weight to a level comparable to that of the British pound, the Swiss franc or the Japanese yen. This could happen even if China keeps a relatively closed financial account, a moderate degree of nominal currency flexibility and limited foreign participation in its domestic financial system. However, for the renminbi to rival the euro and the dollar, deeper reforms will be needed to establish trust in the rule of law, enhance China’s ability to issue high-quality assets, increase its international engagement, make the exchange rate flexible and promote financial openness.

The second issue is how the rebalancing of the economy can be achieved in the absence of a major overhaul of the IMS, since both scenarios 2 and 3 are unlikely to emerge in the next five years. Our main finding here is that the combination of (i) demand-enhancing reforms in China and (ii) reduced willingness to accumulate official reserves could be a powerful driver of global rebalancing, should the Chinese authorities be active in the implementation – this result holds whatever the exchange-rate regime, provided capital controls are not complete. This is relatively good news for the ‘repair-and-improve’ scenario, which monitors significant domestic policy shifts while reducing the incentive to accumulate official reserves and can be powerful in rebalancing the global economy even without a major shift in exchange-rate and capital regimes. The difference would be that real exchange-rate adjustment would take place through domestic inflation – an inferior channel by most standards. China would benefit from a flexible exchange-rate regime as it would be able to control inflation better. The same logic applies to US policy reforms: the effectiveness for global rebalancing will depend more on the extent of international capital mobility than on the partner countries’ exchange-rate regimes, although it should be remembered that monetary policy is unable to produce any rebalancing between countries tied together by a fixed exchange rate and capital mobility.

The third issue concerns the potential for exchange-rate misalignments and asymmetries in the run-up to scenarios 2 or 3. Here we come to three conclusions. First, as long as China keeps a fixed exchange rate *vis-à-vis* the dollar, developments in, and shocks to, the Chinese economy are not neutral for the euro/dollar exchange rate, whereas they are neutral both in a flexible regime and if the renminbi is pegged to a symmetrical basket. In other words, China’s growth and financial development will be less disruptive for the transatlantic exchange-rate relationship if it takes place under a floating renminbi regime or a symmetrical peg. Second, a move from a dollar-centred to a multi-currency system could create more short-term exchange-rate volatility, but it would at the same time reduce the potential for medium-term exchange-rate misalignments. More flexibility of the renminbi exchange rate would have similar effect. Finally, the internationalisation of the renminbi would be stabilising for the euro/dollar exchange rate, since it would reduce the asymmetries mentioned above and would help smooth the diversification of official reserves.

Implications for the euro area

From the point of view of the euro area, scenario 3 (renewed multilateralism) stands out as both desirable and particularly congruent with the euro area’s intrinsic principles. What is less clear is whether scenario 2 would necessarily be preferable to

scenario 1. A major advantage would be its greater symmetry and equity. The euro-dollar exchange rate would also be less sensitive to shocks affecting China or countries in the Chinese sphere (though it could be more volatile in the short term). At the same time, scenario 2 would also imply more responsibilities for the euro area.

The real choice, however, may not end up being between scenario 1 (repair and improve) and scenario 2 (tripolarity) but rather between tripolarity and a bipolar scenario in which the dollar and the renminbi would form the two poles, with the euro remaining a secondary currency. To the extent this bipolar scenario would limit the scope for exchange-rate misalignments and adjustment asymmetries, bipolarity would be almost as good as tripolarity as far as stability and efficiency are concerned. However, the possibility of this scenario highlights the trade-off the Europeans are facing between benefitting from a share of the 'exorbitant privilege' (and taking responsibility for part of the 'exorbitant duties') and remaining a secondary player. This is, in essence, a political choice.

If it wants to matter in the international game, the euro area should first and foremost continue to address its internal difficulties and strengthen its internal governance. But in order to rival the dollar, and later the renminbi, it would have to do more: streamline its external representation; remedy its inability to supply reserve assets – which would imply considering options for creating a new class of euro-wide bonds; and recognise and accept the consequences of a further internationalisation of the euro for the European Central Bank mandate. It was appropriate for the euro area to adopt in its early years a 'neither-encourage-nor discourage' stance *vis-à-vis* the internationalisation of its currency. But whether or not to take part in the coming reshaping of monetary relations is ultimately a political choice that cannot be left to outside players. At some point Europeans will have to decide if they want their currency to share the privileges of major international currencies, and if they are ready to equip themselves for the corresponding duties.

References

- Aglietta, M. (2010) *Reconstructing the international monetary system: key questions*, mimeo, December
- Alesina, A., V. Grilli and G.M. Milesi-Ferretti (1993) 'The political economy of capital controls', *Working Paper* 4353, NBER
- Allen, W. and R. Moessner (2010) 'Central bank co-operation and international liquidity in the financial crisis of 2008–9', *BIS Working Papers* 310, Bank for International Settlements
- Angeloni, I. and J. Pisani-Ferry (2011) 'The G-20: characters in search of an author', paper prepared for the 2011 Bank of Korea conference, May
- Bank for International Settlements (2008) *78th Annual Report*, <http://www.bis.org>
- Bank for International Settlements (2010) *Triennial central bank survey of foreign exchange and derivatives market activity in 2010*, <http://www.bis.org>
- Bank for International Settlements (2011) *81st Annual Report*, <http://www.bis.org>
- Bénassy-Quéré, A., B. Coeuré, and V. Mignon (2006) 'On the identification of de facto currency pegs', *Journal of the Japanese and International Economies*, 20, 112-127
- Bénassy-Quéré, A., B. Carton, and L. Gauvin (2011a) 'Rebalancing growth in China: an international perspective', *Working Paper* 2011-08, CEPII
- Bénassy-Quéré, A., B. Carton, and L. Gauvin (2011b) *Note on international spillovers of US policy shocks*, mimeo, April
- Bénassy-Quéré, A., Y. Fourouhesh and J. Pisani-Ferry (2011) China and the euro-dollar exchange rate, mimeo, April
- Bergsten, F. (1988) *America in the World Economy: A Strategy for the 1990s*, Peterson Institute for International Economics
- Bernanke, B. (2005) 'The global saving glut and the U.S. current account deficit', *Sandridge Lecture*, Virginia Association of Economics, Richmond, Virginia
- Bernanke, B. (2011) 'International capital flows and the return to safe assets in the United States', *Financial Stability Review* 15, Banque de France
- Bhagwati, J. (1998) 'The capital myth: the difference between trade in widgets and dollars', *Foreign Affairs*, May/June
- Blanchard, O. and G.M. Milesi-Ferretti (2010) 'Global imbalances: in midstream?' in Blanchard, O. and I. SaKong, *Reconstructing the world economy*, Washington DC:

- International Monetary Fund
- Blanchard, O., G. Dell’Ariccia and P. Mauro (2010) ‘Rethinking macroeconomic policy’, *Staff Position Note* 10/03, International Monetary Fund
- Blanchard, O. and G.M. Milesi-Ferretti (2011) ‘(Why) should global imbalances be reduced?’ *Staff Discussion Note* 11/03, International Monetary Fund
- Bordo, M.D. (1993) ‘The gold standard, Bretton Woods and other monetary regimes: an historical appraisal’, *Working Paper* 4310, NBER
- Borio, C. and P. Disyatat (2011) ‘Global imbalances and the financial crisis: link or no link?’ *BIS Working Papers* 346, Bank for International Settlements
- Bracke, T. and I. Bunda (2011) ‘Exchange rate anchoring: is there still a de facto US dollar standard?’ *Working Paper* 1353, European Central Bank
- Brune, N. and A. Guisinger (2006) ‘Myth or reality? The diffusion of financial liberalisation in developing countries’, unpublished PhD dissertation, November
- Caballero, R., E. Farhi and P.O. Gourinchas (2008) ‘An equilibrium model of global imbalances and low interest rates’, *American Economic Review* 98(1), 358–93
- Caballero, R. (2009), ‘The ‘other’ imbalance and the financial crisis’, *Paolo Baffi Lecture*, Bank of Italy
- Caballero, R. and A. Krishnamurthy (2009) ‘Global imbalances and financial fragility’, *American Economic Review Papers and Proceedings* vol 99 no 2, pp. 584–588
- Calvo, G. and C. Reinhart (2002) ‘Fear of floating’, *Quarterly Journal of Economics* vol CXVII no 2, pp 379-408
- Camdessus, M. (2009) ‘Towards a new international monetary system’, speech at the International Conference, Towards a new international financial order, Guanghua School of Management, Beijing
- Camdessus, M., A. Lamfalussy and T. Padoa-Schioppa (2011) *Reform of the international monetary system: a cooperative approach for the twenty first century*, Palais Royal Initiative final report
- Chinn, M.D. and J. Lee (2005) ‘Three current account balances: a semi-structuralist interpretation’, *Working Paper* 11853, NBER
- Chinn, M. and J. Frankel (2008) ‘Why the euro will rival the dollar’, *International Finance* 11/1, 49-73
- Chinn, M. and H. Ito (2008) ‘A new measure of financial openness’, *Journal of Comparative Policy Analysis* 10 (3), 309-322
- Clark, P. and J. Polak (2004) ‘International liquidity and the role of the SDR in the international monetary system’, *Staff Papers* vol 51, no 1, International Monetary Fund
- Clark, P., Tamirisa, N. and S.-J. Wei (2004) *Exchange rate volatility and trade flows – some new evidence*, International Monetary Fund
- Cobham, D. (2008) *Changing currency alignments: euro versus dollar*, mimeo

- Cohen, B.J. (2009) 'Dollar dominance, euro aspirations: recipe for discord?' *Journal of Common Market Studies* vol 47, pp 741-766, 09
- Cooper, R. (2008) 'Global imbalances: globalization, demography, and sustainability', *Journal of Economic Perspectives* 22 (3), 93-112
- Darvas, Z. and J. Pisani-Ferry (2010) 'The threat of currency wars: a European perspective', *Policy Contribution* 2010/12, Bruegel
- Delpla J. and von Weizsäcker J. (2010) 'The Blue Bond proposal', *Policy Brief* 2010/03, Bruegel
- Destais, C. and A. Zdzienicka (2011) *The reform of the international monetary system, the liquidity issue*, mimeo, April
- Dobson, W and P. Masson (2009) 'Will the RMB become a world currency?' *China Economic Review* 20, pp 124-135
- Dooley, M., Folkerts-Landau, D. and P. Garber (2004) 'The revived Bretton Woods system', *International Journal of Finance and Economics* 9, pp 307-313
- Dorucci, E. and J. McKay (2011) 'The international monetary system after the financial crisis', *Occasional paper* no 123, European Central Bank
- Edwards, S. (2004) 'Thirty years of current account imbalances, current account reversals and sudden stops', *Working Paper* 10276, NBER
- Edwards, S. (2005) 'The end of large current account deficits, 1970-2002: are there lessons for the United States?' *Working Paper* 11669, NBER
- Eichengreen, B. (1987) 'Hegemonic stability theories of the international monetary system', *Working Paper* 2193, NBER
- Eichengreen, B. (2005) 'Sterling's past, dollar's future: historical perspectives on reserve currency competition', Tawney Lecture delivered to the Economic History Society, Leicester, UK, April
- Eichengreen, B. and M. Adalet (2005) 'Current account reversals: always a problem?' *Working Paper* 11634, NBER
- Eichengreen, B. (2008) *Globalizing capital: a history of the international monetary system*, second edition, Princeton University Press
- Eichengreen, B. (2009a) 'The dollar dilemma: the world's top currency faces competition', *Foreign Affairs* 888 (5), pp. 53-68
- Eichengreen, B. (2009b) 'The financial crisis and global policy reforms', Federal Reserve Bank of San Francisco Asian Economic Policy Conference
- Eichengreen, B. and Flandreau, M. (2009) 'The rise and fall of the dollar (or when did the dollar replace sterling as the leading reserve currency?)', *European Review of Economic History* vol 13(03), pp 377-411
- Eichengreen, B. and M. Flandreau (2010) 'The Federal Reserve, the Bank of England and the rise of the dollar as an international currency, 1914-39', *BIS Working Papers* 328, Bank for International Settlements

- Eichengreen, B. (2011) *Exorbitant Privilege*, Oxford University Press
- European Central Bank (2009) *The international role of the euro*, annual report
- European Commission (2009) 'Special report: competitiveness developments within the euro area', *Quarterly Report on the Euro Area* vol 8, no 1
- Fahri, E., P.-O. Gourinchas and H. Rey (2011) *Reforming the International Monetary System*, mimeo, March
- Faruquee, H., Laxton, D., Muir, D. and P. A. Pesenti (2007) 'Smooth landing or crash? model-based scenarios of global current account rebalancing', in *G7 Current Account Imbalances: Sustainability and Adjustment*, NBER Chapters [pp 377–456]
- Fischer, S. (1997) 'Capital account liberalization and the role of the IMF', speech at the IMF Annual Meetings, September 19
- Fouré, J, A. Bénassy-Quéré and L. Fontagné (2010) 'The world economy in 2050: a tentative picture', *Working Paper* 2010-27, CEPII
- Goldberg, L. and C. Tille (2009), 'Macroeconomic interdependence and the international role of the dollar', *Journal of Monetary Economics* vol 56, issue 7
- Goldberg, L. (2010) 'Is the international role of the dollar changing?' *Current Issues in Economics and Finance* 16:1, Federal Reserve Bank of New York
- Gourinchas, P.-O. and H. Rey (2005) 'From world banker to world venture capitalist: US external adjustment and the exorbitant privilege', *Working Paper* 11563, NBER
- Gourinchas, P.-O. and O. Jeanne (2007) 'Capital flows to developing countries: the allocation puzzle', *Working Paper* 13602, NBER
- Gourinchas, P.-O., H. Rey, and N. Govillot (2010) *Exorbitant privilege and exorbitant duty*, mimeo, University of California
- Grilli, V. and G.-M. Milesi Ferretti (1995) 'Economic effects and structural determinants of capital controls', *Working Paper* 95/31, International Monetary Fund
- Group of Ten (1965) *Report of the Study Group on the Creation of Reserve Assets*, Report to the Ministers and Governors
- Hamada, K. and Y. Okada (2009) 'Monetary and international factors behind Japan's lost decade', *Journal of the Japanese and International Economies*, 23, issue 2, pp 200-219
- Herd, R., Hu, Y.-W. and V. Koen (2010) 'Improving China's health care system", OECD Economics Department *Working Papers* 751, OECD Publishing
- Huang, Y. and B. Wang (2010) 'Cost distortions and structural imbalances in China', *China & World Economy*, 18(s1), 1–17
- Jeanne, O. (2011) 'Capital account policies and the real exchange rate', manuscript, Johns Hopkins University, Department. of Economics
- Johnston, B. and N. Tamirisa (1998) 'Why do countries use capital controls?', *Working Paper* 98/181, International Monetary Fund
- Kenen, P. (1983) 'The role of the dollar as an international reserve currency', *Occasional*

- Papers 13, Group of Thirty*
- Kindleberger, C. (1973) *The World in Depression*, University of California Press
- Kindleberger, C. (1981) 'Dominance and leadership in the international economy', *International Studies Quarterly* 25(2), pp 242-54
- King, M. (2010) Speech given at the University of Exeter, available at <http://www.bankofengland.co.uk/publications/speeches/2010/speech419.pdf>
- Kose, M., Prasad, E., Rogoff, K. and S.-J. Wei (2009) 'Financial globalisation: a reappraisal', *Staff Papers* 56, International Monetary Fund
- Krugman, P. and M. Obstfeld (2008) *International economics: theory and policy*, seventh edition, Pearson – Addison Wesley
- Kubelec, C. and F. Sá (2010) 'The geographical composition of national external balance sheets: 1980-2005', *Working Paper* 384, Bank of England
- Kwan, C.H. (2001), *Yen bloc: towards economic integration in Asia*, Brookings Institution Press, Washington DC
- Laibson, D. and J. Mollerstrom (2010) 'Capital flows, consumption booms and asset bubbles: a behavioural alternative to the savings glut hypothesis', *Economic Journal* vol 120(544), pp 354-374, 05
- Landau, J.-P. (2009) 'An international financial architecture for the 21st century: some thoughts', remarks at the 17th central bank seminar of the Bank of Korea, Seoul, 2 October
- Lane, P. and G.M. Milesi-Ferretti (2009) "The external wealth of nations mark II: revised and extended estimates of foreign assets and liabilities", *Working Paper* 06/09, International Monetary Fund
- Larosière, J. de (2009) *Report of the High-Level Group on Financial Supervision in the EU*, Brussels
- Li, M. F. (2009) *Research Report on Issues Concerning the Expansion of Social Security Coverage in China*, Institute of International Labor and Social Security, MOHRSS
- Mateos y Lago, I., Duttagupta, R. and R. Goyal (2009) "The debate on the international monetary system", *Staff Position Note* 09/26, International Monetary Fund
- McKinnon, R. (1993) 'The rules of the game: international money in historical perspective', *Journal of Economic Literature* vol 31, no 1, pp 1-44
- McKinnon, R. and K. Ohno (1997) *Dollar and yen, resolving economic conflict between the United States and Japan*, MIT Press, Cambridge, Mass.
- Mendoza, E. G., Quadri, V. and J.-V. Rios-Rull (2007) 'Financial integration, financial deepness and global imbalances', *Working Papers* 12909, NBER
- Miniane, J. (2004) 'A new set of measures on capital account restrictions', *Staff Papers* vol 51 No 2, International Monetary Fund
- Mishkin, F. S. (2007) 'Is financial globalization beneficial?' *Journal of Money, Credit and Banking* vol 39(2-3), pp 259-294, 03

- Mody, A. and A. Murshid (2005) 'Growing up with capital flows', *Working Paper 02/75*, International Monetary Fund
- Musgrave, R. and P. Musgrave (1989) *Public finance in theory and practice*, McGraw Hill
- Obstfeld, M. and K. Rogoff (1996) *Foundations of international macroeconomics*, MIT Press, Cambridge, Mass.
- Obstfeld, M. and K. Rogoff (2006) 'The unsustainable US current account position revisited', in R. Clarida (ed) *G7 current account balances, sustainability an adjustment*, The University of Chicago Press
- Obstfeld, M. and K. Rogoff (2009) 'Global imbalances and the financial crisis: products of common causes', proceedings, Federal Reserve Bank of San Fransisco, pp 131-172
- Ostry, J., Ghosh, A., Habermeier, K., Chamon, M., Qureshi, S. and D. Reinhart (2010) 'Capital inflows: the role of controls', *Staff Position Note 10/04*, International Monetary Fund
- Ostry, J., Ghosh, A., Habermeier, K., Chamon, M., Qureshi, S. and D. Reinhart (2011) 'Capital inflows: what tools to use?' *Staff Position Note 11/06*, International Monetary Fund
- Padoa-Schioppa, T. (2004) *The euro and its central bank*, MIT Press, Cambridge, Mass.
- Padoa-Schioppa, T. (2010) 'The ghost of Bancor: the economic crisis and global monetary disorder', Triffin Lecture, Louvain-la-Neuve
- Papaioannou, E. and R. Portes (2008) 'The international role of the euro: a status report', *European Economy*, Economic Papers 317
- Pisani-Ferry, J. and A. Posen (eds) (2009) *The euro at 10: the next global currency?* Bruegel/Peterson Institute for International Economics.
- Posen, A. (2008) 'Why the euro will not rival the dollar', *International Finance* 11:1, pp 75–100
- Portes, R. (2009) 'Global imbalances', *PEGGED Policy Brief* no 3
- Prasad, E. S. (2009) 'Rebalancing growth in Asia', Working Papers 15169, NBER
- Rajan, R. (2010) *Fault lines*, Princeton University Press
- Rodrik, D. (1997) *Has globalization gone too far?*, Institute for International Economics
- Rodrik, D. (2006) 'The social cost of foreign exchange reserves', *International Economic Journal*, Korean International Economic Association, vol 20(3), pp 253-266
- Rodrik, D. and A. Subramaniam (2008) *Why did financial globalisation disappoint?* Peterson Institute for International Economics
- Rogoff, K. (1996) 'The purchasing power parity puzzle', *Journal of Economic Literature*, American Economic Association, vol 34(2), pp 647-668
- Rose, A. (2007) 'A stable international monetary system emerges: inflation targeting is Bretton Woods, reversed', *Journal of International Money and Finance*, Elsevier,

- vol 26(5), pp 663-681
- Rueff, J. (1971) *Le péché monétaire de l'Occident*, Plon, Paris
- Sallenave, A. (2010) 'Real exchange rate misalignments and economic performance for the G20 countries', *International Economics*, no 121
- Schenk, C. (2009) 'The retirement of sterling as a reserve currency after 1945: lessons for the US dollar?' unpublished paper
- Schindler, M. (2009) 'Measuring financial integration: a new data set', *Staff Papers* 56, International Monetary Fund
- Stark, J. (2008) 'The adoption of the euro – principles, procedures and criteria', speech at the Icelandic Chamber of Commerce, Reykjavik, 13 February
- Taylor, J. (2008) *Getting off track: how government actions and interventions caused, prolonged, and worsened the financial crisis*, Hoover Institution Press, Stanford
- Thimann, C. (2009) 'Global roles of currencies', *Working Paper* 1031, European Central Bank
- Triffin, R. (1960) *Gold and the dollar crisis: the future of convertibility*, Yale University Press
- Truman, E. (2010) 'Strengthening IMF surveillance: a comprehensive proposal', *Policy Briefs* 10-29, Peterson Institute for International Economics
- Turner, A. (2009), *The Turner Review: a regulatory response to the global banking crisis*, Financial Services Authority, London
- United Nations (2009) *Report of the Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Monetary and Financial System*
- Vallée, S. (2011) *The path of Internationalisation of the RMB*, mimeo, April
- Warnock, F. and V. C. Warnock (2009) 'International capital flows and US interest rates', *Journal of International Money and Finance* 28, pp 903-919
- White, W. (2006) 'Is Price Stability Enough?' *BIS Working Papers* 205, Bank for International Settlements
- Zhou, X. (2009) 'Reform of the international monetary system', essay posted on the website of the People's Bank of China, 9 April

About Bruegel

Bruegel is a European think tank devoted to international economics. It started operations in Brussels in 2005 as a Belgian non-profit international organisation supported by European governments and leading corporations. Bruegel seeks to contribute to the quality of economic policymaking in Europe through open, facts-based and policy-relevant research, analysis and discussion.

Bruegel issues a range of publications. The Bruegel Blueprint Series provides comprehensive analysis and policy recommendations on central questions of the moment. Bruegel Policy Briefs provide concise, topical analysis targeted at an audience of executives and policy decision-makers, with an emphasis on concrete policy orientation. Bruegel Policy Contributions are responses to requests by policymakers or public bodies, including testimonies at hearings or responses to public consultation. Bruegel and its researchers also publish working papers, op-eds, collaborative papers with other organisations, and essays.

Bruegel's research is independent and does not represent the views of its board or members. For a full picture of Bruegel activities and publications, visit the website at www.bruegel.org

About CEPII

The *Centre d'Études Prospectives et d'Informations Internationales* (CEPII) is France's main centre for the study of international economics. Created in 1978, it is an independent public organisation. CEPII's research programme is set by its Board, which is composed of leading government officials, business personalities, trade unionists and academics. The research is evaluated annually by a scientific committee. Details can be found on www.cepii.fr.

All research carried out by CEPII is published on its website and in academic journals. A report on the execution of the research programme is published annually after approval by the Board.

CEPII takes particular care to provide expert advice, based on its research, to actors in both the public and private sectors. It has regular contacts with the main European and international organisations, with public administrations and bodies, with companies and with social partners. CEPII is a member of the GTAP consortium and belongs to various research networks.

CEPII is specialised in international trade, macroeconomics and finance. It has a long tradition of structural and medium-term analyses as well as economic policy appraisal. Typical issues studied are international financial architecture, the international monetary system, trade policies, competitiveness, migration, growth, policy interdependence and foreign direct investment.

Global currencies for tomorrow: A European perspective

After the collapse of the Bretton Woods system forty years ago, the international monetary system gradually developed into today's hybrid of exchange-rate flexibility, capital mobility and monetary independence. The US dollar remains dominant and international monetary system governance blends regional and multilateral surveillance. The system has proved resilient during the global economic crisis, but has serious flaws, which will be magnified by the rapid transformation of the global economy. By 2020-30 economic power is likely to be more evenly distributed than ever before between the US, the euro area and China.

This report assesses the implications for the international monetary system of this ongoing shift. It discusses what factors enable a currency to play an international role, and concludes that neither the euro nor the renminbi are likely soon to be in a position to challenge the dollar's supremacy. However, they will play an increasingly meaningful international role. The euro area, provided that it implements governance reform, could benefit from a move away from today's dollar-denominated system.

Bruegel is a European think tank devoted to international economics. It is supported by European governments and international corporations. Bruegel's aim is to contribute to the quality of economic policymaking in Europe through open, fact-based and policy-relevant research, analysis and discussion.

The *Centre d'Études Prospectives et d'Informations Internationales* is France's main public research centre on international economics. CEPII produces detailed research and analysis on the global economy, and publishes its results through both academic and policy-oriented formats.



33, rue de la Charité
1210 Brussels
www.bruegel.org



CEPII

113 rue de Grenelle,
75007 Paris
www.cepii.fr

ISBN 978-90-78910-21-3



9 789078 910213 > €15