Reform of the International Monetary System

A Jagged History and Uncertain Prospects

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Abstract

This paper analyzes the historical evolution of the international monetary system in the context of the rising role of developing countries in the world economy and the emerging multi-polar growth setting. It evaluates the stability of the current “non-system” and how the global economic context is likely to affect that stability in the coming years with potential adverse effects on both advanced and developing economies. Given the

likely trend toward a multi-polar reserve currency system, the paper evaluates the stability of the emerging system, as well as the current proposals for reform of the international monetary system. The paper concludes that more ambitious reforms of the system may be needed to meaningfully reduce future global economic and financial instability.

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Reform of the International Monetary System: A Jagged History and Uncertain Prospects¹

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Economic Policy Sector Board

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I. Introduction

The 2008-2009 global financial crisis highlighted major deficiencies in the existing International Monetary System (IMS). Most experts believe the international monetary system remains fragile in the aftermath of the 2008-09 crisis, and they generally agree that the current system, with the interconnectedness of financial markets and predominance by the dollar as a reserve currency, played an important role in the propagation of the US housing crisis into a global crisis. And some of the weaknesses in the international monetary system, such as lack of an adequate adjustment mechanism and excessive volatility in exchange rates and capital flows, may cause continued volatility in global financial markets in the future, if not addressed through reforms. A recent G-20 Summit recognized that the 2008-09 events had highlighted the main deficiencies of the current International Monetary System.³ A well-functioning IMS could have helped contain, rather than exacerbate and propagate, the economic contraction, volatility and the resulting social consequences for countries both rich and poor.

Since World War II the global economy has been subject to periodic financial and payments crises—albeit not as severe as that experienced during the Great Depression. In the industrial economies, the immediate focus after World War II was reconstruction. The memory of the pre-war global depression weighed heavily on policy makers' minds at the Bretton Woods conference, and new institutions were created to oversee international transactions with the objective of promoting the growth and stability of international trade and finance. For nearly two decades, the Bretton Woods system was one of fixed exchange rates. Since the early 1970s, however, the international economy has experienced a period of global economic governance that has been described as one of “benign neglect”⁴: countries more or less freely choose their monetary and exchange rate regimes, and the United States dollar has continued its role as the predominant international reserve currency.

Looking forward, however, there is increasing evidence that the world is already moving toward a more diversified set of reserve currencies. The United States dollar's central role in the system is expected to diminish, either gradually as a result of a decline in the US economy's share of the world economy, or more dramatically through a sudden debilitating shock.⁵ It is, to some extent, an analog to the multi-polar global trading system (Lin and Rosenblatt, 2012): a multi-polar global monetary system with currencies from a handful of large economies competing for demand for international reserves and use in international transactions. Three key questions arise. First, how would this evolution toward a multiple currency system impact global monetary and economic stability? That is, would such a system be more or less stable than the current system? Secondly, are there alternatives that might be superior—for example, through the creation of a new international currency, alongside the current set of national currencies used for international transactions and reserve, such as the dollar, the euro, the yen, etc.? And, finally, which of these alternatives would be a clear improvement compared to the current system and therefore more favorable to global economic performance, including the performance of both developed economies developed economies and developing economies over the longer term. Clearly, pareto-improving reforms would be more likely to garner political support.

A main motivation for reform of the international monetary system is the fact that it is out of sync with the evolution of the real economy globally and appears to have been a major source of financial instability. The paper begins with a survey of the historical evolution of the international monetary system. The following section then provides a summary of how the real economy has evolved and provides some perspectives on the likely future evolution. This is followed by a critical review of the

³ Cannes Summit Final Declaration, November 3-4, 2011: <http://www.g20-g8.com/g8-g20/g20/english/for-the-press/news-releases/cannes-summit-final-declaration.1557.html>.

⁴ The phrase was used by Ken Rogoff in the introduction to a paper ten years ago (Rogoff, 2001).

⁵ See, for example, Eichengreen (2011a) and World Bank (2011).

reform proposals that are under debate. The paper concludes with a notional design of how a new monetary system might function based on a new international currency. The purpose is to provide some initial thoughts for further research on the three key questions mentioned above without providing a definitive policy proposal at this stage. However, the broader financial architecture issues, including cooperation on the regulation and supervision of financial institutions, are not covered in this review.

The time may be ripe for serious international effort to bring about a substantial change to the international monetary system. More technical work on the details and gradual policy experiments (e.g., greater use of the Special Drawing Rights (SDR) and incorporating the currencies of the large and rapidly growing emerging economies) could help the system evolve and avoid serious financial crisis. Past IMS transitions have been marked by instability, and the evolving transition from the current system dominated by the US dollar to a multi-currency system is not expected to be exempt from such instability. In the past, instability was associated with the shift from one dominant reserve currency to another dominant reserve currency. In the future, none of the current and emerging major reserve currencies are likely to be dominant. The instability/volatility will be related to speculative movements of capital from one reserve currency country to another--induced partly by the inherent structural weakness of the reserve-currency countries and partly by the effect of excessive capital inflows and outflows due policy changes and speculation. In fact, such “musical chair” type of speculative movement has occurred since the 2008 global crisis, especially after the Euro zone debt crisis. As will be discussed in the section on stability below, after the US dollar, the euro, the yen, and eventually the renminbi, are expected to constitute the new multi-currency system. Each of these currencies will be associated with a significant share of world output and trade, as well as financial flows, and will likely serve as a monetary anchor for other currencies. Recent experience indicates that frequent shifts among these currencies, caused by policy shifts and economic news, results in volatility in exchange rates and capital flows that adversely affect global economic activity.

II. Evolution of the International Monetary System and Emerging Policy Challenges: A Very Brief History

This section of the paper briefly examines the evolution of the international monetary system and some of the most important emerging policy challenges. The historical period is divided into four sub-periods: the gold standard era (1819-1914), the interwar period (1914-1939), the post World War II Bretton Woods system (1946-1973), and the current post-Bretton Woods system (1973- present).

The term international monetary system itself has evolved over time. In modern times, it has come to describe the various mechanisms and institutions that organize and regulate foreign exchange systems, as well as international monetary and financial exchanges and flows. According to Kenen (1983), an international currency has three major functions: a store of value by allowing for transactions to take place over time and across the world, a medium of exchange (substantial increase of efficiency over barter), and a unit of account (facilitates valuation and conversion calculations). The store of value function facilitates official transactions and the use of the currency as a “reserve currency,” while the other functions underpin the currency as an “international currency,” which can be used in domestic and international transactions.⁶ The distinction between “reserve” and “international” currencies has become increasingly important with the rapid increase in the size and role of private flows in the world economy.

In antiquity, much of the trade between countries or regions was conducted on the basis of barter. As trade grew in importance and diversity, a convenient common commodity was needed to settle

⁶ See Kenen (1983).

transactions. Metals were an obvious choice, given their innate value as a useful material for making goods, combined with their durability over time. Plus, they could be fashioned into relatively light and portable coins—at least relative to barter exchange in bulky goods. Archaeologists have documented the wide use of metal coins around the world—with bronze coins predominating from Asia to Europe during the centuries before the birth of Christ, and silver and gold coins gaining greater circulation in later centuries.⁷ Eventually, silver and gold became the bimetallic choice.

Bimetallism of various forms prevailed during the onset of the Industrial Revolution and subsequent decades.⁸ There has been much scholarly discussion on the stability of the bimetallic system.⁹ In general, the system was relatively stable over the 1850 to 1873 period – despite a huge increase in the supply of gold following the famous California Gold Rush. Flandreau (2004) cites the influence of this expansion of supply, but he concludes that a combination of political and economic factors following the end of the Franco-Prussian war led to the demise of bimetallism in continental Europe. Decades before, Britain had moved to the gold standard, discussed in more detail below.

In the United States, there was no formal central bank during the bimetallic period. States allowed banks to issue notes backed by state bonds during the so-called “Free Banking” period. During the civil war, the inconvertible “greenback” was created. In the “crime of 1873,”¹⁰ the United States government returned to minting specie and decided not to produce the silver dollar, focusing purely on gold. Immediately after the US switched to a gold standard regime, the market price of gold rose sharply (including in terms of silver), which led to a strong deflationary trend in the ensuing two decades.

Gold Standard (1819-1914). The gold standard was established in 1819 by Britain. Other countries in the continental Europe, as well as Japan and the US, adopted the gold standard as the basis for their currency in the following decades. By 1880, most countries were on some form of the gold standard. China and India were important exceptions, since they maintained a silver standard.¹¹ Under the gold standard, the primary responsibility of a central bank was to preserve the official parity between its currency and gold. In order to maintain this price, the central bank needed to own an adequate stock of gold. During this period, the surplus or deficit in the balance of payments had to be financed through shipments of gold between central banks – from deficit countries to surplus countries.

⁷ Williams (1997) provides a graphic history complete with photos from the collection of the British Museum.

⁸ There were, however, early experiments with paper fiat money. For example, see Goldberg (2009) for a description of fiat money use in colonial Massachusetts in the late 17th century. There were also “bills of exchange” issued by banks in Europe during the 18th century that gained greater or lesser degrees of acceptance depending upon the degree of trade and financial linkages across cities (Flandreau et al, 2009).

⁹ Such notable figures in economics as Irving Fisher (1894) and Milton Friedman (1990) have offered analysis of the stability properties of bimetallism. Both argue that there is no inherent superiority of a single specie system over a bimetallic system. Flandreau (2002) later developed a model to support this view and explain the historical experience. These analyses focus on self-correcting mechanisms in the system. Diebolt and Parent (2008) provide evidence that policy coordination between French and British central banks also may have played a crucial role in stabilizing bimetallism for decades prior to its eventual collapse.

¹⁰ Refers to the US Coinage Act of 1873 which eliminated provision for free coinage of silver and cast the die for the gold standard. See Friedman (1990). Also see Velde (2002) for the rather tumultuous political and economic history of the move towards the gold standard. Silver producers lobbied against the end of bimetallism. See Rolnick and Weber (1983 and 1988) for a discussion of the Free Banking Era.

¹¹ A silver standard operates on the same principle as gold, as described in this section. In general, Asian countries switched to a gold standard later. Japan did so only in 1897. The Philippines moved to a gold standard around 1909. See Kemmerer (1912) for a discussion of the silver price spike of the early 20th century as the context for currency reform in a number of countries. The impact of the changing relative price between gold and silver was particularly strong on silver-based economies. One particularly interesting episode is the Chinese experience during the Interwar Period, when China abandoned the silver standard in 1935. See Kreps (1934) and Leavens (1936).

In many ways, the period of the classical gold standard was a remarkable time in world history. Trade flourished and empirical studies have estimated that the gold standard contributed positively (on the order of 20 percent) to the growth of world trade in the 1880 to 1910 period (López-Córdova and Meissner, 2003). Exchange rates and prices were generally stable, and there was a free flow of labor and capital across political boundaries. In general, the world was at peace.¹² Nevertheless, the world economy suffered from a major depression during the 1890s¹³ and a severe contraction in 1907, as well as a number of smaller-scale recessions. This was largely due to the fact that policy makers and central banks gave priority to the achievement of external balance, often at the expense of internal balance and goals such as full employment.

Interwar Period (1914-1939). The gold standard broke down during World War I (1914-1918)¹⁴ and was briefly reinstated from 1925 to 1931 as the Gold Exchange Standard. Under this system, the US and the UK could hold gold reserves, but other nations could hold both gold and dollars or pounds sterling as reserves with the aim of avoiding the problem of gold shortage that had plagued the system before. The onset of the Great Depression in 1929 was quickly followed by massive bank failures throughout the world. Britain was forced off the gold standard in 1931 when foreign holders of pounds sterling began converting their holdings into gold. As the Depression continued, countries sequentially decided to go off the gold standard and allowed their currencies to float in the foreign exchange market.

In reviewing the experience in the United States, one stylized fact is fairly uncontroversial: there was a dramatic reduction in the money supply of about 33 percent between 1929 and 1933,¹⁵ and this had a major impact in the transmission of a financial shock into a full blown economic depression. Where scholars' views vary is in explaining the monetary contraction. As noted in Hsieh and Romer (2006), there are two general views on what actually happened: (1) the monetary contraction was the result of the international monetary system's adherence to the gold standard; and (2) the United States could have enacted expansionary monetary policy despite the gold standard, so the contraction was a monumental policy blunder.¹⁶

Under the gold standard, expansionary monetary policy via low interest rates had the potential to spur a speculative attack on a currency and to force an adjustment in gold parity—or even a full blown abandonment of gold convertibility. Hsieh and Romer (2006) use data on forward exchange rates and cross-country interest differentials—as well as the “narrative record” — to see if there was in fact an

¹² There is a general view in the literature that the gold standard, with its implied fixed exchange rates, worked relatively well in terms of macroeconomic stability during the pre-World War I period, but this changed during the Inter-War period (discussed below). Chernyshoff et al (2009) provide empirical evidence on this view, with a driving force being the change in the degree of nominal price rigidities between the two periods.

¹³ Given data limitations, DeLong (1999) uses US data on railroad construction to show the magnitude of the depression. The crisis included an international finance dimension due to the collapse of Barings bank and its exposure to Argentine and Brazilian sovereign debt. DeLong (1999) and Fishlow (1989), among others, have drawn comparisons between this crisis and the debt crises in emerging markets of the 1980s and 1990s. Mitchener and Weidenmier (2008) provide a more detailed analysis of the 1890s financial crisis' impact on Latin America.

¹⁴ According to Eichengreen and Timmer (2010), the United States remained on the (fractional) gold standard during the war. The Federal Reserve Act of 1914 required reserve banks to maintain gold stockpiles equivalent to 40 percent of all federal reserve notes issued.

¹⁵ The size of the decline is from Milton Friedman and Anna J. Schwartz, *A Monetary History of the United States*, as cited in Hsieh and Romer (2006).

¹⁶ The first view could be called the “golden fetters” view laid out by Eichengreen (1992a), while the policy blunder view is developed in Friedman and Schwartz, cited above. A contemporary update on “golden fetters” is found in Eichengreen and Temin (2010). With respect to the latter – and also in reference to later empirical work—the authors do not maintain that it was impossible to conduct expansionary monetary policy; however, they argue that the “gold-standard *mentalité*” prevented policy makers from even considering this option.

expectation of devaluation. Their analysis demonstrates that there was not, and as a result, they conclude that monetary policy could have been more expansionary early on in the downturn.^{17 18}

The role of the gold standard may have been more important in terms of the transmission of the crisis internationally. According to Eichengreen and Irwin (2010), during the 1930s, most countries attempted to maintain the gold standard. Based on the adjustment mechanism defined by a strict gold standard, countries initially tried to deflate via contractionary monetary and fiscal policies in order to support the gold standard in the face of a decline in global trade flows. The classical adjustment mechanism via deflation did not work as quickly and painlessly as theorized.¹⁹ In addition, either protection on goods trade or controls on capital flows were used as stop-gap measures to preserve gold reserves—further exacerbating the global depression.

Bretton Woods System (1946-1973). In 1944, close to the end of World War II, representatives of the Allied nations met in Bretton Woods, New Hampshire, and reached an agreement to create a new post-war monetary system. The new system, which also led to the creation of the International Monetary Fund and the World Bank, was designed to avoid the destructive economic policies that led to the Great Depression. The new system called for fixed exchange rates against the US dollar, which had a fixed price in terms of gold at US\$35 per ounce. Member countries could hold their official reserves mainly in the form of gold or dollar-denominated assets and had the right to sell their dollars to the US Federal Reserve in exchange for gold at the official price. The International Monetary Fund (IMF) was set up to provide support in the face of temporary balance of payments problems.

Fixed exchange rates, along with the dollar's fixed and convertible parity with gold, were viewed as a way to discipline monetary policy. Although each country's exchange rate was fixed to the dollar, it could be devalued or revalued provided that the IMF agreed the country's balance of payments was in "fundamental disequilibrium." The IMF Articles also called for "convertibility" on *current* account transactions only. The interwar period had led policy makers to view private capital movements as a key factor responsible for economic instability, and they feared that speculative movements of "hot money" would undermine free trade and the new fixed exchange system.²⁰

More comprehensive proposals for a new IMS were made during the Bretton Woods Conference. Representing Great Britain, John Maynard Keynes proposed the establishment of an "International Clearing Union," based on the international currency called "bancor," which was supposed to be fixed in

¹⁷ Other authors have also found that monetary policy could have been more expansionary – especially in the United States, and if appropriately timed, this could have limited the international transmission of the crisis. See Bordo and MacDonald (2003) and Bordo et al (2002). Mundell (2000) also cites the timing of the periodic US decisions to go on or off the gold standard as a fatal policy mistakes.

¹⁸ Another relevant issue for debate is whether fiscal policy could have been effective during the type of downturn experienced during the Great Depression. Almunia et al (2010) find that in those countries where some form of stimulus was enacted, growth performance was superior, as compared to other countries.

¹⁹ Eichengreen and Sachs (1985) make the case that devaluation by blocks of countries could have facilitated the escape from the Great Depression even if individual country depreciations had negative effects on other countries. Nominal wage rigidities are a key limitation to a smooth "classical" price adjustment mechanism under a gold standard. Bernanke and Carey (1996) find evidence of substantial nominal wage rigidities during the Great Depression.

²⁰ Under the new peg system and as the Articles of Agreement of the IMF required, countries would declare par values for their currency in terms of gold or a currency convertible into gold (i.e. the US dollar). They had to hold their exchange rates within 1 percent of those par values. Par values could be changed by 10 percent or less to correct a "fundamental disequilibrium," which was not defined clearly, without approval of the IMF. Larger changes required prior approval of the IMF Board. Moreover, the Articles of Agreement allowed the imposition and maintenance of controls on movements of capital across borders. Both the flexibility of exchange rates and capital controls were contrary to the US proposal. See Krugman and Obstfeld (2002).

terms of gold and accepted as the equivalent to gold by the US and the British Commonwealth.²¹ The Clearing Union, which would issue “bancor” (based, as envisioned by Keynes, on the value of thirty or so commodities including gold and exchangeable with participating national currencies at fixed rates) provided for extensive balance of payments financing, subject to strict conditionality, and significant exchange rate movement.²² The proposal was eventually dropped, in the face of US objections, and the final system agreed upon was more of a political decision and not grounded in economic theory, which was Keynes’ area of expertise.²³ Countries, most notably the United States, did not want to sacrifice national policy-making autonomy. Because of its specific role in the system as the issuer of the reserve currency, the US was to keep the value of the dollar fixed at its gold parity and to guarantee that foreign central banks had the ability to exchange their dollar reserves into gold at the agreed parity. This, in theory, imposed constraints on US monetary policy. However, by the mid-1960s, in practice the US macroeconomic policy mix had turned expansionary -- inappropriate given its reserve currency status -- due to the fiscal requirements of the Vietnam war and increased social spending that resulted from President Johnson’s “Great Society.” As a result, there was a speculative attack on the monetary gold stock in 1968, and after three volatile years, the Bretton Woods system collapsed in 1971.²⁴

Post-Bretton Woods (1973-?). The adjustable peg system, which became operational in 1946, continued till the early 1970s when its own internal contradictions finally led to its complete collapse. One of the inherent contradictions was the so-called “Triffin dilemma” that suggested that as the final provider of liquidity and reserve assets to a growing world economy, the US would need to increase the supply of dollars beyond what was backed by the near stagnant gold reserves so that the relative value of the dollar would erode.²⁵ However, as indicated above, the Bretton Woods system became increasingly untenable and the system collapsed, due in part to the highly expansionary macroeconomic policies in the US. In February 1973, the Bretton Woods currency exchange markets closed, and by March 1976, all the major currencies were floating.

During the attempts to save the Bretton Woods system, proposals were made to develop an alternative to reserve holdings in dollars via the creation of an alternative reserve asset. The Special Drawing Right (SDR) was created under the auspices of the IMF. To hold the dollar’s peg against gold, the SDR was set as equal to one US dollar. After more than three decades, the SDR still functions today only as a unit of account. When members of the IMF make “purchases” of SDRs (i.e., borrow from the IMF) the actual disbursements are made in dollars or euros or yen, depending upon the borrower’s preference. That is, while the loan is denominated in SDRs, the disbursements are made in “usable” national currencies (“reserve currencies”).

²¹ Mundell (2000 and 1995) suggests that the US representative, Harry Dexter White, arrived at Bretton Woods with his own proposal for an international currency called the *unitas*, but this was quickly dropped from the official US position.

²² See Eichengreen (2010). Also see Piffaretti (2009) for an historical review and analysis of the Keynes proposal in the contemporary context.

²³ See Boughton (2002). More recently, in 2009 a UN Commission on financial reforms led by Joseph Stiglitz has proposed a system based on a greatly expanded SDR which is similar to the “bancor” system. See http://www.un.org/ga/econcrisissummit/docs/FinalReport_CoE.pdf

²⁴ It should be noted that—by today’s standards—US deficits were relatively benign over the 1960s to early 1970s, peaking at 2.9 percent of GDP in 1968. It was not until 1975 that the deficit breached the 3 percent of GDP “Maastricht criterion” later adopted for the euro-zone. (For data, see <http://www.whitehouse.gov/omb/budget/Historicals>). On the other hand, the expansion of the public sector could have contributed to real exchange rate overvaluation. Bordo (1993) provides a detailed account of the history of the Bretton Woods era and its collapse. Eichengreen (1992c) suggests that it was the interaction of US domestic policies and an inherent flaw--Triffin dilemma—in the system that caused the demise. Less expansionary policies might have delayed the collapse but not prevented it.

²⁵ See Triffin (1960).

Another proposal, based on the SDR, was the creation of a so-called “substitution account.”²⁶ As countries wanted to convert their dollar reserves into something else, the proposal was tabled for an account at the IMF whereby countries could replace their dollars with SDRs. One sticking point would be the exchange rate risk to the IMF’s balance sheet. For example, if the dollar subsequently were to depreciate against the SDR, then the IMF and its shareholders would suffer losses. In the early 1970s, there were some suggestions that the United States government could guarantee or cover those losses; however, no agreement was reached and the substitution account proposal was never implemented.

Although there is no consensus on the major causes of the collapse of the Bretton Woods system, a number of explanations have been advanced. Among them are differences between US and foreign monetary policies, differences between US and foreign fiscal policies, failure of deficit countries to devalue, failure of the surplus countries to revalue, secular decline in the international competitive position of the US, and major structural flaws in the international monetary system, such as Triffin’s dilemma under the gold standard.²⁷ However, as noted in Lin and Treichel (2012), one of the main flaws in the Post-Bretton Woods “non-system” that eventually led to the global crisis in 2008 was the potential conflict of interest between macro policy for domestic objectives versus the dollar’s role as a global reserve currency. The fiscal and monetary policies in the US were inevitably based primarily on domestic/national economic concerns. At times such a policy stance may be inadvertently detrimental to global stability.²⁸

III. The Changing Economic Landscape and Implications for the International Monetary System

The last decade has been a period of extraordinary economic convergence as developing nations have grown faster than the high-income countries. With persistent economic difficulties and deleveraging of private and public sectors in the high-income countries, growth prospects have diminished – perhaps even over the medium-term—if large spare capacity in housing, construction and some manufacturing sectors is not absorbed and if needed structural reforms in the financial sector and labor market, particularly in Europe, are not enacted and effective. Given the high probability of slower economic demand growth relative to past trend in high-income countries over the medium-term, two processes would be key to assuring that the “great convergence”²⁹ continues: (i) that developing countries sustain the pace of their growth by continuing their industrial upgrading and structural transformation; and (ii) that developing countries further increase globalization and interconnectedness among themselves through increased South-South flows of goods, services, investments, and knowledge.

What will the picture look like moving forward, and how does this affect the role of the international monetary system? One trend that is likely to continue is a declining share of world GDP for

²⁶ See IMF (2011b).

²⁷ See Eichengreen (1992b).

²⁸ Much debate recently centered on the impact of expansionary monetary policy in high income countries in stimulating excessive capital flows to emerging markets. Another point of contention is whether an emerging market country’s capital controls can create a “dam” that pushes excess capital flows into emerging economies with more open capital accounts. The two forces could combine to create instability in some emerging market economies. IMF (2011e) finds that the direct effect of high income country policies are at least partially offset by other indirect effects via stimulating global demand. In addition, according to their analysis, capital controls have only partial effectiveness even on the individual country implementing them – with even more tenuous spillover effects. This analysis places a greater emphasis on the multilateral impact of countries’ prudential regulations for their financial systems.

²⁹ Convergence occurs when developing countries grow faster than high income countries – a phenomenon that has been widespread over the last decade. Martin Wolf coined this phrase “great convergence” in a *Financial Times* Op-Ed, “In the grip of a great convergence,” (January 4, 2011). Nobel laureate Michael Spence (2011) has called it the “Next Convergence” in his book.

the high income countries. Hopefully, this will be due more to continued strong growth in developing countries than to low and stagnant growth in the high-income countries. The reserve currency countries, in particular, will likely face a declining share. For Japan, the UK and some countries in the Eurozone, zero or negative population growth is one factor – combined with an aging population. In the United States, fiscal retrenchment both over the medium and longer term (e.g., social security and old age health expenditures) may pose a drag on growth.

The World Bank recently produced a report that looked at longer term trends in economic growth.³⁰ The baseline scenarios on a country-by-country basis reveal the shifting pattern of economic power in the coming decades. China is likely to overtake the United States in terms of nominal GDP, while India is likely to surpass first the United Kingdom and then Japan (figures 1(a) and (b)) by 2022.

**Figures 1(a) and (b): The Global Economy in 2025—Major MICs and Reserve Currency Countries
(In nominal US dollars, market exchange rates)**

Source: Reproduced from World Bank (2011).

Note: Real GDP growth from 2010 onward is based on forecasts from the baseline scenario of World Bank (2011). Inflation is assumed to be constant at 0 percent for Japan, 2 percent for the United States, 4 percent for both China and the United Kingdom, and 70 percent for India. Exchange rate appreciation, relative to the U.S. dollar, is assumed to be constant at 0 percent for China (no appreciation case), 2 percent for Japan, and 3 percent for China (appreciation case).

The implication is that the future of the current international monetary order will be even more out of line with the international real economy order. There is a clear rationale for trade and finance to be denominated in the currency of the country that dominates the global economy in terms of its weight in the global economy. Already in 2009, there was a misalignment in the currency composition of

³⁰ World Bank, 2011. This was the inaugural edition of a new annual series called *Global Development Horizons*. Also see Dailami and Masson (2009).

international reserves relative to countries' shares of the global economy (Figure 2(a) and (b)). Unless a new reserve currency or international substitutes arise, then the scenarios laid out above for economic growth imply that the misalignment, as well as volatility in asset prices and capital flows, will only grow over time.

Figure 2(a) and (b): Currency composition of international reserves and economic indicators.

Source: Reproduced from World Bank (2011). GDP, export shares and reserves shares are for 2009. Currency turnover is for 2010.

Implications for the International Monetary System. What does this scenario mean for the evolution of the international monetary system? At the time of the Bretton Woods Conference, a number of more radical proposals for international system reform were proposed—including proposals for a new international currency; however, these more comprehensive and radical reforms were not accepted, and a dollar-centric system was established. In all likelihood, this system was established for the following three reasons: (i) the United States' position as a dominant economy with over 50 percent of global GDP; (ii) the United States' exorbitant privilege (see Box 1) of being a dominant reserve currency implied large economic gains for the United States (so there was a strong incentive against relinquishing or even diminishing the dollar's global role); and (iii) the United States' economic growth and fiscal position was strong, thus generating confidence in the US dollar.

Box 1: Exorbitant Privilege

The original conception of this term dates back to the idea that the dominant reserve currency country does not have to “earn” foreign exchange to pay for its imports or other obligations – something akin to seigniorage.^a In other words, a certain amount of goods or services or assets were acquired simply by exchanging currency that foreigners wished to hold as a reserve asset. In the modern world, reserves are mostly held in government bonds, so exorbitant privilege is a much broader concept to take into consideration the ease (cost) of borrowing overseas and the advantages of being able to do in the country’s own currency.

From a pure seigniorage perspective, one simple measure of the *stock* – not the flow of benefits—is the estimated \$500 billion (about 3.5 percent of GDP) of US currency circulating overseas for which foreigners had to provide “free” goods and services (or assets) to obtain (Eichengreen, 2011a). This represents about half of the \$1 trillion in total US dollar currency in circulation. A more contemporary definition – for a world where capital flows are dominating trade flows—is the excess returns to net foreign assets of the reserve currency country. In simpler terms, the status of a reserve currency issuer allows the country to borrow from abroad more cheaply than it lends. In addition, depreciations of the reserve currency improve the net foreign asset position of the reserve currency issuer, unlike developing countries that borrow in foreign currency. This creates the scope for depreciating (similar to inflating) one’s way out of debt on the global scale.

Some Estimates of benefits and costs of reserve currency status for the United States. McKinsey Global Institute (2009) estimates only \$10 billion in annual benefits to the US from pure seigniorage, \$90 billion in lower borrowing costs, and -\$30 to -\$60 billion from exchange rate appreciation for a net annual benefit of \$40 to \$70 billion – or about 0.3 to 0.5 percent of GDP. Studies cited in Eichengreen (2011a, page 118) point to interest rates that could be 50 to 90 basis points lower due to the dollar’s dominant reserve currency status. McKinsey Global Institute (2009) uses an estimate of 50 to 60 basis points for the calculations cited above. Warnock and Warnock (2006) arrived at an estimate of 90 basis points. World Bank (2011, page 126) presents estimates of \$15 billion per year in seigniorage (since the early 1990s) and \$80 billion annual savings (in recent years) from lower interest costs—fairly close to the McKinsey Global Institute estimates. In brief, the range of estimates for the net annual benefits to the United States— during normal times—of the dollar’s dominance as a reserve currency is in the range of \$40 to \$150 billion (the latter by nearly doubling the lower borrowing cost estimates if one were to use Warnock and Warnock estimates of the basis point savings). During a regional or global crisis, these net annual benefits could be larger than normal times, since the US dollar-denominated assets often act as “safe-haven,” thus enjoying even relatively lower yields due to inflows of capital into US financial markets. In addition, in the aftermath of the global financial crisis, revenues from “pure” seigniorage, which is derived from the increase in real base money associated with increased demand for money due to increased economic activity and other factors, have risen sharply as monetary authorities in reserve currency-issuing countries have substantially increased their balance sheets through quantitative easing and bank support. IMF estimates that these revenues may have reached 8 percent of GDP (Fiscal Monitor, April 2012); however, it is not clear what portion of this burden is born by non-residents.

Other authors use the excess returns on *net-foreign assets* approach to analyze the benefits (Hausmann and Sturzenegger, 2006, Gourinchas and Rey, 2005, Lane and Milesi-Ferretti, 2007 and 2008, and Habib (2010)). Habib arrives an excess return of 330 basis points, which if applied as “savings” on the current US negative Net Foreign Asset Position of \$2.5 trillion (2010), one gets an annual savings of \$82 billion.

^a The term “seigniorage” dates back to the time when the artisan minting specie would take a small amount of the metal as payment for this service. In more modern times, it refers to the value of goods and services that can be purchased from the simple creation of currency—without having earned income from sale of goods or services or assets.

^b Another approach to measuring international seigniorage would be to look at the growth of US currency in circulation and assume that half ends up in the hands of foreigners: free imports. Since 2000, the total currency in circulation increased by \$484 billion. If half was absorbed externally, that would imply cumulative “international” seigniorage of about \$240 billion or about \$20 billion per year.

None of these conditions will likely hold in the future. The first condition no longer exists, as exhibited in the figures above even though the US economy is likely to remain the largest economy in the world for another five to ten years. As will be discussed below, instability in the multi-polar monetary system of the future would be a clear motivation for a reform of the system. Recent developments in the United States, including the S&P downgrade in August, 2011 from AAA to AA+ of long-term US sovereign debt serves as a warning side to the last condition.

Emerging Policy Challenges and Pressures on the International Monetary System. The first dozen years or so following the demise of the Bretton Woods system was a tumultuous period in the international monetary system. Two oil price shocks complicated the panorama for monetary policy at the national level. Inflation reached double digits in the United States and a number of other major economies. Since the mid-1980s, the adoption of inflation-targeting by central banks in major economies has succeeded in stabilizing prices. GDP growth appears to have become less volatile – at least up to 2007 as noted in Figure 3—especially in reserve currency countries. That said, there have been a series of asset price bubbles in the United States, and the high-income countries are still staggering from the effects of the 2008-2009 financial crisis.

The United States may have experienced a “great moderation”³¹ prior to the global crisis (Figures 3(a) and (b)); however, this may have been a function of its dominant role in the international monetary system—among many other possible explanations. A number of other leading economies experienced a reduction in growth volatility (as measured simply by the standard deviation of GDP growth, Figures 3(c)-(e)); however, some of the newly industrialized countries that do not belong to the club of reserve currency issuers suffered from high volatility (for example, Korea). Even a number of star performers from the emerging economies were impacted by the crises of the last few decades. Can the international monetary system evolve in a way that would help reduce future volatility for a broader set of countries?

Figures 3(a)-(l): Growth Volatility in the United States and Other Selected Economies, (8 quarter moving standard deviation)

³¹ A classic paper on this topic is Stock and Watson (2003). The concept is not without controversy: for example, Smith and Summers (2009) find that the lower volatility is due to more modest growth during expansions, while periodic recessions have been less frequent but equally severe.

(c) United Kingdom: Standard Deviation of UK Real GDP Growth, % points

(d) United Kingdom: Standard Deviation of GDP growth, % points

(e) Canada: Standard Deviation of Real GDP Growth, % points

(f) Canada: Standard Deviation of GDP growth, % points

(g) Republic of Korea: Standard Deviation of Real GDP Growth, % points

(h) Republic of Korea: Standard Deviation of GDP growth, % points

(i) France: Standard Deviation of Real GDP Growth, % points

(j) Germany: Standard Deviation of Real GDP Growth, % points

Source: Author's calculations based on data from OECD Statistics. Data from this common source are not available for period prior to early 1980s for a number of countries.

What did the international monetary system have to do with the 2008-2009 crisis? Economists have varied views. Most recently, for example, Lin and Treichel (2011) argue that the cause of the crisis was financial deregulation combined with lax monetary policy, and the latter was facilitated by the US dollar's role as the dominant international reserve currency. In other words, the current structure of the international monetary system may be directly linked to the propagation of the worst financial crisis since the Great Depression. Others, for example, Caballero (2006) and Eichengreen (2011a) have also noted the roles played by the IMS and the dollar in the crisis; however, they approach the issue from a different analytic framework with different causality chains.

Is there an alternative to the dollar dominant system? One important transformation in recent decades came from Europe. On January 1, 1999, the eleven founding members of the European Monetary Union (EMU) joined the new union by effectively surrendering their monetary policy to the newly set up European Central Bank (ECB). From then on, only the ECB could create money. Member governments were able to issue bonds denominated in euros. Within the Eurozone, transaction costs due to the conversion of currencies were eliminated; the cost of capital was reduced, particularly in the high-inflation countries with low policy credibility; and this led to significant increases in private investment, particularly in the housing sector, as well as increased public and private consumption. This thereby contributed to higher economic growth than would have been the case otherwise.³² More importantly, given the focus of this paper, the euro has emerged as the most serious rival to the US dollar as an international currency, as long as it is not further undermined by the sovereign debt crisis within the Eurozone. As of 2009, the euro accounted for 27 percent of stock of global reserves and 20 percent of stock of cross-border loans, served as the currency anchor for 12 countries, and more than 31 percent of international debt was denominated in the euro.³³ As we will see later, however, divergence in fiscal policies and emerging sovereign debt problems in some of the member countries have come to undermine the entire system once again.

Despite gains by the euro, however, the US dollar has remained the dominant international currency. Network externalities are often cited as a reason for the persistence of dominant currencies in the international monetary system.³⁴ Flandreau and Jobst (2009) cite empirical evidence of strong strategic externalities that help currencies become international on account of their low liquidity premia. Their evidence also strongly supports the hypothesis that economic size and share in international trade and payments play crucial role in determining a country's role in monetary leadership.³⁵

³² However, the increase in housing investment as well as public and private consumptions and their financing are thought to have played a key role led to the current debt crisis in a number of countries in Euro zone.

³³ Dorrucchi, E and J. McKay (2011).

³⁴ See Eichengreen (2011a) and Flandreau and Jobst (2009).

³⁵ Flandreau and Jobst (2009) attribute this insight to Charles Kindleberger (1967), "The Politics of International Money and World Language", Essays in International Finance, No. 61, Princeton: Princeton University Press.

**TABLE 1 - Currency shares of foreign exchange reserve
Holdings, by percentage, 1923-20010**

	1923	1965	1995	2000	2005	2010
All countries						
U.S. dollar	33.0	56.1	59.0	71.1	66.9	63.0
Euro ^a	-	-	18.5	18.3	24.1	25.0
U.K. pound	66.0	20.0	2.1	2.8	3.6	4.0
Japanese yen	-	-	6.8	6.1	3.6	4.0
Other (including Swiss franc)	-	-	13.7	1.8	1.9	4.0
Advanced Countries						
U.S. dollar	-	-	53.9	69.8	69.3	66.0
Euro ^a	-	-	19.5	18.4	21.2	23.0
U.K. pound	-	-	2.1	2.8	2.7	3.0
Japanese yen	-	-	7.1	7.3	4.7	4.0
Other (including Swiss franc)	-	-	17.5	1.8	2.1	4.0
Emerging and developing countries						
U.S. dollar	-	-	73.7	74.8	62.7	57.5
Euro ^a	-	-	17.4	18.1	29.2	27.5
U.K. pound	-	-	2.2	2.6	5.1	5.0
Japanese yen	-	-	6.0	2.8	1.5	3.0
Other (including Swiss franc)	-	-	2.8	1.7	1.5	7.0

Source: Global Development Horizon, 2011, World Bank. IMF, “Currency Composition of Official Foreign Exchange Reserves”; and authors’ calculations.

Note: Figures represents only the shares of reserves that have been allocated to individual currencies.

a. For 1995, the sum of shares of the Deutsche mark, French franc, and Dutch guilder.

b. IMF definition of emerging and developing countries.

Table 2 presents the quantitative dimensions of the reserves currency holdings, between the latter half of the 19th century and 1920s, more than two-thirds of international reserves were denominated in pounds sterling. This ratio fell rapidly in the interwar period. By 1965, nearly 60 percent of world reserves were denominated in US dollars. This rose even further to 71 percent in 2000; however, the Euro claimed an increasing share during the 2000s, and the dollar returned to the 60 percent level. In addition, as of 2009, the dollar was used in more than 85 percent of all foreign exchange transactions, most commodities were still priced in dollars, and nearly 75 percent of world trade transactions were denominated in dollars (Table 3). Another useful measure of this dimension is the number of countries with dollar-based exchange rate arrangements. As of 2008, currencies of more than half of about 180 reporting countries were still linked to the US dollar, through dollarization, currency boards, pegging, and managed float with the dollar as reference currency (Table 3). Moreover, the dollar’s share in international debt securities was about half, and its share of all outstanding debt securities, issued by any country or corporation, was nearly 40 percent as of 2009.³⁶ Another contributor to the dollar’s leading role is the currency’s widespread use in pricing commodities (e.g. oil and gold) and in international trade transactions.³⁷

³⁶ See Goldberg (2010).

³⁷ Although also the euro is used extensively for invoicing international trade, its use in invoicing tends to be limited to trade by the Eurozone countries.

Table 2: Currency Distribution of Foreign Exchange Market Turnover, International Bond Issues, and Cross-Border Lending (percentage)

		1980	1992*	2002	2008–2010
		Bretton Woods 2	Post-Plaza Accord	Eurozone	Financial Crisis
Currency Distribution of Global Foreign Exchange Market Turnover**	\$		82.0	89.9	84.9
	£		13.6	13.0	12.9
	DM		39.6		
	€			37.9	39.1
	Other		64.8	59.2	63.1
Currency Distribution of International Bond Issues	\$		40.4	51.6	36.8
	£		7.3	6.7	7.9
	€		25.2	32.4	46.8
	Other		27.1	9.3	8.5
Currency Distribution of Cross-Border Lending	\$	63.8	52.3	49.9	39.2
	£	2.8	3.9	5.9	7.4
	€	23.1	22.8	31.3	41.2
	Other	10.3	21.0	12.9	12.2

Source: Bank of International Settlements.

* Currency distribution of international bond issues data from 1993.

** Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%. Data from Triennial Central Bank Survey.

Note: ECU used as internal accounting unit for bond issues and lending in the European Community beginning in 1979. It was later replaced by the Euro at equal parity in 1999.

Table 3: Currency Linkages and other Foreign Exchange Arrangements

	1900 Gold Exchan ge Stand ard	1923 Post- WWI	1934 Great Depres- sion	1950 Post- WWII	1965 Bret- ton Woods 1	1980 Bretton Woods 2	1992 Post- Plaza Accord	2002 Euro- zone	2008– 2010 Financia l Crisis
Total Reported	43	68	111	131	136	138	167	180	176
Currency Linked to \$	6	9	15	63	72	75	74	93	98
Currency Linked to £	14	29	54	44	43	1	0	0	0
Currency Linked to F	10	13	23	0	0	0	0	0	0
Currency Linked to DM	2	0	0	0	6	31	40	0	0
Currency Linked to €	0	0	0	0	0	0	0	55	55
Currency Linked to Other*	11	17	13	5	1	6	9	6	5
Floating currency	0	0	1	2	6	17	36	20	14
Dual, Multiple, or Parallel Exchange	0	0	5	17	8	8	8	6	4
% of Total Reported									
Currency Linked to \$	14.0%	13.2%	13.5%	48.1%	52.9%	54.3%	44.3%	51.7%	55.7%
Currency Linked to £	32.6%	42.6%	48.6%	33.6%	31.6%	0.7%	-	-	-
Currency Linked to F	23.3%	19.1%	20.7%	-	-	-	-	-	-
Currency Linked to DM	4.7%	-	-	-	4.4%	22.5%	24.0%	-	-
Currency Linked to €	-	-	-	-	-	-	-	30.6%	31.3%
Currency Linked to Other*	25.6%	25.0%	11.7%	3.8%	0.7%	4.3%	5.4%	3.3%	2.8%
Floating currency	-	-	0.9%	1.5%	4.4%	12.3%	21.6%	11.1%	8.0%
Dual, Multiple, or Parallel Exchange	-	-	4.5%	13.0%	5.9%	5.8%	4.8%	3.3%	2.3%

Source: Ilzetzki, Reinhart, Rogoff (2008).

* Other linkages include the Gold Standard, Silver Standard, Belgian Franc, Japanese Yen, Portuguese Escudo, Russian Ruble, South African Rand, Spanish Peseta, and Special Drawing Rights.

The transition to a genuine multi-currency reserve system could be gradual as has been the case since the creation of the euro. To a large extent the speed and nature of the transition will depend on the size, structure and speed of change of the global economy. However, historical precedent certainly exists for the rise and fall of reserve currencies. Between 1931 and 1945, the dollar overtook the pound sterling as the dominant reserve currency; however, the final decline of the pound was fairly sudden once a tipping point was reached much later.³⁸ The policy coordination among the key actors will be essential in determining whether the process of change will be orderly or not. The current situation in some ways resembles that at the end of Bretton Woods I, just before the collapse of the entire system. As mentioned earlier, the system that has evolved since the mid-1970s has been prone to episodic crisis as key players' macroeconomic policies were not always consistent with what was needed to stabilize the international

³⁸ Eichengreen and Flandreau (2008) date the dollar dominance (as a reserve currency) to the mid-1920s.

monetary system and this has resulted in a highly volatile capital flow and exchange rates and interest rates.

Persistent Payments Imbalances and Volatile Capital Flows. International capital markets virtually disappeared after the widespread debt defaults caused by the Great Depression. Capital movements in the interwar period mainly took the form of hot-money. The disappearance of private capital flows was assumed to be more or less permanent when the design of the World Bank and the IMF was being finalized at the Bretton Woods negotiations in 1944. The size of official assistance and lending soon would be dwarfed by the rapid revival of FDI in the 1950s and the subsequent reemergence of a market in financial capital.³⁹ Financial flows primarily took the form of floating-interest bank loans rather than the fixed-interest rate bond finance that had been prevalent in the pre-War period.⁴⁰ In the following 30 years, there was an explosive growth in bank lending, some of it in the shape of recycling of the so called petro-dollars following the oil price shocks of the 1970s.

International financial integration accelerated after the Asian financial crisis in 1997-98. The gross cross-border flows rose from 5 percent of world GDP in the mid-1990s to around 20 percent by 2007, and international financial openness (external assets plus liabilities) rose sharply from 150 percent to 350 percent of world GDP in the same period.⁴¹ In fact, the gross cross-border flows dwarfed net flows, and they flowed in the opposite direction of what would be implied by countries' current account deficits and surpluses. For example, for the US the cumulative current account deficits between 2002 and 2007 amounted to \$4.8 trillion while it experienced even larger gross outflows, amounting to more than \$5.8 trillion- excluding outflows related to financial derivatives. These, however, were financed by around \$10 trillion in gross inflows.⁴² Financial innovation and development in both advanced countries and emerging economies further accelerated global financial integration. The rising share of cross-border ownership of financial institutions, together with increased funding from international capital markets, further enhanced international financial integration. As a result, the value of external assets and liabilities of banks doubled as a share of GDP from around 30 percent in the early 1990s to about 60 percent in 2007.⁴³ Rapid growth of world trade also contributed to the increased global financial integration through increased trade credits and export insurance. Nevertheless, international capital flows rose about three times faster than international trade as a result of financial liberalization and innovations, though they fell sharply in 2008 as a result of the economic and financial crisis. Emerging markets participated in this globalization process as they increased their share in international capital markets from 7 percent in 2000 to 17 percent 2007.

³⁹ By 2011, net flows from official creditors to developing countries amounted to \$50 billion (mainly due to increased support during the global crisis) compared to \$554 billion in net FDI flows to these countries (Global Economic Prospects, Jan. 2012, World Bank).

⁴⁰ Williamson (1990) and Obstfeld and Taylor (2004).

⁴¹ OECD Economic Outlook, Paris, 2011.

⁴² These inflows into the US economy were distributed as follows: about \$3 trillion in US official assets, including US Treasuries, \$1 trillion in FDI, \$1.4 trillion in stocks and \$1.7 trillion in corporate bonds and \$2.6 billion in other assets, including real estate, as reported by US based banks and brokerage firms – source: Economic Report of the President: 2011 Report Spreadsheet tables B-103: <http://www.gpoaccess.gov/eop/tables11.html>. US Bureau of Economic Analysis, International Investment Position of the United States at Yearend: <http://www.bea.gov/international/ai1.htm#BOPIIP>

⁴³ BIS Annual Report, Basel, 2010.

Figures 4(a)-(d): Global Capital Flows, Over Time and From Different Perspectives

The 2008 crisis was preceded by massive increases in global capital flows. These flows fluctuated between 2 and 6 percent of world GDP during the 1980s and the first half of the 1990s, but rose sharply to almost 15 percent of world GDP before the 2008-9 crisis. In 2007, these capital flows totaled nearly \$8 trillion, more than three times their aggregate level in 1995. By comparison, major global payment imbalances have been much smaller, in the range of 0.5 to 1 percent of world GDP. For

example, in 2010, the US current account deficit was \$471 billion (-3.2 percent of its GDP or less than 1 percent of world GDP), and China's surplus was \$305 billion (5.2 percent of its GDP).⁴⁴

Table 4: Gross Capital Flows: Summary Statistics
(percent of Trend GDP)

	High-Income Countries		Middle-Income Countries		Low-Income Countries	
	Median Average	Median Std. Dev.	Median Average	Median Std. Dev.	Median Average	Median Std. Dev.
Total Gross Capital Flows	17.67	15.49	9.31	10.01	6.97	7.17
1970s	9.50	3.62	7.01	5.27	7.92	2.75
1980s	9.10	6.16	1.96	5.95	4.86	3.90
1990s	13.56	9.39	7.80	5.60	7.21	5.56
2000s	32.65	16.70	15.06	8.48	8.41	6.21
No. of Countries	39		26		38	

Source: Broner, F, T. Didier, A. Erce and S. Schmukler, "Gross Capital Flows," Policy Research Working Paper 5768, August 2011, Table 1. The table shows summary statistics of total gross capital flows by both foreign and domestic agents as well as net capital flows and total gross capital flows: sum of inflows by foreign agents and outflows of domestic agents. The median value of country averages and of country standard deviations of capital flows over trend GDP are shown. The sample period is from 1970 to 2009.

The global economic crisis began with the collapse of mortgage lending in the US in 2007, and spread internationally at a very fast pace. For the first time since the Great Depression, major international banking systems began to sharply deleverage their external positions in response to pressures on their funding and capital. As a result, it is estimated that the gross cross-border flows plummeted from nearly 20 percent of world GDP in 2007 to less than 1 percent of world GDP in the latter half of 2008.⁴⁵

As indicated earlier, the 2008 financial crisis was characterized by a sharp drop in gross capital flows around the world, even though net flows have remained relatively stable. As a consequence, gross capital flows seem more volatile than net capital flows. Table 4 shows that gross capital flows, measured as a percentage of trend output, have increased over time around the world, indicating rapid financial globalization, especially for high- and middle-income countries.⁴⁶ This table also shows that over time the volatility of gross capital has increased significantly, with the median standard deviation for all income groups increasing during the 2000s compared to earlier periods. More specifically, the volatility of gross capital flows is significantly larger for high-income countries than for middle-income countries or for low-income countries in recent decades. In sum, *gross* capital flows are not only increasingly larger, but also increasingly are more volatile. This is in contrast to what is observed with respect to *net* capital flows, and the patterns suggest an increasing importance of gross capital flows, particularly starting in the 2000s.

⁴⁴ OECD Economic Outlook, November 2011, table. 1.3.

⁴⁵ See Speller, W., Thwaites, G. and M. Wright, "The Future of International Capital Flows," Bank of England, Financial Stability Paper No. 12, December 2011.

⁴⁶ Broner, F, T. Didier, A. Erce and S. Schmukler, "Gross Capital Flows," Policy Research Working Paper 5768, August 2011, Table 1.

In the post-crisis period, advanced economies as a group have been running a relatively small deficit on their current account of balance of payments. This aggregate deficit amounted to about \$100 billion or about 0.2 percent of their GDP in 2011. However, both this deficit and the current account surplus for developing countries, which amounted to \$470 billion (1.9 percent of GDP) in 2011, and mask massive differences among various regions.

In 2011, among the developing countries, about 40 percent of the overall surplus in current accounts or \$200 billion was accounted for by Asian countries while most other developing countries (with the exception of oil exporters with a surplus of \$580 billion) had deficits that were financed by capital inflows and drawing down reserves. The level of international reserves held by emerging and developing economies rose to \$6.8 trillion or 67 percent of the total global foreign exchange reserve stock of \$10.2 trillion as of end-2011.⁴⁷ China alone accounted for about 40 percent of the massive stock of reserves held by emerging and developing economies. However, the changes in reserve holdings were far smaller than the volume of capital flows. For example, in 2007, just before the start of the global crisis, the increase in total holdings of foreign reserves amounted to \$1.5 trillion compared to about \$8 trillion in capital flows, which were mainly among the advanced countries or originated from them and thus were driven to a large extent by their macroeconomic policy stances.

Among advanced economies, the US continued to experience a current account deficit of about \$470 billion, which in 2011 amounted to 3.1 percent of its GDP. Its expansionary fiscal and monetary policy stance has played an important role in both sustaining the global economic recovery and its large current account deficit. On the other hand, the Euro area, Japan and the rest of advanced countries all had significant surpluses in current account, amounting to about \$370 billion in 2011. These very large current account deficits and surpluses are matched by massive net capital flows across borders, which are in turn supported by much larger gross flows, induced to a large extent by the loose monetary stance in the reserve currency countries. According to IMF, the size of the global capital markets (sum of stock market capitalization, bonds, and bank assets) reached \$256 trillion in 2010, which was 4 times larger than world GDP.⁴⁸ The persistence large deficits and surpluses carry substantial risks as they can cause disorderly adjustment which could lead to large exchange rate movements and cause substantial movements in capital as well as goods and services through their impact on prices. In addition, massive trade imbalances can lead to protectionist policies in deficit countries. According to OECD, about 60 percent of 268 episodes of large foreign capital inflows ended in “sudden stops,” and about one in ten episodes ended in either a banking or currency crisis.⁴⁹ This experience provides additional evidence in support of the hypothesis that the major weaknesses in the current international monetary system are harmful to all countries, including developing countries. These problems could become exacerbated in a multiple reserve currency system in the future--particularly if the reserve currency countries fail to closely coordinate their macroeconomic policies (see the following section).

Globalization and the expansion of the global economy have resulted in a sharp increase in the volume of international transactions. However, these trends, as well as the persistence of large balance of payments imbalances, have brought to light the limitations of the current international monetary system and national policies that were designed for a far less financially integrated world. As we argue below, a well designed international monetary system must have two key functions: (i) it should allow countries to run temporary surpluses and deficits on current account and accumulate net claims, which is a rather mechanical role and has been accomplished by the current system; and (ii) it should have a mechanism-

⁴⁷ IMF, “Currency Composition of Official Foreign Exchange Reserves.”

⁴⁸ IMF, Global Financial Stability Report, April, 2012.

⁴⁹ OECD Economic Outlook, OECD, Paris, 2011.

cum-incentives to encourage countries to return to a balanced position.⁵⁰ This latter has been the biggest deficiency of the current system.⁵¹

IV. Stability Properties of the International Monetary System

In this section, we will briefly examine the stability of the emerging multi-polar system from two inter-related perspectives: (i) the future prospects of each of the key currencies – the US dollar, the euro, and the renminbi – and stability of the economy that underpins each currency; and (ii) properties of the new system that may or may not contribute to overall global economic stability. Based on the experience of 2008-2011, we will argue that the global economy is inevitably moving toward a multiple-reserve currency system, and that, in the absence of strong policy coordination and macro-economic policy discipline among the reserve-issuing countries, this system could continue to experience relatively high volatility in capital flows and key exchange rates. This could in turn adversely affect economic activity and employment in both reserve-issuing countries and the rest of the world.

As some have argued, while the current international monetary system is not perfect, it has proved to be fairly resilient during the crisis and the dollar has continued to serve the global economy as a safe haven asset and has contributed to the overall stability of the global economic and financial system.⁵² In this paper, we have taken a less sanguine view based on the experience thus far. In fact, as argued above and elsewhere, major deficiencies with the current system– highly volatile capital flows and exchange rates, persistent and large payments imbalances and exchange rate misalignments, inadequate global adjustment mechanisms, lack of global oversight framework for cross-border capital flows, lack of enforcement of discipline on macroeconomic policies of reserve-currency issuing countries– may have been responsible for the onset of the Great Recession in 2008-09 and continue to threaten the prospects of the global economy.⁵³

⁵⁰ The main issue here rests in the use of national currency as a reserve currency. If the reserve currency country does not have a large and persistent current account deficit, it would not be possible for the non-reserve currency countries as a group to have a persistent and large current account surplus. The only way for a reserve currency country that has a large and persistent current account surplus to supply the rest of the world with reserve currency is through a large foreign direct investment and portfolio investments and a large untied foreign aid program. In the latter case, the non-reserve-currency countries will have a combined current account deficit.

⁵¹ A recent IMF policy paper (Strengthening the International Monetary Systems: Taking Stock and Looking Ahead, IMF, Washington DC, March 2011) states the following factors as major deficiencies and “symptoms of malfunction” of the current international monetary system: (i) persistence imbalances and misalignment; (ii) excessive demand for reserve assets; (iii) volatile capital flows; and (iv) volatile exchange rates. All such symptoms originated from the inherent instability of the current “non-system” and exacerbated by loose monetary policy in the reserve currency countries. .

⁵² For example, see Dadush and Eidelman (2011).

⁵³ Major deficiencies of the current international monetary system have been documented in IMF (2011a), Dorrucchi and McKay (2011), and Angeloni et al (2011).

Figure 5: Exchange Rate Volatility
Nominal Exchange Rate Volatility, Rolling 12-month Coefficient of Variation, %

Source: World Bank Global Economic Monitor Data; Backward looking 12 month moving standard deviation divided by backward looking 12 month moving average.

Figure 6: Equity Market Volatility

Sources: World Bank Global Economic Monitor, CBOE for VIX.

Looking ahead, the international monetary system is likely to face three possible outcomes: (i) continuation of the current “non-system” international monetary system with continuation of capital flows and exchange rate volatility and its outlook punctuated by regional and global financial crisis from time to time, as has been the case since the 1970s with a distinct possibility of the collapse of the system (a la Bretton Woods I and II); (ii) a more likely scenario with the evolution of the current system into a multi-reserve currency system supported by three major currencies – the dollar, the euro and the renminbi, along with smaller currencies, such as the yen and the Swiss franc, with possibly other large emerging economies (e.g. India and Brazil) joining later, with continued volatility of capital flows and exchange rates, mainly among the major reserve currencies (and with blocks of currencies pegged to each of them) in response to their national policy changes and or unexpected events; and (iii) a collective decision by major global economies to reform the IMS and move toward a new supernational currency a la Keynes’s *Bancor*. We focus here on the stability of the evolving multiple reserve-currency system in this section, given the relatively higher likelihood we attach to it as a possible medium-term scenario in the absence of a multilateral action to reform the entire system.

As shown in section III above, the world economy is in fact moving toward a multi-polar growth system, and this is likely to have important implications for the current international monetary system and its stability over the medium-term. In this context, a key trend that is likely to continue is a declining share of world GDP for the high income countries, as the US, the Eurozone and Japan are likely to grow at a much slower pace than their trend growth and compared to the average growth of emerging economies. In fact, as of end-2011, advanced economies, as a group, were slowing down with parts of the euro area having already entered a recession after a period of anemic recovery. Moreover, concerns about sovereign debt sustainability are now widespread and long-term unemployment is becoming a major issue in a number of these countries. The strong headwinds of deleveraging in the financial and public sectors exert further downward pressure on the pace of economic growth in the advanced countries.

As mentioned elsewhere in this paper, due to high debt levels and certain structural rigidities, the Eurozone and the US are likely to experience lower than trend growth and productivity gains and relatively high unemployment rates over the medium-term. The likely macroeconomic response by these countries, particularly continuing their loose monetary policy stance for domestic reasons, is likely to cause further volatility in capital flows and exchange rates over the next few years, with the US growth projected to be in the range 2 to 2.5 percent, and Japan in the 1.5 to 2 percent, and Europe experiencing a mild red recession in 2012 and likely to recover only slowly. As a result, advanced economies as a group are now expected to grow in the range of 1.5 to 2 percent over the next few years. This will be substantially below these countries average trend growth of about 2.5 to 3 percent.⁵⁴

Emerging economies (and the rest of the developing countries) are projected to grow in the range 5.5 to 6 percent a year.⁵⁵ The more rapid growth of the emerging economies than the advanced economies is likely to accelerate the rise in economic weight of emerging economies, thus further solidifying the multi-polar growth structure of the global economy.

The U.S. economy continues to slowly recover from its worst financial crisis since the Great Depression, aided by highly expansionary fiscal and monetary policies. Monetary policy during the post crisis period has remained highly accommodative, with policy rates near zero and a significantly expanded Federal Reserve balance sheet. While the financial system continues to strengthen, lending conditions remain very tight for some segments of the economy. Household balance-sheet remains weak and house prices have continued their decline. These, together with high unemployment rates, have held down the growth of private consumption and new housing construction. Moreover, corporate spending and hiring have remained relatively weak, despite record-high profit growth and easy financing conditions for large firms. Therefore, while the US authorities' macroeconomic policy stance is sensible from the domestic stability point of view, given the size of the US economy and its strong financial and trade linkages with the rest of the world, these policies have major spillover effects on the rest of the world. On the one hand, the US recovery has supported the global economic recovery, particularly through the trade channel. On the other hand, the financial spillover effects, particularly through the massive liquidity injections and near zero interest rates, have had more complex implications for the rest of the world.

According to recent IMF research, lower real US interest rates and higher real world GDP growth rates have been associated with "a higher probability of capital inflow surge in emerging market

⁵⁴ Both recent World Economic Outlook and Global Economic Prospects projections from the IMF and World Bank respectively support this view. The main reason is the escalating eurozone crisis, due mainly to serious concerns about the region's banking sector losses and fiscal sustainability. Sovereign spreads for many eurozone countries widened sharply, reaching highs not seen since the launch of the region's Monetary Union. Bank funding dried up, which forced the European Central Bank to offer a three-year "Refinancing Operation." As a result, bank lending deteriorated in a number of countries in the region, and capital flows to developing countries experienced sharp declines. Currency markets were highly volatile, as the Japanese yen, the Swiss franc appreciated and most developing countries currencies depreciated significantly. Price of gold reached record highs. The main characteristics of the global economy in the medium-term are expected to be as follows: (i) The overall economic activity in the advanced economies is projected to grow quite slowly (1.5 percent or less) in the next two years and continue to experience high unemployment; (ii) The eurozone is already experiencing a recession and could experience further difficulties due to the rise of sovereign yields, the effects of bank deleveraging on the real economy, and the impact of additional fiscal consolidation announced by euro area governments; and (iii) With highly constrained macroeconomic policies, growth in most advanced economies is likely to be lower, mainly due to adverse spillovers from the euro area via trade and financial channels that exacerbate the effects of existing weaknesses. For the United States, the growth impact of such spillovers is broadly offset by stronger underlying domestic demand dynamics in 2012. Nonetheless, activity slows from the pace reached during the second half of 2011, as higher risk aversion tightens financial conditions and fiscal policy turns more contractionary.

⁵⁵ See World Bank (2012).

economies.”⁵⁶ In general, the unconventional monetary policies, specifically the extraordinary low interest rate levels, pursued by a number of advanced economies, may have caused excessive risk-taking, affected cross-border capital flows, and added to global asset, credit and commodity price bubbles, and, eventually, may lead to higher inflationary pressures.

Figure 7(a) and (b): Large and Volatile Capital Flows –Especially to Emerging Markets

On the other hand, all key global players, including the issuers of reserve currency, continue to follow fiscal and monetary policies that are targeted primarily toward their domestic economy with insufficient attention paid to cross border issues. As a result, global imbalances started to grow again in the aftermath of the global crisis in 2010. Even if these imbalances begin to gradually unwind over the medium-term, they could result in continuing large and volatile capital flows, exchange rate misalignments, and rising reliance on cross-border liquidity, which could give rise to extreme cycles and possible serious disruptions in cross-border flow of funds.⁵⁷

Given the current economic challenges and preoccupation of policy makers in the major economies with the weakening economic conditions and possibility of yet another global crisis, key questions to ask at this juncture are: What is the likelihood and feasibility of this multiple-reserve currency system? Will this new system be less stable than the current "non system"? A short answer to both questions seems to be a conditional yes.

The US dollar, the euro, and the renminbi. Although the current international monetary system still remains dollar-based, the share of the US economy in the global economy has been falling. It has fallen from nearly 40 percent in the 1960s to about 20 percent in 2010. Moreover, the US has fallen

⁵⁶ IMF, "The Multilateral Aspects of Policies Affecting Capital Flows," October 21, 2011

⁵⁷ See IMF (2011e).

behind China and Germany in terms of its position as the leading exporter of manufactures to the world. And, more recently, a major credit rating agency downgraded the US credit rating because of a perceived lack of a credible plan for fiscal consolidation to stabilize the government's medium-term debt dynamics.

A slower pace of economic growth over the medium-term, which is now being projected by the OECD, the IMF and the World Bank as well as private forecasters, will worsen the US's debt dynamics.⁵⁸ Structural reforms and infrastructure investment are needed to avoid this “new normal” of slower growth. The main argument that has been put forward is that governments in advanced economies need to identify policies to raise long-term growth that also would stimulate demand over the short-term.⁵⁹ Undertaking infrastructure projects, improving the quality of education, and providing worker re-training to help the unemployed workers should receive particular attention in the US. The American Society of Civil Engineers assesses that the United States needs US\$2.2 trillion of infrastructure spending during the next five years.⁶⁰

Several key countries in Europe face similar or worse fiscal challenges, along with the need for structural reforms and infrastructure investment. The European Commission estimates that Europe needs to invest €1.5- 2 trillion over the next decade in infrastructure in order for Europe to remain competitive. In addition to structural reforms, which include reforming anti-competitive product market regulations and entry barriers, balancing fiscal challenges with investment needs poses a difficult policy conundrum in a number of European economies.

Despite these somewhat subdued prospects, as discussed earlier in this paper, the dollar still accounts for more than 60 percent of total foreign exchange reserves, for about 40 percent of all international lending and bond issuance, and is involved in more than 80 percent of all foreign exchange transactions. The US economy continues to be the single largest economy in the world, a position that it is likely to retain for at least another decade. Therefore, on balance, unless US policy makers commit serious policy mistakes that could further hurt the country's economic prospects and its credit rating, the US is likely to continue to remain a key global player with the dollar remaining a key reserve currency for at least another decade, though the US's weight in the global economy as well as its fiscal and monetary capacity to provide much of the needed liquidity to a growing global economy, or implement counter-cyclical policies at the global level, are likely to continue to erode over time.

On a deeper structural level, there are complex political economy factors that may inhibit progress in securing structural reforms for sustained growth in the US. A number of recent analyses highlight issues of regulatory capture in the financial system⁶¹ or political gridlock in the US Congress.⁶² The necessary reforms are unlikely to be implemented unless these political barriers are overcome.

On the other hand, the economic and political challenges facing the euro are far greater than those facing the dollar. To be sure, the euro has many of the required attributes of an international currency and has gained importance as a reserve currency in both the private and official sectors. As of 2010, only a decade after its creation, the euro accounted for around 25 percent of official reserve holdings globally,

⁵⁸ According to the World Bank (Global Economic Prospects, January 2012) OECD countries' real GDP is projected to grow by 1.4 percent in 2011 and 1.3 percent in 2012 and less than 2 percent in 2013 compared to 2.8 percent in 2010. IMF in its latest projections (World Economic Outlook Update, April 2012) has similar figures for advanced economies – 1.6 percent, 1.4 percent and 2.0 percent for 2011, 2012 and 2013, respectively. OECD Economic Outlook (November, 2011) has similar figures for the OECD area: 1.9 percent, 1.6 percent and 2.3 percent for 2011, 2012 and 2013, respectively. For 2012, both the World Bank and the IMF are forecasting a recession for Europe in 2012 and only a modest growth (around 2 percent) for the US and Japan.

⁵⁹ See Doemeland and Lin (2012) and Lin (2011) for a fuller discussion of these issues.

⁶⁰ See the “Infrastructure Report Card” at www.infrastructurereportcard.org.

⁶¹ See, for example, Johnson and Kwak, 2010.

⁶² See, for example, Mann and Ornstein (2012, 2006).

for close to 40 percent of global foreign exchange market turnovers, for 47 percent and 40 percent of global bond issuance and cross-border lending, respectively, and nearly 55 countries' national currencies are linked to it (see tables 1-3 above). However, despite the euro's solid progress over the past decade to establish itself as a true rival to the dollar's reserve currency status, the euro zone is currently beset with serious macroeconomic and financial problems that have engulfed the entire region since the 2008-9 global financial crisis.

More importantly, most forecasts now point to a relatively long period of slow growth for the region. In addition to the more immediate sovereign debt problems and a dysfunctional fiscal system, the region is also beset by structural rigidities as well as demographic imbalances which point to slower economic growth and a substantial rise in the associated fiscal costs over the longer term. Although the euro zone problems are solvable, they are politically difficult to implement. Despite the increased heterogeneity of economic situations, the amplified volatility of financial flows and asset prices within the region, and the sovereign debt crises in several peripheral European economies, we think, on balance, that the political forces within the region will eventually overcome the challenges. Nevertheless, while the euro is likely to remain an important international currency, it is unlikely to substantially increase its current share in the global markets for some time to come.

Reform fatigue may be deepening in a number of debt distressed countries. Street protests have become commonplace in Greece and Spain. A debate on the efficacy of fiscal austerity measures is occurring among academics,⁶³ and it has become a part of the French Presidential campaign debate.⁶⁴ Debt dynamics depend upon both interest rates and growth rates, so there is an ongoing debate on how best to address market risk perceptions that drive interest rates on government bonds while also promoting growth.

In contrast to the eurozone, the short and medium-term prospects for the Chinese economy remain favorable despite some slowdown in the pace of its growth resulting from the crisis in Europe and slowdown in the US. Nevertheless, internationalization of the renminbi is severely constrained by China's underdeveloped financial sector. Assuming that China decides to have its currency play an international role, it needs to undertake a policy of gradual, but determined, liberalization, including establishing convertibility of the renminbi, further developing the local government bond market, and opening of the capital account over the next few years. An important consideration is financial sector strengthening prior to full capital account liberalization.^{65 66} An open capital account is a key requirement for a currency to become a reserve currency. The currency would need to be acceptable to other countries as the currency in which payments are made to settle trade and financial accounts and itself tradable in international financial markets.⁶⁷ China's own target date for the internationalization of its currency

⁶³ See Lawrence Summer's Op-Ed in the *Washington Post*, "Europe's Growth Challenge", April 29, 2012. For a more academic analysis of fiscal policy for growth, in the US context, see DeLong and Summers (2012).

⁶⁴ See the cover story in *The Economist*, April 28, 2012.

⁶⁵ See Chapter 12 of Lin (2012) for an overview of financial sector reforms moving forward, as well as other reforms for sustaining equitable growth in China.

⁶⁶ See Kenen (1983) for the initial list of key requirements for an international currency – including store of value, medium of exchange, and unit of account. Also see Subramanian (2011) for a discussion of the rise of the renminbi. Maziad et al (2011) discuss the "risks and rewards" from internationalization of a currency.

⁶⁷ For a currency to become a reserve-currency, it is generally accepted that economic size (both in terms of world GDP and international trade) and soundness of macroeconomic policies are among the necessary conditions but they are not sufficient. In addition, the currency must have a flexible exchange rate vis a vis other key currencies and the country must have an open capital account.

seems to be around 2020⁶⁸, which is also the projected date for China's economic size to surpass that of the US.⁶⁹

Moreover, as of 2010, China not only overtook Japan as the second largest economy in the world, but it also overtook Germany as the largest exporter in the world. China has the largest foreign exchange reserves and has become a leading investor in both developed and developing countries. The Chinese government is encouraging a gradual process of internationalization of renminbi. As a result, Chinese firms and financial institutions are beginning to settle their cross-border business transactions in renminbi to an increasing degree, and there is an expectation of use of the renminbi in a growing range of cross-border transactions in the next two to three years, including possibly a limited form of capital account convertibility of the renminbi in the next five years.⁷⁰ An important next step will be when central banks of key countries begin to hold at least part of their reserves in the Chinese currency. China has also taken steps to increase its role as a provider of last-resort liquidity by participating in the Chiang Mai multi-lateralization process, and it has signed bilateral swap arrangements in renminbi with a number of countries, including a few advanced economies.

Nevertheless, the challenges facing China's financial sector, which remains underdeveloped, are considerable, and reforming it will take time. In particular, the size of the Chinese bond market remains quite small – not more than two or three percent of Japan's and probably less than one percent of those of the US or the euro zone. So, although it is highly likely for the renminbi to become an international currency, its ascendance to a full-fledged reserve-currency must await considerable reform of its financial markets, though it will be playing an increasingly important role within the East Asian region, as well as in the rest of the world through China's trade and financial transactions.⁷¹ So, by 2020 or 2025 China may be the largest economy in the world, but it will still be a developing country and-- via the "optimal financial structure"⁷² argument--its financial market may not be deep enough for renminbi become a full-fledged global reserve currency. It is likely that these financial sector requirements imply that it will be a gradual process towards "internationalization" and eventual reserve currency status.

Stability properties of the emerging system. Financial stability requires that the international monetary system is capable of reducing the frequency, scope and severity of crises. A multi-polar system would require the participating governments to be *disciplined* in formulating and implementing their macroeconomic policies. They should have a strong *incentive to cooperate* with each other – e.g. by having to share part or all of the resulting seigniorage with international bodies to support global public goods -- and to set their policies in a way that would take into account the cross-border effects. In addition, each of the participating governments would need to have sufficient *internal policy autonomy* as well as some sort of an arrangement for *reserve pooling* among themselves and with those countries linked to their currencies. Finally, a key property for the stability of the system is *adequate provision of liquidity* -- to avoid asset bubbles due to excessive liquidity or deflation due to inadequate liquidity arising from normal international transactions in trade and finance.

⁶⁸ See Eichengreen (2010).

⁶⁹ IMF, "World Economic Outlook," April 2011, based on PPP calculations of GDPs for China and US, projects that China's economy may overtake the US economy by 2016. Most other calculations based on market exchange rate rather than PPP put the date somewhere between 2020 and 2030.

⁷⁰ See Huang et al (2011).

⁷¹ The Chinese and Japanese governments recently made a joint announcement of a agreement for greater use of the renminbi for settling trade transactions, as well as for Japanese corporate bond issues denominated in renminbi but issued in Japan and other foreign markets. (Reported in the *Washington Post*, December 25, 2011.)

⁷² As argued in Lin et al (2009), the optimal financial structure in an economy depends on its stage of development. They argue that the structure of factor endowments in a country is the most fundamental force determining its optimal financial structure.

However, a key question to ask is whether the multiple-reserve currency system is inherently stable or not. In other words, in the absence of a powerful governance structure for cooperation and policy coordination, would the system be sufficiently stable to avoiding serious crises or mitigate their impact? In theory, there is a likelihood that the reserve currencies would become increasingly *substitutable* for one another and some observers think this might reduce volatility in exchange rates and interest rates in the reserve supplying countries as demand for these assets becomes more elastic in terms of their own prices (interest rates and exchange rates), provided that such substitutability exerts sufficient discipline on the macroeconomic policies of reserve currency countries and there is meaningful policy coordination among the major economic powers in order to avert excessive and destabilizing capital flows. However, given that each of the issuers of the reserve currencies are currently beset by difficult macroeconomic and structural problems requiring politically difficult and multi-year policy responses, it is more likely that in the absence of tight policy coordination among the reserve currency-issuing countries, the emerging new system is likely to be less stable and the fluctuation of asset prices and emergence of financial shocks would become even more frequent than under the current non-system. Exacerbating the problem is that the slow growth with limited reforms – discussed above—is likely to motivate reserve currency issuing countries to engage in expansionary monetary policy as a persistent palliative for growth in the absence of reforms. In the absence of tight policy coordination, the currencies’ increased substitutability could actually result in more volatility with small changes in the market participants’ perception about the riskiness of each asset -- due to sudden changes in policies or other market fundamentals – leading to large inflows and outflows of capital in each of the reserve-issuing countries in order to take advantage of more favorable market conditions in the alternative and comparable assets. Such a large capital flight from a reserve-issuing country to another reserve-issuing country may cause the latter country to have asset bubbles and an overvalued exchange rate, increasing weaknesses in the financial sector and reducing competitiveness in the real economy. Subsequently, as such results emerge, capital may flow to another reserve-issuing country, presumably with perceived relatively more prudent policies, in a “musical chair” fashion.

In fact this is what is being observed today as the fiscal and banking crisis in the Eurozone have led to a flight of capital into assets denominated in the US dollar, Japanese Yen, Swiss Franc and gold and away from the euro – and even the renminbi. In 2011, the foreign exchange markets remained highly volatile as the eurozone crisis dominated markets and monetary authorities in major advanced countries and emerging economies unexpectedly intervened to influence the relative value of their currencies. Market participants in the largest global market (more than \$4 trillion dollars are traded each day in foreign exchange markets) were particularly affected by the euro, which did not decline in value relative to other major currencies as had been expected. During the latter half of 2011, expectations of further quantitative easing by the US Federal Reserve, the unexpected move by the Swiss central bank to weaken the franc and the Japanese monetary authorities’ intervention to weaken the yen led to sudden moves and volatility in foreign exchange markets with spillover effects in financial markets and on capital flows. The Swiss National Bank set a floor on the SwF-Euro exchange rate of 1.20 in the fall of 2011, following a surge in capital inflows – in particular, “hot” portfolio flows (Figures 8(a) and (b)). Emerging markets were hit hard as their currencies depreciated sharply due to increased uncertainties and irrespective of domestic economic conditions and key factors such as interest rates. Brazil is an example: the “real” experienced a persistent appreciation against the dollar during 2010 as portfolio flows surged on the order of tens of billions per quarter (Figures 8(c) and (d)).

Figures 8(a)-(d): Portfolio Flows and Exchange Rates—Switzerland and Brazil

Sources: Swiss National Bank, Monthly Statistical Bulletin, Tables 3.1 and G1. *Banco Central do Brasil*, Balance of Payments, Table 1, Preliminary data for 2007-2012.

In the post crisis period, capital flows to emerging economies rebounded strongly. The largest recipients of inflows of capital from the advanced economies have been in emerging economies in Asia, Latin America, as well as some emerging economies in other regions (e.g. South Africa and Turkey). According to a recent IMF study, in several emerging economies, *net* inflows have risen to close to all-time highs, although on a *gross* basis total inflows to these countries have yet to reach their pre-crisis peak.⁷³ However, the recent episode is characterized by a predominance of the highly volatile portfolio

⁷³ IMF, "Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Policy Framework, February, 2011.

inflows. On the other hand, gross inflows reached 6 percent of GDP in less than a year since the post-crisis trough in 2009, while, according to the IMF, it took three years to reach a similar magnitude in the pre-crisis years. The recent surge in portfolio inflows now account for nearly half of inflows into emerging markets, which is substantially higher than the previous episodes.

A key driver behind these inflows is the loose monetary policy and low interest rates in advance economies. Indeed, the global crisis and the serious concerns about the economic and financial prospects of the eurozone “have exposed balance sheet vulnerabilities in advanced economies and appear to have triggered a gradual shift in the portfolio allocation of institutional investors toward emerging economies, many of which are enjoying low debt, proven resilience to shocks, and improved ratings.”⁷⁴ However, these inflows tend to be quite volatile and in the past have tended to reverse suddenly and in a “synchronized” manner, leading to sharp currency depreciation and severe balance sheet dislocations. To this effect, one must also add the volatility that would result from the herd-like behavior among the international investors, including mutual funds, pension funds and hedge funds, which will reinforce and often magnify (rather than mitigate) the initial changes, thus causing massive capital flows (see figure 4 above) and large fluctuations in exchanges and interest rates. This phenomenon could cause frequent macroeconomic and financial crises with potentially devastating effects on the affected economies and globally through possible contagion effects, which would lead to a sudden reduction in the supply of safe assets. According to a recent IMF report, the financial crisis and the rising concerns about sustainability of sovereign debt in many advanced economies have “reinforced the notion that no asset can be viewed as truly safe.”⁷⁵ On the other hand, the increased uncertainty, as well as regulatory and policy responses to the crisis have increased the global demand for safe assets. This emerging imbalance between demand and supply of safe assets can have negative ramifications for the global financial stability through “short-term volatility jumps, herding behavior, and runs on sovereign debt.”⁷⁶ Therefore, it is quite likely that under a multipolar system (and in the absence of policy coordination among the key players) volatility of key exchange rates and interest rates could be exacerbated from time to time, particularly given the macroeconomic and structural problems facing the reserve-issuing countries. Moreover, given the various market forces, it is also possible that misalignment among exchange rates would become less sustainable, while the likelihood of “currency wars” could rise under economic stagnation and could result in the potential loss of market share for exports.

In the end, the international monetary system has always faced the challenges of shocks to the global economy. In some cases, such shocks may be naturally occurring—even literally, in the form of natural disasters or major technological innovations—or they may be driven by fundamental policy errors committed by major national governments. In addition, financial innovation itself can outrace regulators’ capacity to establish rules that can prevent excessive leverage or excessive risk taking on the part of globally connected financial institutions as was the case with respect to the 2008-09 financial crisis.

In terms of enforcing policy discipline on national governments to avoid policy mistakes, essentially there are two approaches: *rules* and *competition*. Economists often differ in their views on the relative merits of these approaches. In terms of *rules*, Mundell (various citations earlier) and also McKinnon (2011) have argued in favor of maintaining a tightly fixed exchange rate with an open capital account, since that would imply no possibility for independent monetary policy and thereby possible abuse of the system. Another approach is to limit monetary policy to a fixed rule—for example, Friedman’s k-rule or the famous Taylor rule.⁷⁷ International agreements can impose discipline, and the

⁷⁴ Ibid.

⁷⁵ IMF, “Global Financial Stability Report,” chapter 3, April, 2012.

⁷⁶ Ibid.

⁷⁷ The Friedman k-percent rule suggested that monetary policy should follow a fixed rule, so that the monetary aggregate would grow at a constant growth rate of k percent. This was under the presumption that activist, countercyclical, monetary policies were counterproductive in the long run (Friedman, 1960). The Taylor rule

classic gold standard was a clear form of that. In the absence of rules, can market-based *competition* impose discipline? As discussed above, this is the idea behind those who think a multi-reserve currency system could be more stable than the current system.⁷⁸ Extreme policies will be punished. It's a natural counterpart to the view that the dollar's "monopoly" allowed the US to pursue unsustainable policies. End the "monopoly" and discipline will be restored. However, given the domestic political constraints facing democratically elected governments, the prime goal of a reserve-issuing country's monetary and fiscal policies is to maintain its own domestic economic stability. Due to the existence of structural problems, the monetary policy in the major reserve-issuing countries is likely to be accommodative and interest rates remain low. Therefore, the above described potentially large speculative capital flows are likely to occur and the process might be messy and involve high levels of financial and economic volatility. This potential for instability would be harmful to the reserve-issuing countries and the rest of the world.

Global liquidity and the emerging multiple reserve-currency system. As indicated above, a key aspect of the stability of a given international monetary system is the provision of a global arrangement to ensure adequate *liquidity* at the global level, which can be achieved if the reserve issuing countries follow macroeconomic policies that are geared to achieving global stability. The literature on international monetary relations refers to the "hegemonic stability" property of the current unipolar system under which the hegemon has an incentive to preserve the system by providing monetary stability.⁷⁹ However, the US macroeconomic policies over the last 40 years have been mainly concerned with domestic economic stability and may have deviated on occasion from those policies that might have been more appropriate from the standpoint of preserving international stability.⁸⁰ And, under a multipolar system, there is no reason to believe that there would be a fundamental change in the provision of liquidity in comparison to the current unipolar system unless there is strong policy cooperation among the governments that issue reserve-currency.

Although the gold value of the US dollar has not been fixed for more than forty years, we still live in a world that led to the collapse of the gold standard in 1971. While before the breakdown of the Bretton Woods I system the main source of the problem was the mismatch between the amount of gold held by the US Federal Reserve and the outstanding dollars held by the rest of the world, today's problem is much deeper and involves all major currencies and the economies of the countries that issue them. Today's problem is essentially the conflict between the US fiscal and monetary stance for addressing internal stability versus what is needed to ensure external/global stability. In addition, there is also a serious concern about the US's fiscal capacity to meet its debt obligations and continue to service the massive stock of dollar-denominated reserve assets held by the rest of the world. Over the longer-term, under the current system, this problem is likely to become even bigger, particularly if the rapid increase in the US indebtedness is not reversed. In any case, over the next decade, the US will likely play a less important role in the provision of liquidity to the global economy, through issuing interest bearing "safe assets", which currently constitutes a bulk of dollar-denominated reserve assets held by other countries, as its relative weight in the world economy continues to decline, albeit gradually.

explicitly allows for a countercyclical response, but according to a fixed rule. The policy interest rate should be set according to a formula that includes deviations from inflation target and deviations from potential GDP, but with fixed parameters as to how these "gaps" should determine the policy rate. (Taylor, 1993).

⁷⁸ For example, see Dorrucchi and McKay (2011); European Central Bank (2011) and Eichengreen (2012).

⁷⁹ See Eichengreen (1987).

⁸⁰ Sustained expansionary monetary policy during the 1990s-2000s was discussed above and also in Rajan (2010) and Lin and Treichel (2012). Ultimately this proved to be destabilizing to both the United States and the global economy. Earlier episodes included the extremely tight monetary policy to end double-digit inflation during the early 1980s. The interest rate shock proved to be a tipping point for over-indebted Latin American economies (ultimately with negative consequences for US banks as well that were exposed to these countries), and the large fiscal deficits in the 1960s due to costs of the Vietnam war and new social programs.

Moreover, as argued earlier in this section, just like the US dollar, the euro's economic base is bound to decline relative to the size of the world economy over the medium-term due to the slow growth projected for the region and a relatively rapid aging of its population, unless the euro zone continues to expand beyond its current borders, which is highly unlikely given the current problems with the functioning of the euro-centered monetary and fiscal system.

A priori, this new, three-legged system could go a long way in dealing with the potential liquidity shortage at the global level by substantially increasing the supply of reserve assets to the world economy without resorting to over-expansionary macroeconomic policy. This, however, is based on an important (and possibly unrealistic, in view of recent research findings by the IMF) assumption that the reserve-currency countries would increase the supply of safe assets to match the existing demand, without any one country or group of countries resorting to unsound fiscal and monetary policies. Moreover, as long as the reserve-issuing country or countries follow prudent fiscal and monetary policies that also take into account the cross-border effects of the policy changes, they can maintain their reserve currency status and share the benefits of the "exorbitant privilege." The macroeconomic policy competition among the reserve-issuing entities is thought to bring about greater policy discipline by the reserve-issuing countries that the current system lacks, though as indicated earlier, this is conditional on a tight policy coordination among the reserve-issuing countries, preferably within the G7 and G20 frameworks.⁸¹

The lack of international policy coordination in the provision of adequate global liquidity, which is the sum of international liquidity and domestic liquidity in reserve issuing countries, has been a perennial problem under the various international monetary systems. Under the Bretton Woods I, the gold exchange standard was essentially abandoned due to the scarcity of gold. More recently, however, the problem has become much more complex since it now involves not only officially held liquidity, but also liquidity held by the private sector in countries with convertible currencies and open or quasi-open capital accounts. Global liquidity developments, which reflect the actions of regulated institutions and markets and the expansion of the shadow banking sector, can bear importantly on the risks posed by capital flows.⁸² While the two components of global liquidity were roughly equal at the end of the 1990s, the liabilities of the shadow banking system have become more important, and correspond to the rapid increase in both global liquidity and gross cross-border flows prior to the crisis, a direct result of the financial deregulation in the 1980s and the 1990s. Shadow banks were an important source of instability during the 2008-09 crisis that fell outside of the regulatory perimeter.⁸³ Global banks in the reserve-currencies countries collect liquid funding globally and lend globally based on an overall global asset allocation strategy. When perceived risks are low, global banks increase their leverage, expand their balance sheets, often involving their related shadow banking entities, and generate a global liquidity expansion well beyond what may have been the intention of central bank authorities of the affected countries. Global banks also provide a mechanism to magnify and extend the effect of a reserve-issuing country's monetary policy to non-reserve currency advanced and emerging economies. When the reserve-issuing country increases (reduces) its money supply, for example, by lowering (raising) its policy rate, a large capital outflow to the non-reserve currency countries (inflow from non-reserve currency countries) will occur through carry trades. The rise of global banks as a result of financial liberalization in the 1980s and 1990s and the loose monetary policy in the US in 2000s contributed to a large increase in cross border capital flows from the mid-1990s until the onset of the global crisis in 2008-09.

Given the slow pace of economic growth and high unemployment rate in the US, as well as the fears of possible deflation as consumers and homeowners pay down their unsustainably high debts, many

⁸¹ International Relations Committee of the European System of Central Banks (2010).

⁸² See IMF (2011e).

⁸³ The role of global banks in the generation and distribution of global liquidity, and the linkage with capital flows, has been examined by Bruno and Shin (2011).

market participants expect the US Federal Reserve to embark on another form of quantitative easing of monetary policy during 2012 and beyond in order to ensure that the US economy can fully recover despite the prolonged and complex delivering process related to high debts of households and homeowners. Similarly, given slow pace of economic growth in many other advanced economies, Bank of England, the Bank of Japan, and the European Central Bank have expanded their unconventional monetary interventions or have signaled their intention to maintain near zero or very low interest rates over the next two years. Carmen Reinhart and co-authors⁸⁴ have suggested that this is likely to continue: in effect, it is a form of financial repression that relieves the government of its debt burden. With sluggish real economic growth, negative real interest rates can be the “solution” for stabilizing or lowering debt to GDP ratios.

Based on the 2008-11 experience, these highly accommodative monetary policies, through quantitative easing and exceptionally low interest rates, in the advanced economies are likely to set off another round of massive capital flows from the advanced economies into emerging economies and thereby causing credit, asset and commodity price bubbles, as well as pressures on exchange rates of capital receiving countries to appreciate. Moreover, the sovereign debt problems in Europe and geopolitical risks in the Middle East (with the possibility of a sharp rise in oil prices) are major downside risks to the already fragile economic outlook for the advanced economies.

Figure 9: Policy Rates of Reserve Currency Central Banks, annual average, 1999-2011, %

Sources: US Federal Reserve, European Central Bank (ECB), Bank of England (BoE) and Bank of Japan (BoJ).

⁸⁴ For a summary, see Reinhart, Kirkegaard and Sbrancia (2011), and more detailed analyses in Reinhart and Rogoff (2010) and Reinhart and Sbrancia (2011).

Figure 10: Nominal Exchange Rates of Currencies Against the Dollar, 2005-2011 (monthly)

Source: Data from World Bank Global Economic Monitor database.

Note that Euro and Pound data are actual exchange rates per dollar (i.e., 2 dollars per pound = 0.5 pounds per dollar). Yen and Renminbi are indices set to January 2005 = 1 in order to fit in a similar scale. The key point here is not the level, but rather the trends and the volatility.

In globalized financial markets, the international dimension of credit goes well beyond monetary policy. For some key currencies, particularly the US dollar (and, to a lesser extent, the euro), the domain of use extends well beyond the issuing country.⁸⁵ In larger countries, the stock of credit in foreign currency tends to be modest in relation to overall credit, but it can grow very rapidly beyond policy makers' ability to control the volume. In addition, cross-border credit has tended to grow faster than overall credit in many countries experiencing credit booms. While most currencies are little used outside their country of issue, the US dollar's and the euro's domain of use extends well beyond their home territory. Non-US residents have borrowed sizeable amounts of US dollars. The stock of dollar-denominated credit to borrowers outside the United States amounted to \$5.8 trillion, or 12% of global (non-US) GDP.⁸⁶

Therefore, it is likely that the transition to a truly multi-reserve currency system could be marred by periods of substantial short-term instability and high volatility in exchange and interest rates worldwide. This, to a large extent, is due to the fact that the new system will be based on national currencies of the current and future reserve-issuing countries which in turn are affected by continued economic weaknesses, including high levels of debt, and structural problems that impede faster economic growth, particularly in the US and Europe. China's participation in the emerging multi-currency reserve system will be gradual. As mentioned earlier, as a middle-income and transition country, China will not be able

⁸⁵ See Domanci, Fender and McGuire (2011).

⁸⁶ Ibid. The dollar share of total credit to non-financial private borrowers ranges from single-digit percentages in Brazil, China, India, South Korea and Thailand to between a fifth and a third in the Philippines, Hong Kong SAR, China, and Mexico. Credit extended in euros to borrowers outside the euro area, amounting to €2.1 trillion.

to fully liberalize its capital account until it has been able to undertake fundamental reform of its financial sector and remove other structural rigidities over the next five to ten years. Moreover, it is critical that the process is driven by unforced and independent decisions of private investors and monetary authorities as opposed to ad hoc policy changes among a few countries based on purely political considerations.⁸⁷

As indicated in the UN's Stiglitz Commission report, the main advantage of the emerging multi-polar reserve system is that it is likely to provide the possibility of more diversification in reserve holdings of countries. It can also potentially provide more global liquidity in the times of crisis. But as established above, these can come at the cost of adding an additional element of instability: the exchange rate volatility among currencies used as reserve assets.⁸⁸

V. The Thinking behind Various Reform Proposals for the International Monetary System

As noted above, economic and financial integration across borders increased dramatically since the Bretton Woods conference was held following World War II. As this integration progressed, a number of changes were made to the international monetary system, and the calls for greater reform of this system have intensified since the onset of the global financial crisis in 2008. In evaluating the reform proposals, it is important to recall the historical context outlined in the previous section. In addition, one needs to recall the basic functions of the international monetary system. Up to a certain point, the functions resemble the functions of a monetary authority at the national level that provides services in the following areas: a payment system, lender of last resort, and provider of liquidity in terms of the overall management of the global money supply. At the international level, these roles are more limited, given the overarching constraints of national sovereignty and the absence of international "government." This implies that the international monetary system always operates on a consensus basis. In the absence of an international government, international monetary authorities do not have the authority to manage their basic functions with the degree of autonomy enjoyed by independent central banks at the national level. This raises an additional function at the international level: policy coordination on monetary policy and exchange rate regimes. As we saw in the previous section, the Bretton Woods system itself was very much focused on this last function of the IMS.

a. The International Payments System

The payments system dimension of the IMS currently is anchored by the Bank of International Settlements (BIS) that serves to settle transactions between member central banks. The BIS was established in 1930 with an original mandate to facilitate the transactions for war reparation payments imposed on Germany following World War I. It also served as trustee for loans that were made to effect payment of these reparations. The BIS payment system role⁸⁹ is to serve as a bank for Central Banks that allows these banks to effect payment to one another for foreign exchange and gold transactions. The BIS also provides money market instruments – sight and fixed term deposits, as well as tradable instruments denominated in a variety of major currencies as well as SDRs. In general terms, the BIS functions well in this role, and there are no major reform proposals currently on the table.

⁸⁷See Eichengreen (2011) and Eichengreen and Flandreau (2008).

⁸⁸ Report of the Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Monetary and Financial System, United Nations, New York, September 21, 2009, pp. 109-139.

⁸⁹ The BIS has also been a policy forum and research center for monetary and financial policies. It thus has a role under the policy coordination section below. For example, the BIS played a central role in the implementation of the gold standard during the 1930s and the "gold pool" of the 1960s. It is also involved in the Basel deliberations for banking regulations and the financial stability board (FSB). The BIS was involved in emergency lending operations in the past – generally in collaboration with the IMF.

This purely financial bank-of-banks role has diminished over time, however, relative to the size of global financial markets. The BIS still has a balance sheet of about SDR 260 billion⁹⁰ and for a number of countries it is an important repository for reserves and provider of vital services for central banks. However, private sector cooperative mechanisms have come to dominate the settlement of foreign exchange transactions. For example, in 2002, the Continuous Linked Settlement Bank (CLSB) was founded with the objective of reducing counterparty risk in the settlement of financial transactions in foreign currency. It provides settlement services in 17 different currencies and its membership is comprised of 39 large private sector financial institutions. The CLSB has expanded rapidly, and they report that 58 percent of global foreign exchange trading is settled through the CLSB.⁹¹ The figures are large: in 2010, CLSB serviced \$1.4 trillion in foreign currency transactions including a variety of swaps, forwards and option contracts.

With the decline of its foreign exchange transaction business, the BIS has become a critical research and data center for servicing financial policy coordination through the Basel accords and hosts the Financial Stability Board. Much of these deliberations go far beyond payment systems and pure monetary policy to focus more on financial regulatory policy and financial supervision reforms.

In cases of deep economic integration, one could imagine countries unifying their payment systems. This process would normally require a common currency, and even in the Eurozone, full integration of payment systems across countries is not yet a reality. The Eurozone (along with the broader EU) is moving forward in this regard with the Single Euro Payments Area (SEPA) project under the auspices of the European Central Bank (ECB), as well as via EU resolutions for the broader European Union. Security measures are already progressing at the national level to facilitate the integration of payment systems, including the move towards chip-based credit and debit cards (instead of magnetic strips), but there is also a need for improved interoperability between national payment infrastructures.⁹² “E-payment” systems are also advancing, but at a slow pace.

A related issue is the settlement of payments for new instruments that might arise as part of reforms to the international monetary system. For example, if the IMF were to issue tradable securities denominated in SDRs or in some new global currency unit, then until deep and liquid markets are established for those securities, there may be a need for a market maker role. The IMF would be the likely candidate. Another option on the table—following the ad hoc swap arrangements between central banks during the global crisis – is to establish a more permanent role for transacting swap arrangements. There could be a role either for the IMF or the BIS in establishing such a facility. In addition, if a new international currency were to be created, then there would be a role for the BIS or IMF to facilitate payment between central banks for a new currency to be used in international transactions.⁹³ Payment system integration might be a natural consequence of a new international currency – whether it be a substitute or complement to existing national currencies. The experience of the Euro might be useful in understanding how that process might work.

⁹⁰ BIS Statement of Account for June 2011.

⁹¹ The 58 percent figure is a share of a reduced base as compared to BIS survey reports of total foreign currency trading activity. The reduced base eliminates transactions that do not present any settlement risk, so that there would be no need for a specialized settlement counterparty. See “CLS market share,” February 2011 available at www.clsb.com.

⁹² See European Central Bank (2010).

⁹³ See Annex 2 of IMF (2011b) for a description of how the settlement process might work for SDR-denominated assets.

b. “Lender of Last Resort” (Emergency Liquidity Support)

The second principal function of the IMS is as a lender of last resort, an issue on which the Bretton Woods convention focused heavily. Without a lender of last resort on the global scale, countries need to self-insure against potential losses from terms of trade shocks. Imperfections in international capital markets imply imperfect access to credit, thus borrowing to smooth consumption during such shocks is not always possible. “Sudden stops”⁹⁴ in access to foreign currency flows pose a risk. As a result, countries that do not possess an internationally-accepted currency feel a need to self-insure against these shocks by accumulating foreign exchange reserves. Note that there are other motivations for accumulating foreign reserves that will be discussed in more detail below.

As noted in the historical section of this paper, part of the *raison d’être* of the International Monetary Fund is to smooth out access to foreign currency when temporary shortages occur for member countries. Purpose (v) of the Articles of Agreement states: “To give confidence to members by making the general resources of the Fund temporarily available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity.” Those “resources” are gold, major international currencies and other member currencies that were subscribed over the years to the Fund. In this sense, “the Fund” is a fund for pooling international reserves.⁹⁵ It performs this function as a lender of last resort to sovereign nations via their central banks. Commercial banks and other financial institutions within those member countries do not have direct access to the IMF’s resources. In that sense, the IMF does not perform the direct role of a lender of last resort in the way that central banks do at the national level. (Beyond this lender-of-last-resort-to-sovereigns function, the IMF also has explicit surveillance and policy coordination functions that will be discussed in more detail in the policy coordination section below.)

In terms of the international lender of last resort function, there are several initiatives that are either at various stages of implementation or on the table for policy discussion. They can be separated into different categories: (i) enhanced direct funding for the IMF—“right sizing” the IMF for the much larger level of trade flows and international capital flows that have far outpaced the size of the IMF balance sheet; (ii) creating contingent financing mechanisms—either bilaterally via swap arrangements between central banks or new contingent funding arrangements for the IMF (along with accompanying contingent loan instruments); (iii) regional pooling of reserves and/or emergency lending arrangements (as opposed to international ones); and (iv) creating an international central bank with its own currency that could be used to perform lender of last resort functions.

The IMF’s resources for providing foreign currency financing to countries under stress have not kept pace with the size of the global economy, global trade or global financial flows. Quotas amount to SDR 217.4 billion (about US\$335 billion) or about 0.5 percent of world GDP. Quotas are reviewed every five years to determine if they should be increased. The quota is paid 25 percent in SDRs or major currencies and the remaining 75 percent in the country’s own currency. Another option that has been used to a limited extent is the sale of IMF’s vast store of gold—managed carefully so as not to disturb gold markets. The Fund has 90.5 million ounces of gold,⁹⁶ currently worth about \$164 billion, which is the third largest holding of gold in the world.⁹⁷ A third direct approach would be the issuance of IMF bonds; given that regional development banks already issue bonds for leveraging their membership’s paid-in and contingent capital, there is a precedent. Some commentators (for example, Richard Cooper)

⁹⁴ See Calvo (1998) and Calvo et al (2004).

⁹⁵ Article 1 of the IMF Articles of Agreement refers to six purposes for the IMF’s establishment.

⁹⁶ See “Gold in the IMF” Factsheet on the IMF’s website www.imf.org. The value stated above is end-August 2011 gold prices. According to the

⁹⁷ The United States and Germany have larger holdings (according to World Gold Council data).

have noted that if these bonds are denominated in SDRs, this move could be a first step toward moving the SDR toward more of a global currency status. This will be discussed in more detail below.

Another approach that experienced an initial implementation during the global crisis was a form of contingent lending: commitments by specific members of the IMF to lend to the Fund in case there is a need for additional resources to conduct Fund lending programs. These arrangements are called the New Arrangements to Borrow (NAB). Currently, the NAB commitments total SDR 367.5 billion (approximately US\$585 billion).⁹⁸ These arrangements could be particularly convenient for funding the relatively new contingent loan instruments like the Flexible Credit Line. The latter is a contingent instrument so funds are only needed in the case of an actual purchase by the borrowing country. Bilateral contingent funding arrangements were established “in real time” during the global financial crisis.⁹⁹ Given the globalization of finance, many institutions are interconnected across borders. During the crisis, large banks in Europe had dollar liabilities contracted with US banks (and vice versa). Central Banks agreed to swap national currencies with each other in case there was a surge in domestic banks’ financing needs in dollars.¹⁰⁰ As part of a broader lender-of-last resort(s), these sorts of arrangements could be formalized ahead of the next financial crisis on a bilateral basis, or perhaps on a multilateral basis with the assistance of the IMF. The pre-commitment might help keep panicked freezing of swap markets during future episodes of financial stress.

Following the Asian crisis, some countries expressed the need for regional rather than international pooling of international reserves. The Chiang Mai Initiative was a step in that direction. Initially this was set up in terms of swap lines, but there have been proposals to actually move towards an Asian Monetary Fund – broadly the regional equivalent of the IMF.¹⁰¹ There are no purely financial advantages to a regional versus global fund, but there are substantial disadvantages—less funding, less diversification of risk, etc. On the other hand, the initiative reflects concerns over IMF governance, and supporters of the Chiang Mai Initiative express their preference for alternative governance arrangements.¹⁰² Some of these concerns could possibly be addressed through governance reforms of the IMF itself. The European Financial Stability Fund (EFSF) is another regional arrangement that was established recently to channel emergency funding to several European countries suffering extreme balance of payments difficulties. The EFSF contributes funding to complement IMF programs in those countries.

The most comprehensive reform would be to establish a true central bank style lender of last resort whereby individual banks could have access to resources. To function like a central bank, it would need its own currency or some form of payment note that would be generally accepted as payment by creditors of troubled financial institutions. In principle, one could restrict access to only those banks with a substantial cross-border presence or substantial debt exposures to financial institutions in other

⁹⁸ In April 2012, commitments were made for over \$430 billion in additional resources to the IMF.

⁹⁹ See IMF, “Proposed Decision to Modify the New Arrangements to Borrow,” March 25, 2010.

¹⁰⁰ In December 2007, five central banks made a joint announcement of a variety of actions to stabilize the financial system, including swap lines between the US Fed, the ECB and the Swiss National Bank. See the 2008 study group report from the Committee on the Global Financial System.

¹⁰¹ See Henning (2009) and Sussangkarn (2010). Proposals would include a regional pooling of some share of Asia’s substantial foreign currency reserves. It would also involve an economic surveillance function similar to the IMF. Currently, the Chiang Mai Initiative is designed in a way that 90 percent of disbursements are conditional on the borrower’s having an IMF program. The other 10 percent could be disbursed prior to securing an IMF program. These are the rules; however, to date, there have not been any country programs established or disbursed under the Chiang Mai Initiative.

¹⁰² Stiglitz and Greenwald (2010) argue that the advantage of regional arrangement is that close economic linkages and corresponding “greater sense of solidarity” would assure countries that access would be available when needed – and preferably without conditionality. In fact, the authors propose that Chang Mai drop the IMF program requirement mentioned in the preceding footnote.

countries. One could imagine reasonable technical criteria for determining those exposures. Banks that are below the exposure thresholds would rely on national central banks for lender of last resort functions and presumably for regulatory and supervisory functions as well. However, in theory, it would be possible to establish this idealized international lender of last resort. In addition, perhaps it could function with the use of variety of existing currencies – in which case, this lender of last resort role could be similar to granting the IMF authority to lend directly to commercial banks rather than governments. However, to allow a global central bank to play the role of lender of last resort to individual banks, it would be necessary for the global central bank or other global institution to regulate and supervise the individual banks directly. Therefore, there are a number of additional advantages and potential complications with the creation of a global currency that will be discussed in the next section of the paper.

In terms of its use in a lender of last resort function, a new global currency would need to be “freely usable” by national central banks (if they were to continue to exist) and accepted by commercial banks for liquidity support and for settling claims between banks. It should be noted that the SDR at this point cannot serve this function: it is only a unit of account. SDR-denominated bonds—issued by international financial institutions or countries—perhaps over time could serve a role eventually, but this would require market development. This market development would imply costs due to the need to develop a liquid market for the new instruments and thus lower bid-ask spreads. The IMF has estimated that the initial cost would be about 80 to 100 basis points for this liquidity premium.¹⁰³ A coordinated effort by several sovereigns and/or several multilateral institutions could help reduce these costs substantially. Finally, to be an efficient instrument for conducting lender of last resort operations, the global currency would need to be at least as “credible” as existing national currencies that serve as reserve currencies.

In addition to these “internationalist” (or “regionalist”) proposals, there is another alternative for emerging market economies: go at it alone. They can accumulate reserves and take initial steps towards “internationalizing” their currencies. International reserves can be drawn upon to make payments on foreign obligations during times of limited access to foreign currency capital markets. If a country is able to take the steps necessary to make their currency acceptable to foreigners as payment for transactions, they can then borrow from foreigners in their own currency. In this case, there is no need to access foreign currency when confronted with external shocks. This process is not an easy one, and as the historical survey above revealed, very few countries have ever been able to fully internationalize their currencies—even if there have been some fairly rapid and dramatic shifts in the global status of currencies over time.

Why do countries hold foreign currency reserves at all? In principle, under a pure floating exchange rate and perfect international capital markets, there is no need for reserves. In that hypothetical setting, there are no central bank purchases or sales of foreign currency on the foreign exchange market, and if capital markets are perfect, central banks can always borrow whenever foreign currency needs arise. In earlier times, with the gold standard, a negative balance of payments due to some external or domestic shock would result in a loss of gold. If the imbalance persisted, the loss of gold would lead to an eventual parity adjustment or outright abandonment of the gold standard. In more recent years, with the advent of much higher international capital flows, international reserves can be a self-insurance against the “sudden stops” alluded to above. In a survey of central bankers, the IMF found that about 80 percent cited “buffer for liquidity needs” as a motivation for increasing reserves, and about 60 percent cited “smoothing of exchange rate volatility” as another reason for building reserves (IMF, 2011c).

Following the crises of the 1980s and 1990s, the fear of “sudden stops” led to policy guidance in the form of reserve adequacy. For example, the Guidotti-Greenspan rule suggests that countries should

¹⁰³ See IMF (2011b). In particular, Annex 2 provides details on the calculation.

have international reserves that are equal to the stock of short-term (less than one year) external liabilities. Other authors have used modeling techniques to evaluate the optimal level of foreign currency reserves—particularly, in the context of the recent massive rise in emerging market reserve holding.¹⁰⁴ There is a cost to holding more international reserves: higher inflation if the reserve accumulation is not sterilized and quasi-fiscal costs if the accumulation is sterilized using domestic securities that have a higher interest rate than the return on reserve assets.¹⁰⁵ A more recent literature has focused on risks arising from the “double drain,” that is, weaknesses in the domestic financial system can result in national residents fleeing the system. This is the first “drain,” and if those depositors then try to convert their local currency into foreign currency, a second (this time, external) “drain” develops. Obstfeld et al (2010) develop this concept in a model of optimal reserve holdings and provide empirical evidence that emerging markets with larger banking systems tend to hold more international reserves. Concerns over the domestic banking system can be another motivation that leads to reserve accumulation that might otherwise be considered “excessive.”

Much of this discussion at the country level revolves around the concept of the macroeconomic policy “trilemma”: the impossibility of simultaneously achieving the three objectives of independent monetary policy, exchange rate stability and capital account openness. Only two of these objectives can be attained simultaneously. Recent narratives are consistent with the “trilemma:” China maintains exchange rate stability with sterilized reserve accumulation to limit inflation; however, it maintains rather strong capital controls. The United States, on the other hand, maintains open capital accounts and has independent monetary policy but a relatively unstable exchange rate *vis-a-vis* other key currencies. Following the 2008-9 global crisis, Brazil has raised interest rates to combat overheating in a context of rather open capital accounts, and the result was a sharp appreciation of its currency against the US dollar. These are caricatures, as countries attempt to allow some adjustment to the exchange rate and some capital mobility; however, Obstfeld et al (2005) find empirical evidence that the “trilemma” broadly holds over the last century.

The general tendency toward more open capital accounts since the latter part of the Bretton Woods period has implied a substantial increase in the degree of financial integration across countries. As the 2008-9 financial crisis revealed, the connectedness of financial institutions across borders poses new risks for the global economy as well as new challenges for international safety net arrangements. Naturally, the lender of last resort function relates to the quality and effectiveness of financial sector regulation and supervision. The safety net will not be activated as often or in such great scale if prior action can be taken via bank regulation and supervision. There are numerous proposals for strengthening these roles at the international level; however, these topics are beyond the scope of this paper.

c. Global Liquidity (during “Normal” Times)

Under a pure gold standard, the overall supply of global liquidity is determined by the gold mining industry. If a paper currency’s value is tied to a pre-determined quantity of gold, then base money cannot be created by national central banks unless the gold is “earned” from other central banks via a balance of payments surplus. On aggregate, however, if the world supply of gold is more or less fixed in the short-run, then the global supply of base money is fixed. As a result, a pure gold standard can create a drag on economic growth or create deflationary pressures in countries facing a balance of payments

¹⁰⁴ See Jeanne and Rancière (2008) and Alfaro and Kanczuk (2009).

¹⁰⁵ Saraiva and Canuto (2009) use the Brazilian pre-payment of debt to the IMF in early 2006 as a benchmark event signaling reserve accuracy. They then calculate that the carrying cost of additional reserve accumulation from that point to mid-2009 reached an amount equivalent to 2 percent of Brazilian GDP. The interest differential in Brazil is larger than many other emerging market countries; however, this back-of-the-envelope estimate is illustrative of the potential for substantial costs from high levels of reserve accumulation. IMF (2011c) estimates that, for the median country, the reserve costs averaged about 0.5 percent of GDP over 2001-2009.

deficit which results in shrinking gold reserves. This is all in theory; however, part of the history of quasi gold standards, as discussed in the earlier section of this paper, was characterized by frequent parity adjustments and/or outright abandonment of the gold (or silver or bimetallic) standard.

Currently, total liquidity in the global economy is determined by the independent actions of the national monetary authorities around the world; however, some monetary authorities carry more weight than others and have more direct impact on international transactions. In particular, reserve currency monetary authorities carry more weight, led by the US given the dollar's primordial role in international transactions. Pure international liquidity – in terms of transactions by residents across countries—is determined by the monetary policy (or policies) of the reserve currency country (or countries).

As mentioned earlier, a potential conflict between national and international interests arises in the case of reserve currency countries. National monetary (and fiscal) policy may become expansionary in order to pursue domestic policy objectives. On the other hand, these policies can go beyond the need to meet global reserve demand due to global economic growth, thus creating instability in global financial markets and in global currency markets.^{106 107}

This broadly decentralized system of liquidity determination could be modified in two possible directions: greater voluntary cooperation or centralization of decision making. Voluntary cooperation to some extent already takes place under the auspices of the G7, G20, IMFC¹⁰⁸ and other such forums. On the other hand, these cooperative arrangements seem to function more decisively in the realm of the lender-of-last-resort function; for example, in the coordinated national bailouts of large banks that were interconnected across borders during the 2008-2009 crisis along with the use of central bank swap lines. For more mundane day-to-day monetary policy decisions, national autonomy still prevails. In order for voluntary cooperation to function for longer term issues, there needs to be recognition of mutually beneficial outcomes – a global “win-win.”

The IMF seemingly created liquidity by increasing the general allocation of SDRs three times since the creation of the IMF. First, in 1970-1972 by SDR 9.3 billion, then in 1979-1981 by SDR 12.1 billion, and finally a much more substantial SDR 161.2 billion in August 2009.¹⁰⁹ On the other hand, as noted by Obstfeld (2011), these increased allocations do not actually increase global liquidity. They simply represent a claim on other IMF members' international reserves. As such, they are another reserve pooling mechanism which can help reallocate the global supply of reserves to countries that need it most – much in the line of the lender-of-last-resort-to-sovereigns function that was discussed above. Substantial SDR “reform” would be required to make the SDR a workable form of international liquidity.

The other alternative is for national governments to give up autonomy to an international authority—an international central bank—that makes the day-to-day monetary policy decisions. The

¹⁰⁶ For a discussion a reserve currency issuing countries “debasing” their currency through asset creation under the dollar based system, see Pozsar (2011).

¹⁰⁷ As noted earlier, there may be inherent conflict between national and global interest, whereby national interest leads to macro policies that lead to instability in the international monetary system.

¹⁰⁸ The G7 (Group of Seven) was formed in 1975 as a forum for policy discussion among the (then) seven major industrialized economies of the world: the United States, Canada, United Kingdom, France, Germany, Italy and Japan. The G8 added the Russian Federation to this configuration. The G20 (Group of 20) represents a broader group of both industrialized and middle income countries or “emerging markets”, representing every continent: the “G8” plus Argentina, Australia, Brazil, China, India, Indonesia, Korea, Mexico, Saudi Arabia, South Africa, Turkey and the European Union. The IMFC is the International Monetary and Financial Committee. Its composition follows the composition of the Board of Executive Directors of the IMF, and it meets biannually to discuss international economic policy issues at the time of the Annual and Spring Meetings of the IMF and World Bank.

¹⁰⁹ In addition there was a special allocation for some countries as part of reforms to improve the equity of the distribution of SDRs (“Fourth Amendment”).

international central bank would need some instrument – a composite currency or some purely international currency in order to conduct monetary policy. Richard Cooper (1984, 2000, 2006) has consistently (and persistently) proposed this for a subset of the world: the industrialized countries. Mundell (2011, 2005, 1995) has also persistently pushed for a single world currency. A key issue, then, would be if countries would abandon their national currencies, retain their currencies but peg to the international composite or international currency, or retain their currencies and have some more flexible arrangement.¹¹⁰ A more flexible arrangement with national currencies existing side-by-side might get one back to the coordination conundrum – except this time with an additional actor: an international central bank.

Cooper has proposed abandonment of the national currencies. Instead, an international “Bank of Issue” would conduct open market operations with securities of member countries (and it would also engage in direct lending to banks for the lender of last resort function). In Cooper’s view, the new international currency could be a new instrument, an evolution of the dollar, or an evolution of a composite like the SDR. As will be discussed below, there may be a variety of advantages to an international currency; however, the abandonment of national currencies, and correspondingly, the abandonment of national monetary policy is fraught with difficulties, as the recent experience of the Eurozone has shown us.

VI. Costs and Benefits of the Various Institutional Arrangements for Reform

There has been an intense debate over reform of the International Monetary System with a variety of new proposals, along with a revival of older proposals that date back to the last major shift in the system—around the time of the demise of Bretton Woods. Some ideas—like the *bancor*, or international commodity-based currency discussed in Part II—date back to the start of the Bretton Woods period. Below is a very brief review of some of the major proposals under discussion, along with a tentative assessment of the relative costs and benefits of each. One can attempt to evaluate the proposals on basis of efficiency, stability (incentives to correct external imbalances), and equity and feasibility; however, each of these criteria is extremely difficult – if not impossible—to quantify, and quantification would be an entire research agenda in its own right.

a. Bigger and Better IMF

As mentioned above, there are numerous proposals for reform of the IMF with the objective of improving the performance of the overall international monetary system. Most of the discussion focuses on four areas: funding, instruments, surveillance and governance.

Funding. As noted above, to the extent that the IMF is the lender of last resort for sovereigns, its lending capacity has declined as a share of global GDP. A reform that establishes automatic quota increases, perhaps combined with a one-off initial increase, could “right-size” the IMF continuously to accompany the growing world economy. Eichengreen (2009) suggests automatic quota increases that, on average, would equally average real global GDP growth, but with another wrinkle: countercyclical

¹¹⁰ Mundell (2005) would prefer a currency board arrangement – a tightly fixed exchange rate—as a transition towards a more global currency union.

capital charges. Countries would contribute more during high growth years and less during sub-par growth years.¹¹¹

The IMF could also leverage its capital base by issuing bonds. If denominated in SDRs and sold to both central banks and private investors, then this could also be a means of gradually establishing private sector demand for the SDR as a near-currency. This would change the financial model of the IMF, and as such, it would require enhanced balance sheet management as well as staffing for treasury operations to support the bond issues.

Contingent borrowing along the lines of the NAB could also be expanded. This would be particularly useful if there is an expansion or greater use of contingent lending of the Flexible Credit Line (FCL) or the Precautionary Credit Line (PCL). Capital is not needed up front—only the commitment to provide the financing when needed.

A more controversial source of funding would be to add “teeth” to the surveillance function of the IMF via “fines” on inappropriate macroeconomic policies that have negative impacts on international financial stability. Keynes himself had proposed something along these lines¹¹², and the idea has been revived by several observers. Most revolve around the idea of taxing excess reserve accumulation or extreme current account surpluses.¹¹³ This would serve as source of funding and strengthen the surveillance role, as discussed below.

Instruments. As discussed above, there seems to be inherent instability in the system of country-based reserve currencies due the conflict of national versus international interests when reserve currency issuing countries conduct monetary policy. If the country follows expansionary monetary (or fiscal) policy for domestic policy objectives, it could undermine the value of its currency as a reserve currency, thus creating instability in the international monetary system.¹¹⁴ In addition, loose monetary policy could have an impact on exchange rate volatility, boom-bust asset price cycles in emerging markets, and exchange rate volatility both among major currencies as well as emerging markets.

SDR allocations¹¹⁵ could also be expanded, which could complement international reserves as an insurance mechanism. If used in this way, the SDR could effectively make liquidity flow to those who

¹¹¹ A further innovation suggested by Eichengreen would be to index capital charges to national growth rates rather than global growth rates. Since voting shares are tied to quotas, over time this would correct for mismatches between IMF voting power and countries’ importance in the global economy.

¹¹² Keynes suggested escalating interest rates on larger imbalances in an international clearing bank.

¹¹³ Eichengreen (2009).

¹¹⁴ There is a literature that argues (Caballero, 2006 and Gourinchas et al, 2011) that a limited supply of safe assets to serve as international reserves was a driving force behind global imbalances. Gourinchas et al (2011) highlight the need for developing more alternatives to US government bonds as the dominant reserve asset. Further development of “contingent” reserves like the FCL and PCL would be helpful in this regard. These contingent reserves can be at least a partial substitute to actual reserves. In this view, additional pooling of reserves via the IMF could also help. However, Lin and Treichel (2011) argue that Gourinchas et al may not have captured one of the main causality mechanisms in their analysis. A non-reserve-issuing country cannot “create” the reserve currency. Given this, a non-reserve-issuing country’s attempt to increase reserve accumulation must result in a decrease in combined reserves in other non-reserve currency countries. As a result, the aggregate increases in reserves and the resulting rise in demand for safe assets denominated in the reserve currency would be of similar magnitudes. The increase in total reserves must be the result of the increase in the supply of reserve currency [and its new issues of safe assets denominated in its currency], which must also happen first for the increase of total reserve accumulation in the world can take place. Therefore, instead of the demand for safe assets to serve as international reserves that drove global imbalance, it is the increase in the supply of reserve currency that create the global imbalance and the demand for safe assets (see the discussion in Lin and Treichel). As such, the creation of alternatives to US government bonds as the dominant reserve asset may not address the issue.

¹¹⁵ See Williamson (2009) with an appraisal of the prospects for greater use of SDR allocations.

need it when they need it, as discussed above. The old idea of the “substitution account” has also been revived.

There are other alternatives for creating new global reserve assets, perhaps through the creation of new forms of indexing. During the debt crises of the 1990s, there were proposals for limiting the impact of the “original sin” of borrowing in dollars by indexing public debt issuance to a country’s ability to pay. One way would be to directly link debt service to GDP growth, as was done with some of Argentina’s restructured debt during the early 2000s. A more comprehensive approach (Eichengreen and Hausmann, 2005) would be to create an index of emerging market currencies that could then be used as a unit of account for denominating debt – starting with multilateral development bank loans, but eventually moving on to sovereign bond issues. This was all from a liability management perspective. From an asset management perspective, central banks might usefully invest in assets that are linked to the value of global GDP, as an asset with built in diversified risk: the asset is not linked to any individual country’s income and creditworthiness. Eichengreen (2011) recently has proposed this as a new instrument that could help create a new class of global reserve asset. The IMF could play a productive role by taking the lead in creating the instrument and as a market maker the initial implementation of the instrument.

Surveillance. One proposal is for the IMF to get “tougher” on individual countries. This could involve more direct “naming and shaming” via Article IV consultations and corresponding press releases. Another innovation already being implemented is the production of “spillover reports” for systemically important economies—something that was agreed to via G20 deliberations and later endorsed by the IMF Board. A more forceful approach to individual country surveillance would be to institute “fines” for persistent external imbalances, as mentioned above.

In addition, if the reserve currency countries themselves face structural imbalances, and if excessively expansionary monetary policy is maintained, then the IMF’s surveillance should be enhanced for these countries. The “spillover approach” is a positive step; however, there could be difficulties in transforming this surveillance into policy action given the IMF’s limited leverage with the reserve currency countries.

Governance. There are both purely technical and largely political reasons for changing the governance structure of the IMF. The purely technical side stems from the lessons learned from inflation targeting by independent central banks at the national level. One could imagine that IMF decision making could be made by a group of expert economists who serve like the Board of Governors of a Central Bank (Eichengreen, 2009). There are also largely political motivations to change the governance structure, and that is to enhance the fairness of representation on the IMF’s Board. But the latter also has technical aspect in terms of the legitimacy of the institution (Eichengreen, 2009). Countries will accept additional reserve pooling mechanisms as a substitute for national stockpiles of reserves only if they accept and trust the decision making process that governs those pooling arrangements. For special SDR allocations to work, countries would have to go through the Fund to use them.

Assessment. At a relatively low cost, member countries can increase the IMF’s access to resources. In the end, the quotas are still counted as part of the country’s international reserves. In addition, with limited additional staffing, the IMF could enhance its surveillance role. The political economy of more potent surveillance, however, depends upon governance reforms (Eichengreen, 2009). To the extent that representation is proportional to financing, then funding reforms pose a perfect opportunity for making the needed adjustments at the margin.

At a relatively low cost, one could experiment with promoting the role of the SDR as an international reserve asset (International Monetary Fund, 2011b). The scope of the benefits is not clear, given that the SDR is still a composite currency, and central banks can currently manage their reserves to mimic the currency composition of the SDR. In addition, it does not solve the likely volatility issues

due to the structural problems and loose macro policies in the reserve currency countries. Expanding the supply of SDRs does expand claims on the underlying currency: it is not an asset that is external to the monetary system, like gold, that has its own independent value. As a composite fiat money, its role as a store of value depends upon the credible solvency of the sovereigns that issue those underlying currencies.

The IMF has remained the key institution in the current International Monetary System, or “non-system.” The current system presided over a steady increase in global trade and capital flows – perhaps the latter to excessive levels—prior to the global crisis. Even with a “bigger and better” IMF, the IMS would be based on “inside” reserve currencies; i.e., national currencies that could lead to the same eventual fragility in the system that was experienced recently. Perhaps governance reforms would allow for more confidence in the IMF and greater pooling of international reserves that could provide for more rapid and effective response to specific country crises. It also might prevent excess reserve accumulation on the part of national central banks. In addition, with more resources, central bank swap lines might have been coordinated under the IMF, but it is difficult to say if this would have been more efficient or effective in responding to the immediate impact of the 2008-2009 crisis. The political feasibility of creating a “bigger and better” IMF depends upon how far “out of the box” the reforms would go. The governance reform may increase the confidence in the IMF, but it would not address the underlying weaknesses of the system.

b. Global Central Bank with International Currency

There are essentially three types of an international currency that could be created. One would be a pure fiat money, whereby the value of the currency is determined by the full faith and credit of the international issuer. The second type of currency could be based on a composite of existing currencies—essentially the evolution of the SDR into a bank note that would be accepted for payment for goods, services and assets by both governments and the private sector. Finally, there could be a commodity (including precious metals such as gold) linked currency, ala Keynes’ *bancor*, whereby the value is tied to certain physical quantities of a commodity or basket of commodities.

An issuing international entity (“Issuer Bank,” in Cooper’s terminology) could be created from scratch or it could be the evolution of an existing international organization, like the IMF. A key issue would be the credibility of the governance structure – especially if the money issued is fiat money.

Another element to consider is whether the new international currency would be a replacement or complement to national currencies. In principle, it could evolve over time, with countries gradually moving toward fixing their national currencies to a band around the international currency and then a hard peg, followed by outright adoption of the currency. This issue, however, leads one to the eternal question of exchange rate regimes and exchange rate coordination.

Assessment. If a fiat international currency could be created, it would have a number of advantages: it would allow the world to have a safe asset that avoids the conflicts of national and global interests inherent in using national currency as reserve currency. The practical problem is how one could create a global governance structure that administers the currency. With national currencies, it is the full faith and credit of the national government that ultimately provides the “backing” of the currency. The issue of how to establish the backing of an international fiat money is non-trivial and would require further thinking and analysis. An international treaty would need to be carefully constructed to assure credibility of the new system, and it could be subject to a lengthy process of ratification. If a multiple reserve currency is a “lose-lose” to all parties, as argued in the paper, it will be easier to achieve an agreement for the alternative international currency. If a trustworthy international currency could be created, it could lower transaction costs for international trade and finance, and promote greater long-term

stability to the financial system. There would still be a need for an international lender of last resort, and this is discussed in more detail in the next section. On the other hand, this role should be able to function at least as well, if not better, than under current arrangements. The main question is the political feasibility of implementing this system.

A composite currency, if it were to circulate side-by-side with national currencies, might provide a stabilizing alternative to reserves denominated in national currencies. And a number of international organizations, including the IMF, could issue bonds denominated in the composite currency that could be held by central banks as a reserve asset. An issue arises as to the size of the benefits. National central banks currently can diversify their reserve holding in a way that would mimic the underlying currency composition of the composite currency. The benefit would be the creation of an additional supply of safe assets assuming that the governance structure is credible; however, the composite currency still represents claims on the underlying currency so its value would still be a function of the perceived solvency of the issuing country.¹¹⁶ In addition, the seignorage will only be shared by the countries whose currencies are in the basket, and perhaps more importantly, the inherent conflicts of interest of using national currencies as reserve currencies will persist.

The SDR itself is a quasi-currency, and it is certainly a composite. There are a number of proposals for increasing the use of the SDR in transactions and thus moving it more towards currency status. One mechanism is to create a system whereby SDRs can be converted into national currencies via the central banks of reserve currency countries.¹¹⁷ In some ways, this would be similar to formalizing the bilateral central bank swap arrangements that emerged during 2008-9, and also centralizing them at the IMF.¹¹⁸

A composite currency is one approach whereby the new currency's "value" is essentially based on the component national currencies. Another approach is to tie the value of the currency to a commodity, like gold. A commodity-based currency would suffer from traditional problems of the supply of a scarce commodity resource. If non-metallic commodities were included – e.g., foodstuffs—then to the extent that the new assets represent claims on the supply of those commodities, this could drive up the price of those commodities and could conceivably cause market disturbances, at a time when there is already substantial volatility in global food prices.

The issue of whether to peg or dirty float or float national currencies with respect to the international currency is an important design consideration. Fixed rates would move the system toward the original Bretton Woods system, while the float or dirty float of national currencies would be closer to the current system. The trade-offs of fixing or floating rates arrangements are highly complex and beyond the scope of this paper; in fact, it is an eternal debate in international macroeconomics. Countries may choose among these options, based on their size, openness, trade patterns and degree of development. Small, underdeveloped commodity exporters may choose to fix and maintain capital controls in order to retain monetary policy autonomy, but with stable exchange rates. Larger, upper-middle income countries with diversified exports and already open capital accounts may choose an intermediate "dirty float" in order to maintain some monetary policy autonomy.

Finally, if countries actually drop their national currencies, and adopt the international currency domestically, there is the issue of fiscal policy coordination. Cooper (2006) suggested that the industrial countries have largely synchronized business cycles and do not suffer from asymmetric shocks. To the extent that there are shocks, independent fiscal policy could, in principle, be employed to manage those shocks. The recent experience of the Euro-zone, however, suggests that there may be a need for a

¹¹⁶ See Obstfeld (2011b).

¹¹⁷ See Truman (2010).

¹¹⁸ See Obstfeld (2011b).

supranational fiscal authority as well. This would pose another substantial political economy challenge at the global scale.

c. Global Policy Coordination

The IMF itself has an important role in global policy coordination via its Articles of Agreement and Board discussions of Article IV consultations with member governments, and the G20 was a critical forum for coordinating monetary policy responses and emergency support to financial systems during the 2008-2009 period. The ongoing Mutual Assessment Process of the G20 provides a forum for discussing both short-run macroeconomic imbalances but also longer term structural policies to support “strong, sustainable and balanced growth.” As part of that process, there has been the agreement for the IMF to provide multilateral surveillance reports in addition to the country specific reports, and there was agreement in Cannes in November 2011¹¹⁹ to develop a new IMF Precautionary and Liquidity Line. The latter was later endorsed by the IMF Board.¹²⁰

Exchange rate policy coordination was rigidly enforced under the Bretton Woods system – at least until it fell apart. As mentioned above, the fixed-flexible debate is eternal; however, there is growing consensus that countries may need to have a different policy regime at different stages of development or depending upon the structure of the economy.¹²¹ As argued earlier, the trilemma is generally a real phenomenon, and policy makers must choose two of the three objectives of monetary policy. Intermediate regimes can also be considered. For example, Williamson (2007) has proposed a system of reference rates, whereby central bank intervention on the foreign exchange market would be allowed by the international system, so long as those interventions take place when the currency is within a band around its reference rate. No central bank would be allowed to buy or sell its currency when the reference rate exceeds the band. The proposal involves some other rules of conduct; however, this simple rule is at the core. Reference rates could be revised periodically by an expert agency, namely the IMF.

Finally, as part of a broadly decentralized system with policy coordination mechanisms, countries could be free to “internationalize” their currencies.¹²² There could even be a coordinated effort to assist in that process, to the extent that it might contribute to stability of the global system. One argument in favor of this is that it has the potential to create new reserve assets and help satisfy the demand for these assets. In addition, it can be argued that currency “competition” in itself might enhance discipline in national governments’ macro-economic policy. Naturally, that discipline can only be executed via the policy making process of each individual country. However, as argued in the previous sections, this mechanism will work only if each reserve currency country is structurally “healthy”.

In brief, this option represents a continuation of a non-system. The big question would be whether the competition between reserve currencies could “incentivize” sustainable macroeconomic policies –especially among systemically important countries, and even more so for the countries that issue reserve currencies. Recent history indicates that this could be a risky path.

¹¹⁹ See Truman (2011b) for an assessment of the very limited progress made on international monetary reform at Cannes.

¹²⁰ See <http://www.imf.org/external/np/sec/pr/2011/pr11424.htm> for more details.

¹²¹ For example, Frankel (2008) has suggested that commodity exporters should peg to the export price.

¹²² See Maziad et al (2011).

VII. Conclusion

This survey of the history of the international monetary system and overview of potential reform options is a reminder of the complexity of the issues at stake in designing global governance for a globalized economy. There are additional, and equally important and challenging, issues that are not covered here; namely, the broader global financial architecture, including cooperation on the regulation and supervision of financial institutions via the Financial Stability Board, Basel I/II/III, FSAP and other cooperative arrangements. The recent experience of how fragility in US housing finance exploded across borders is a painful reminder.

In addition, the ongoing European debt distress highlights an important linkage to the “fiscal dimension” of international monetary system reform, as emphasized by Obstfeld (2011b). The fiscal dimension is that any increase in the size/role of the IMF, and/or expansion of the role of SDRs, and/or attempts to create new international currencies will require fiscal backing by national governments.¹²³

The international monetary system has been subject to periodic crises throughout the last two centuries. Many argue that the establishment of a more competitive set of reserve currencies could provide more stability in the future, as there would be a more diversified set of assets for central banks to invest, and competition might provide discipline to reserve currency countries’ macroeconomic policies. On the other hand, given rapid movements in market perceptions, the significant fiscal challenges in high income countries combined with the development challenges of emerging markets could lead to even greater regional and global instabilities than we have seen over the past decade. Further complicating the situation is the difficult political process involved in addressing, for example, pension and health reforms in rich countries, or for managing income inequality or other social stress in emerging economies. As a result, periodic crises may very well continue in the future, accompanied by high volatility of financial flows, with potentially adverse effects on developing countries as was observed during the 2008-9 global crisis. We argue that more ambitious reforms of the international monetary system are needed to avoid repetition of this outcome. In addition, reforms of the broader financial architecture (for example, banking sector and other financial regulation) will be a key part of such a policy agenda.

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¹²³ There are a number of other aspects of the Euro crisis that provide an urgency not just for EU/Euro-zone reform but also for more urgent reforms of the International Monetary System. See Eichengreen (2012).

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