

To What Extent Should Capital Flows Be Regulated?

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Abstract

Persistent global imbalances are reflected in the direction and magnitude of capital flows. The main rationale for regulating capital flows is the heightened vulnerability to crises from pro-cyclical capital flows in an increasingly financially-globalized world. The risk of crisis is heightened when capital flows are not only pro-cyclical, but are of the short-term, non-FDI type. In general, different measures unilaterally implemented by a country to regulate capital flows have only been partially and temporarily effective. Given the huge incremental demand for “safe” dollar assets under a predominantly US dollar standard, as well as the limitations of capital regulation, the use of a supranational global reserve currency would be a first-best solution. Absent this, however, regulating capital flows becomes a necessary challenge, not just for an individual country, but for the global community as well. Measures taken by countries to regulate capital flows, by imposing a financial transactions tax, for example, stand a better chance of success if undertaken collectively.

1 Introduction

The title of this paper takes as given the proposition that capital flows ought to be regulated. However, many economists and policymakers worldwide did not always regard this as a foregone conclusion. After all, in theory, increased capital flows can directly and/or indirectly enhance growth.¹ Direct channels include the augmentation of domestic savings to increase consumption, investment, to finance trade imbalances, reduce the cost of capital, and facilitate the transfer of technological knowhow. Indirect channels include either the promotion of specialization or the diversification of the production base, and an inducement for better policies through pressures engendered by market forces or greater policy coordination.

A number of standard models suggest that under general conditions, capital mobility gives rise to certain desirable outcomes. Obstfeld (1994) posits that if capital is mobile internationally, consumption risks could be efficiently allocated, and the marginal utility of consumption should equalize across countries. Capital moves from a country with a lower rate of return to one with a higher rate of return. The recipient country is able to invest and consume more in the current period and from greater income, pay back interest on international borrowing. The lending country produces more but invests less in the current period, and earns interest income on lending internationally to augment

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¹ Kose, Prasad, and Terrones, 2003.

consumption in the future. Welfare improves in both countries and interest rates equalize internationally.²

Critics of financial globalization, however, see its benefits as being largely intangible and undocumented, while its risks, enormous and real.³ Many have expressed doubts about the gains obtainable from unfettered trade in financial assets. This group includes some of the most ardent backers of free trade such as Bhagwati (1998).⁴ Even the post-WWII international monetary system recognizes that unfettered international capital flows are not necessarily welfare-enhancing. The IMF Articles of Agreement under Article VIII granted member countries the right to maintain controls over capital transactions, but not over current transactions.⁵ Indeed, the occurrence of the Asian Financial Crisis in 1997 thwarted the plan of the IMF to amend Article VIII to include capital account convertibility.

In theory and practice, international capital mobility is not unambiguously welfare-improving because we do not live in a perfect and distortion-free world.⁶ There is asymmetric information in financial transactions even under autarky and absent capital flows. Rates of return and the probability of repayment by borrowers are not known with certainty. The inherent inter-temporal nature of trade in financial assets makes it fundamentally different from trade in goods. The promised payment of a borrower is a contingent payment. The lender has less information than the borrower does regarding the ability and incentives faced by the latter to make payment in the future. Financial assets are prone to panics and manias. Unfortunately, in the calculus of gains from trade in financial assets, the probability of a crisis occurring is typically not factored in.⁷ When it is, the supposed gains from trade in financial assets tend to disappear.

There may be distortions in the real economy as well. Capital inflows to and increased production by industries with little comparative advantage reduce welfare. Capital may flow to a low-tax country regardless of the productivity of capital but simply because of marginal tax rates differ across countries. Developing countries generally have underdeveloped financial markets or are prone to currency overvaluation, both of which limit a country's absorptive capacity for capital flows. Foreign financial inflows to investment-constrained economies can lead to real currency appreciation, reduce profitability and aggravate the investment constraint in the traded goods sector, affecting long-run growth prospects.

One important message is that the degree to which countries suffer from distorted incentives, informational asymmetries, and structural problems should make them wary about how they deal with and calculate potential benefits from financial globalization and increased cross-border capital flows. If the domestic financial system suffers from

² Fischer, 1998.

³ Obstfeld, 2008, p. 1.

⁴ Rodrik, 1998, Cooper, 1999, Stiglitz, 2003, Obstfeld, 2008, Rodrik and Subramaniam, 2009.

⁵ Kawai and Takagi, 2008, p. 3.

⁶ Eichengreen et al., 1998, Cooper, 1999.

⁷ Bhagwati, 1998.

numerous distortions, liberalizing trade in financial assets need not result in efficiency or welfare gains and could worsen outcomes. Countries therefore need to be open to the idea of regulating capital flows despite their embrace of financial liberalization and globalization. There are some success stories. Chile, for example, apparently successfully used an unremunerated reserve (*encaje*) on capital inflows, institutional reform, and a flexible exchange rate regime to increase its ability to safely deal with international capital flows.⁸ Unfortunately, success stories such as these appear to be exceptions to the general rule. Why they are successful in some cases and not in others needs to be better understood.

There is some evidence regarding the important positive role of domestic financial development in making capital inflows more productive and spurring growth. Yet undoubtedly, a lingering conflict remains in the minds of many policymakers worldwide between being convinced about the benefits of and fully embracing financial globalization and capital mobility, on the one hand, and maintaining the option and having the ability to prevent or modify the movement of cross-border flows and their potentially disastrous outcomes, on the other.

At the very least, prudence dictates that regulation of capital flows remain a weapon in the arsenal countries have to deal with such flows. To what extent, for what purpose, and how to regulate capital flows will tend to be specific to each country given its unique circumstances. Clearly, however, national efforts to regulate capital flows are limited, and international cooperation is needed to make such regulation effective.

This study examines some of the major issues surrounding the regulation of capital flows. The relationship between financial openness and capital flows, on the one hand, and economic growth on the other, is examined in part II. Some stylized facts about capital flows in the last decade are presented in Part III. Part IV examines a possible rationale for regulating capital flows. Part V discusses the ways in which capital flows have been regulated in different countries and their outcome. Part VI discusses the relationship among global imbalances, as reflected in global capital flows, and the vulnerability to systemic crises under the predominantly US dollar standard. Finally, Part VII summarizes the main points and concludes.

2 Empirical Evidence and Econometric Issues: Financial Openness, Capital Flows, and Economic Growth

The literature on the effects of greater financial integration on economic growth cannot easily establish a positive relationship between them. Prasad et al. (2003), for example, cite studies in which only 3 of 14 show a positive effect of financial integration on growth. Prasad, Rajan and Subramaniam (2007) find that reduced reliance on foreign capital is associated with higher growth. One reason may be that financial integration requires several prerequisites to be in place *ex-ante*, including a fairly high degree of financial development and absorptive capacity, sound macroeconomic policies, good governance and strong institutions.

⁸ Cowan and de Gregorio, 2007.

Evidence of supposed indirect effects of financial opening, such as the adoption of economic reforms and creation of institutions, is difficult to obtain as well.⁹ Poor institutional quality and a low degree of protection of property rights constrain the movement of capital into developing countries who need it. Abstracting from factors other than capital and labor and the differences in prices of capital between developed and developing countries, some studies find that the marginal returns on physical investment are not very different in developed versus developing countries.¹⁰

Despite the enhanced opportunity for consumption smoothing and risk sharing, some studies find that the correlation of consumption appears to have declined in periods when countries were opening up their capital accounts and becoming more financially integrated. Kose, Prasad, and Terrones (2003), for example, find that the volatility of consumption growth relative to income growth actually increased for middle-range financially-integrated economies experiencing particularly large inflows in the 1990s. This result is evidently related to the pro-cyclicality of such capital flows as well as to threshold effects, in which capital reversals occur once the level of capital flows reaches a particular level. In contrast, less financially-integrated developing countries and industrialized countries experienced a fall in the volatility of consumption growth relative to income growth in similar periods. However, Bekaert et al. (2006) find that the reduction in volatility arising from equity market liberalization tends to be smaller and statistically insignificant for developing countries compared with developed countries.

The nature and persistence of shocks matter. Mendoza (1994) finds that output volatility increases with financial integration when shocks are large and persistent. Buch, Dopke, and Pierdzioch (2002) find that monetary policy shocks increase the volatility of output but lower the volatility of consumption while fiscal policy shocks give rise to opposite results.

The degree of indebtedness of a country allows world interest rates to affect the relationship between financial openness and output volatility. Mendoza (1991) finds that world interest rates have a major impact on business cycle fluctuations but only in highly-indebted developing countries. Some, like Kose (2002), Correia et al. (1995), and Schmitt-Grohe (1998), find that world interest rate shocks explain only a very small proportion of output volatility. In contrast, Neumeyer and Perri (2005) find a strong relationship between country risk, working through interest rates, and business cycles in emerging economies. Uribe and Yue (2003) likewise find that US interest rates and country spreads explain about 20 percent and 12 percent, respectively, of business cycle movements in emerging economies.

There are numerous problems with empirical tests of the benefits from financial opening and capital mobility. It is difficult to quantify a country's financial openness or degree of financial integration with global capital markets. Researchers have used both *de jure* and *de facto* measures, but neither type of measure can accurately capture the incidence and effectiveness of regulations designed to limit trade in financial assets.

⁹ CGFS 2009, Obstfeld, 2008.

¹⁰ Caselli and Feyrer, 2007.

It is also difficult to find explanatory variables that correctly explain a variable of interest. Some data used in empirical estimation, such as consumption data, may be unadjusted for deviations from PPP. Findings regarding consumption smoothing could be spurious, especially in cases where there is a large amount of real exchange rate fluctuations such as during a crisis. Indirect benefits from financial globalization, such as better institutional governance, are difficult to assess and quantify.¹¹

Moreover, these benefits may be dependent on certain threshold levels of financial and institutional development unknown to the econometrician, and may differ depending on the type of capital flow—whether FDI, portfolio equities, or debt liabilities.¹² Reisen and Soto (2001), for example, find a positive impact of capital account openness on growth from FDI and equity flows but not from other types of capital flows.

Studies may also be trying to empirically capture permanent effects of capital account liberalization on growth (such as a one-time permanent increase in the level of GDP) even though there may only be a temporary impact and no permanent effect.¹³ It is difficult to assess whether opening the capital account leads to benefits such as the development of domestic financial markets or whether the development of domestic financial markets allow capital account opening to be beneficial.¹⁴

3 Stylized Facts

Higher rates of return on capital and investment opportunities in Emerging Market Economies (EMEs), and the deregulation of financial markets in general, have greatly facilitated inflows of capital to EMEs. Economic liberalization in trade and finance has evidently been the overwhelming trend in the past two decades. EMEs have experienced massive capital inflows and outflows, whether measured in absolute historical levels or as a proportion of GDP. (See Charts 1 and 2) Gross non-official inflows to EMEs were in excess of USD 1,400B by 2007 from only USD 170B per year in the 1990s, USD 100B of which was FDI.¹⁵ EMEs in Asia and Latin America in the 1990s, and more recently, Central and Eastern Europe, have been the main recipients of large inflows of capital.¹⁶ Capital flows have also been quite volatile, especially for non-FDI flows, and for gross rather than net private flows.¹⁷ During the current global financial crisis, private capital flows to EMEs declined to a level equivalent to a quarter of that in 2007 although flows to Asia fell somewhat less by about 40 percent of the earlier peak level.¹⁸

¹¹ Kose, Prasad, and Wei, 2009.

¹² Kose, Prasad, and Taylor, 2009; Eichengreen and Leblang, 2002; Arteta et al., 2001; Stiglitz, 2000.

¹³ Henry, 2007.

¹⁴ Mohan, 2008, p. 2.

¹⁵ Turner, 2008, p. 2.

¹⁶ Schadler, 2008.

¹⁷ Schadler, 2008.

¹⁸ Grenville, 2008, p. 10.

EMEs have become major participants in international banking and capital markets.¹⁹ Banking systems in EMEs have become more dependent on wholesale foreign banking with the revival of cross-banking flows to them. The amount of lending to EME domestic residents in foreign currency financed by borrowing in wholesale markets in major financial centers, such as in the form of derivative contracts, increased tremendously, especially in the run-up to the current global financial crisis.²⁰ Local currency debt markets have also expanded, local money and capital markets have become deeper and yield curves have lengthened while longer-term interest rates have declined.²¹ Net foreign asset holdings of the private sector in EMEs, trading in EME financial assets, and trading by EME entities have also increased.

The activities of institutional investors, such as pension funds and sovereign wealth funds, and the development of derivatives markets have led to a structural change in the balance sheets of EMEs as investors take on more leveraged exposures to EME assets. Pension funds are important recyclers of funds generated from current account surpluses of EMES and return as capital inflows to them. The activities of these institutional investors also help facilitate capital outflows. Pension funds, for example, invest in foreign currency and keep open unhedged positions. They tend to reinforce depreciation pressures on the domestic currency by shifting to foreign currency when they perceive that the domestic currency is going to depreciate and thereby facilitate capital outflows.²² Position-taking by pension funds apparently contributed to the volatility of outflows in countries such as Colombia.²³ Sovereign wealth funds have also facilitated capital outflows from EMEs as they invest EMEs' national wealth in global markets.

While maturities temporarily lengthened after the crises in the 1980s and 1990s, the share of short-term foreign borrowing has increased since the early 2000s, especially for lower-middle- income countries, heightening the possibility of a potential capital flow reversal. There has also been a secular rise in equity-like foreign funds, whose share in net external financing has fluctuated between 56 and 94 percent since 1993, compared with only about 10 percent in the early 1980s.²⁴ The increased share of portfolio flows in external financing makes the domestic economy vulnerable to sudden shifts in foreign investor sentiment.

The risk of a financial crisis increases in a financially-globalized world given the inherent opacity of derivative markets and the difficulty of understanding the scale of the underlying exposure of different kinds of capital flows, as was seen during this global crisis. Very low interest rates in the US and other advanced countries in the aftermath of

¹⁹ Turner, 2008, p. 2.

²⁰ Turner, 2008, p. 6.

²¹ Turner, 2008, pp. 4 and 8.

²² Villar, 2009, p.3.

²³ Vargas and Varela, 2008.

²⁴ Obstfeld, 2008, p. 6. Net external financing is the amount of net resources provided by foreign investors in order to finance a country's current account deficit, its net reserve accumulation, and its residents' own net purchases of assets located abroad.

the global financial crisis enlarge the opportunities for pro-cyclical carry trade flows. Carry trade flows are not banking flows and tend to be short-term, sensitive to interest-rate differentials and exchange rate expectations, and thus, highly volatile.

There has been an explosion of capital outflows from EMEs. “Sudden starts” of capital outflows have become as important, if not more, than “sudden stops” of capital inflows which was the case in the past.²⁵ Countries like Chile, for example, suffered from “sudden starts” in capital outflows more recently rather than “sudden stops” in capital inflows.²⁶ Such outflows may originate in public sector institutions such as state commercial banks.

EMEs experienced major stress in foreign exchange, stock, and foreign debt markets beginning in the first quarter of 2008 during the current crisis. In Emerging Europe and Latin America, the prospect of reduced capital flows and external sustainability increased sovereign spreads dramatically in the first quarter of 2008.²⁷ (See Chart 3) By the third quarter of 2008, there were significant withdrawals from EME equity and debt funds as financial deleveraging worldwide by investors from US and other advanced economies took place. (See Chart 4)

A significant slowdown in the issuance of bonds, equity, and loans in the third and fourth quarters of 2008 especially affected borrowers in Emerging Europe and Asia.²⁸ Bank lending also contracted significantly as bank liabilities shrank by 10 to 20 percent of receiving countries’ GDP by the end of September 2008.²⁹ (See Chart 5) Emerging Europe, in particular, has experienced rapid growth in liabilities to advanced economy banks in the last decade, almost thrice the amount to other regions as of end-2007, making it more vulnerable to an external bank crisis.³⁰ In contrast, the growth of bank liabilities to advanced country banks in Asia has declined over the same period. However, portfolio liabilities and assets have increased tremendously, putting Asia at risk of disturbances from external securities markets.³¹

The dynamics of portfolio exposures in Asia and other regions have been driven mainly by portfolio liabilities in advanced countries, according to the IMF WEO 2009 Report. Exchange rates have become more volatile given the heightened sensitivity to shifts in asset preferences internationally. The mix of exchange rate-driven and interest-sensitive capital flows is problematic and may create policy conflicts. Efforts to resist currency appreciation pressures through a lowering of interest rates, for example, could undermine efforts to contain inflationary pressures.

²⁵ Mihaljek, 2008.

²⁶ Desormeaux, Fernandez, and Garcia, 2008.

²⁷ IMF, 2009, p. 139.

²⁸ IMF, 2009, p. 139.

²⁹ IMF, 2009, p.139.

³⁰ IMF, 2009, p. 152.

³¹ IMF, 2009, pp. 151-152.

There is also some evidence that domestic credit has become sensitive to capital flows in economies such as Hong Kong, China; Hungary; and Turkey.³² Unfortunately, the ability of an individual country to reduce its vulnerability to crisis, by reducing current account and fiscal deficits for example, apparently does not sufficiently insulate it from the transmission of a major financial shock from advanced economies.³³ The consequences on the real economy of EMEs have been severe. In the last few months of 2008, for example, industrial production collapsed in Emerging Europe. By February 2009, there was an annual contraction in industrial production of 17.6 percent, the steepest decline recorded.³⁴

4 Why Regulate Capital Flows?

Is it possible to have too much of a supposedly good thing? The answer from the preceding discussion is yes. Responding to the incentives provided by capital inflows and positive terms of trade shocks raises the risk of a crisis, such as a “sudden stop” of capital inflows.³⁵ Episodes of massive capital inflows, oftentimes in excess of 10 percent of GDP, have been a usual feature of the run-up to crises. In past crises such as those in the 1980s, many developing countries suffered from the legacy of an external debt burden when capital inflows ended.

Mechanisms that lead to currency and financial crises are numerous and include the interactions among the currency market, government finances, the banking sector, and the corporate sector. Apart from expectations, financial and institutional underdevelopment including the inadequate quality of bank supervision, the quality and transparency of corporate governance, the enforcement of property rights etc. contribute to the probability of a crisis occurring.³⁶

A high degree of domestic financial development, as well as the expansion of trade in goods, however, also make it harder to enforce capital restrictions should the need arise. There is a possible threshold problem in the optimal level of domestic financial development versus countermeasures to prevent the occurrence of a crisis, macroeconomic instability, and other negative effects.

Some evidence from industrial country experience shows that an environment can be created so that trade in financial assets can yield net welfare gains. However, outside of a few exceptional cases, the same does not apply to a majority of developing countries which have suffered harshly in financial crises.³⁷ A major problem is that pro-cyclical capital flows reduce the policy space for countercyclical policy. There is evidence that the size of country-specific effects is magnified by the intensity of financial linkages

³² Turner, 2008, p. 5.

³³ IMF, 2009, pp. 139 and 141.

³⁴ IMF, 2009, p. 139.

³⁵ Calvo and Reinhart, 2000; Ocampo, 2009.

³⁶ Obstfeld, 2008, p. 14.

³⁷ Obstfeld, 2008, p. 15.

across countries. Transmission to EMEs is stronger the tighter the financial links are with advanced economies, as seen in the importance of bank lending ties in the current global financial crisis.³⁸ Indeed, crises in advanced economies and EMEs tend to occur at the same time.

The occurrence of the 1997 Asian Financial Crisis raised questions about the wisdom of allowing internationally mobile capital in a multi-currency world under a predominantly US dollar standard. It also raised the issue of whether countries and regions *could*, in fact, successfully manage capital flows. Kawai and Takagi (2008), for example, find that there is no effective measure countries could adopt that would either reduce the size of capital inflows or prevent its adverse consequences. Hence, although there are good reasons to regulate capital flows, whether countries can and to what extent capital flows should be regulated remain empirical questions, the answers to which are unlikely to be the same for each country or region.

5 The Regulation of Capital Flows

What should the objective(s) be in regulating capital flows? Presumably included among these are the prevention or reduction in the amount of pro-cyclical capital flows and the minimization or elimination of the deleterious effects of these on the economy given their amount, type, maturity structure, volatility, as well as their potential to produce distorted incentives and engender crises. Authorities would need to act defensively, possibly pre-emptively, with regard to capital flows.

Specifically, capital account regulation should aim to increase the ability and policy space of authorities to implement policies to address pro-cyclical capital flows³⁹ and reduce the vulnerability of countries to capital flow reversals and crises. Such countercyclical policy is necessary to bring about a strong macro environment characterized by fiscal and current account sustainability, low and stable inflation, a strong and stable financial sector, etc. all of which should in principle, reduce the vulnerability of a country to capital flows. The type of capital control matters as well, with quantitative restrictions being easier to administer. However, these restrictions tend to be evaded over time and it may be necessary to implement adjustments to the policy over time. One countercyclical policy that has been successful in preserving the stability of the banking system, although unsuccessful in preventing a recession, is Spain's use of pre-provisioning or dynamic provisioning in periods of rapid growth.⁴⁰ Raising the traditional CAR under Basel by a multiple related to macroprudential or systemic risk factors has also been proposed.⁴¹ Raising capital requirements alone should not be seen as being sufficient. Additionally, capital account injections and pre-paid/arranged contingent assets and capital insurance injections have been proposed.⁴²

³⁸ IMF, 2009, p. 141.

³⁹ Ocampo, 2009, p. 21.

⁴⁰ Villar, 2010, p.5.

⁴¹ Villar, 2010, P.5.

⁴² Caballero, 2010, p. 32.

Fiscal policy restraint may also be used to counter excessive flows.⁴³ A disadvantage of this, however, is the inherent political difficulty of using restraint during good times. Indeed, there is plenty of evidence across countries of fiscal policy's pro-cyclicality. To avoid this problem, the use of stabilization funds, defining a structural stance of the public sector, and the use of automatic stabilizers rather than discrete actions have been proposed.⁴⁴

Schadler (2008) and McCauley (2008) discuss the various ways in which emerging markets, especially those in Asia, dealt with great capital inflow periods. McCauley (2008) presents evidence to show that sterilization or the exchange of domestic bonds for foreign assets, capital restrictions, such as unremunerated reserve requirements (URR) on capital flows and limits on bank access to foreign capital, worked in countries such as Thailand and the Republic of Korea.

Other methods, when used judiciously and in combination with each other, also worked to dampen the amount and speed of capital inflows. URRs were successfully used by Chile and Colombia in the 1990s and again by Colombia in 2006 and 2007. While URRs evidently change the maturity structure of capital flows away from short-term toward more long-term flows, its effectiveness is temporary and efficiency costs associated with its use rise as derivatives markets develop and domestic players increase.⁴⁵ Hence, the measures of success in the use of URRs vary and the results are mixed. Success is temporary but may buy some time for a country to better prepare itself for any possible effects of capital flows or may mitigate any adverse effects of such flows.

Foreign reserve accumulation has also been resorted to by countries to smoothen movements in exchange rates, with mixed results. They have not been effective in countries like Brazil and Colombia which actively intervened but whose exchange rates still exhibited large swings.⁴⁶ In contrast, Mexico did not intervene as much and its currency did not exhibit such swings.

Greater exchange rate flexibility has also been utilized to discourage one-way bets and speculative capital flows. But the use of the exchange rate to reduce swings in capital flows shifts the burden of doing so onto the exchange rate and could raise the risk of BOP crises.

As capital account regulation attempts to slow down and perhaps reduce the amount of capital flows across borders, other ways to reduce the speed of financial globalization may need to be found. This is especially so in cases where having opened up the gates of capital flows, it is no longer possible to completely close the gates. Having the option to slow down the movement of capital may be the only realistic option and countries

⁴³ Schadler, 2008.

⁴⁴ Ocampo, 2009, p. 12.

⁴⁵ Villar, 2010, p.7.

⁴⁶ Villar, 2010, p.6.

would be prudent not to simply completely embrace the virtues of full capital mobility. One suggestion in this regard is to “segment what is already segmented.”⁴⁷

The success of any or all of these measures to regulate capital flows implemented singly or in combination with other measures, may require action beyond the level of an individual country. A zero sum game is a possible outcome if countries act unilaterally to regulate capital flows. International cooperation is needed to make the measures adopted to regulate capital flows, for example, whether through fiscal restraint or through the imposition of Tobin-type financial transactions taxes, effective. The global community would also need to make a collective decision on how to use any revenues generated by measures implemented to regulate capital flows.

6 Global Imbalances, Recycling, and Systemic Crises

Persistent global imbalances are reflected in the direction and magnitude of capital flows. Today, in contrast with the 1990s and earlier periods finds EMEs, with a few notable exceptions such as India, running current account surpluses rather than deficits. Together with capital inflows to EMEs, this has led to a large increase in the average rate of annual reserve accumulation in the last six years compared with that in the 1990s.⁴⁸

The rate of net external financing sourced by richer countries in the recent period has increased by thrice what it was in the 1990s as countries such as the US borrowed from EMEs to finance their huge current account deficits and to prop up the US banking system.⁴⁹ In the early phase of the financial crisis in the US, sovereign wealth funds were the primary providers of capital to US banks in distress.⁵⁰ This process saw capital paradoxically flow from EMEs to the US and continued unabated for a long time but also raised fears of an unsustainable US deficit if and when such flows stopped.

The principal reserve currency in the world today is the currency of a single country. That currency is the US dollar. Increasing the amount of global liquidity makes it imperative for the global reserve-issuing country to run deficits. But large and unsustainable US deficits undermine the value of the principal global reserve currency. This is the Triffin dilemma. US adjustment necessitates having the US dollar weaken in order to expand exports and reduce its deficit, but doing so would reduce the value of the US dollar as a reserve currency.

As the monopoly issuer of the dominant world money, the US faces very few incentives to undertake the necessary contractionary policies to increase its net saving and eliminate its BOP deficit. This is because the US enjoys seigniorage revenue (pure seigniorage as well as inflation tax revenue) from the privilege of issuing the principal global reserve currency, not only from its citizens but also from those in the rest of the

⁴⁷ Ocampo, 2009, p.21.

⁴⁸ Obstfeld, 2008, p. 5.

⁴⁹ Obstfeld, 2008, p. 5.

⁵⁰ Caballero, 2010, p. 11.

world that uses the US dollar. At the same time, the desire of other countries to accumulate dollar reserves also reduces the incentive faced by the US to reduce spending in order to correct its external deficit. This is because the demand for additional reserves by the rest of the world finances the US current account deficit. There is a problem of moral hazard.⁵¹

The People's Republic of China (PRC) and other large holders of US dollar assets would need to run even larger surpluses to make up for the loss in value were the US dollar to depreciate. Under the current system, therefore, the necessary adjustment to correct existing imbalances in both deficit and surplus countries is difficult and unrealistic, and both liquidity and adjustment problems are the outcome. A dangerous status quo prevailed until the global crisis intervened and forced the US to reduce aggregate demand and as a consequence, raise its savings rate. Given trade and financial linkages across countries, the rest of the world experienced a severe decline in trade value, wealth, and output growth as well.

The global economy is prone to crises under the predominantly US dollar reserve currency system. The share of the US, the principal reserve-issuing country, in the global economy is unusually small relative to the increasingly large incremental demand for reserves in the rest of the world. One reason for the tremendous growth in the incremental global demand for dollar reserves by the rest of the world is that growth itself in EMEs such as PRC induces an increased desire for liquidity and thus, an increase in spending less than the increase in real output (hoarding).⁵² This means that growing countries will tend to be net savers and run current account surpluses in order to build-up reserves to satisfy their increased desire for liquidity. These hoards are a leakage from the global economy and impart deflationary pressure in the absence of countervailing upward adjustment in demand elsewhere.

Under the current US dollar-dominated global reserve system, the US needs to play the role of global-demander-of-last-resort and run deficits to meet the demand for global liquidity and sustain global aggregate demand. It has also been observed that while world trade in goods and bonds has grown much faster than world GDP, liquidity support and financial regulation have essentially remained local.⁵³ Indeed, the US role in sustaining aggregate demand domestically (and globally) through very expansionary policies saw interest rates decline and deviate from the Taylor Rule beginning in 2001, spawning asset bubbles such in housing and in commodity markets as well.

The use of the dollar as the principal global reserve currency internationalized the US financial crisis. The bursting of the housing bubble in the US and the inadequacies of financial regulation are only part of a bigger story. The underlying roots are deeper and more fundamental--the lack of incentives faced by the US under a predominantly US dollar global reserve currency system to reduce expenditures and in general, to implement macroeconomic policies that find a balance between growth and inflation control in the US economy and in the rest of the world.

⁵¹ Eichengreen, 2009, p. 31.

⁵² Mundell, 1971.

⁵³ Calvo, 2009.

Besides growth, the incremental global demand for reserves in the rest of the world has increased because of the need for self-insurance by countries in the face of increased vulnerability felt by them. Hoarding reserves is seen as a form of self-insurance against risks such as capital account crises, illiquidity, the failure of export-led growth strategy, the inability to ensure inter-generational equity⁵⁴, and destabilizing internal and external “drains”⁵⁵ (capital flight) on the domestic banking and credit sectors.

Hoarding reserves is also, in large part, a reaction to the absence of a credible global lender of last resort, as seen in the shortcomings of the IMF during the Asian and Russian Crises of 1997-1998 and more recently, in its withdrawal of support to back the Argentine peso in 2001. While currency swaps from the US Fed to several countries during the current global crisis prevented crises in these countries, such swaps are not available to any country on demand. Hoarding reserves buys time for more gradual BOP adjustment.

It has been noted that the crisis which began in the US and spread globally was not due to a “sudden stop” of capital inflows to the US as the US did not experience an external funding problem. Instead, there was a large contraction in aggregate demand in the US due to its domestic financial crisis. Indeed, capital inflows to the US during the current global crisis did not wane and did have a stabilizing effect on the US economy. Contrary to theory and the predictions of the Triffin Dilemma, the US dollar even appreciated despite its home-grown financial crisis and recession! While the rest of the world ran current account surpluses, they were willing to recycle these surpluses by lending to the US and so capital flowed out of the EMES and into the US.

Why did capital continue to flow out from EMEs and into the US despite the crisis there? An alternative view of the kind of imbalances that were at the root of the current global crisis is offered by Caballero (2010). He says that the insatiable demand for “safe” dollar assets put pressure on the US financial industry to create such assets from the securitization of increasingly low-quality ones like sub-prime mortgages. The creation of such assets was undertaken in order to close the gap in the demand for “safe assets” from the rest of the world and from US financial institutions as well. This large incremental precautionary demand from investor and central banks in the rest of the world for “safe” assets drove capital outflows from EMEs into the US. Attempts to satisfy the global demand for “safe” assets exposed the US financial system to a systemic panic as leverage rose and macroeconomic risk became concentrated in US financial institutions.

US financial assets grew from less than 160 percent of GDP in 1980 to approximately 480 percent in the third quarter of 2007, with debt playing a major role in the surge.⁵⁶ The increase in debt generated by the private sector, especially the financial sector, drove the growth in the ratio of debt to GDP in the US. The share of US debt outstanding rose from 12 percent in 1980Q1 to 34 percent in 2007Q3, and the trend in the

⁵⁴ Mateos y Lago, 2009, p. 8. Inter-generational equity concerns may explain why oil-exporting countries, for example, attempt to hoard reserves.

⁵⁵ Obstfeld, Shambaugh, and Taylor, 2009, p. 3.

⁵⁶ Caballero, 2010, p. 12.

government share of outstanding US debt has likewise increased.⁵⁷ Global issuance of CDOs and leveraging in financial institutions helped meet global demand for safe assets. Such issuance of CDOs increased from USD 185B in 2000 to USD 1.3T in 2007.⁵⁸ Greater vulnerability of the financial sector to crisis was compounded by the NASDAQ crash, which affected confidence in the equity market in the US.

Caballero's analysis shifts the blame for the global financial crisis away from the US to the rest of the world and its insatiable demand for safe dollar assets. The two sets of explanations are not necessarily mutually exclusive, however. Caballero's solution is for the US government to act as a provider of insurance-of-last resort and shoulder systemic risk. The US could issue risk-free assets beyond what it needs to finance its deficit or let the private sector take the lead role in producing "safe assets".⁵⁹ It should and intervene only in cases of extreme events. Meanwhile surplus countries should adjust their portfolios by taking on risky assets.

The problem with the solution(s) proposed is the assumption that surplus countries would have an incentive to adjust by taking on risky assets and in any case, have an incentive to reduce their demand for "safe" assets. If the US were to issue a large amount of "safe" assets, there would be even less incentive for surplus countries to increase their demand for risky assets. There is likewise little incentive for the US to reduce its deficit since it would be issuing an amount of debt greater than would be necessary to finance such a deficit anyway.

Nevertheless, Caballero's analysis seems to imply that one would also have to acknowledge that the burden of creating "safe" assets fell on the US because its currency is the principal reserve currency of the world. Thus, an alternative to the US dollar, or more generally, the use of a single country's currency, as the reserve currency of the world is a radical solution to prevent a global crisis. This would reduce the global imbalance because of the demand for "safe" dollar-denominated assets. The perverse occurrence of US dollar appreciation (despite very low US interest rates) despite the financial crisis that began in the US, and at a time when the US dollar needed to depreciate to help US exports and spur the recovery there, may be avoided.

The regulation of capital flows may be unnecessary if a first-best solution-a supranational alternative to the US dollar- is found. Such an alternative would tend to be more stable given a multi-currency backing, and provide adequate global liquidity since its supply would not be the responsibility of a single country whose ability to do so naturally is in conflict with the requirement for its own internal balance. It would reduce the extraordinary (precautionary) demand for US dollar reserves globally. The incentive for the principal reserve-issuing country to run deficits would be reduced with the loss of the exorbitant privilege of seigniorage and the ability to shift the burden of inflation and adjustment to the rest of the world. In the transition to this first-best solution, however, the regulating capital flows must remain an option available to countries.

⁵⁷ Caballero, 2010, p. 13.

⁵⁸ Caballero, 2010, p.14.

⁵⁹ Caballero, 2010, p. 37; p. 2.

7 Summary, Conclusions and Directions for Further Research

Stylized facts regarding capital flows in the last two decades show that the potential for crisis is great, given pro-cyclical capital flows. The global crisis and the resulting recession and low interest rates in advanced economies will increase the potential for more pro-cyclical carry trade and other flows to EMEs. Both the volume and volatility of capital flows have increased, with “sudden starts” of capital outflows becoming more prominent in the recent period, in contrast with “sudden stops” of capital inflows which characterized crises in the past. Emerging market economies have become important players in international banking and capital markets as financial globalization proceeds. But they have become more vulnerable to changes in investor appetites and portfolio changes from mature economies as equity flows and short-term flows become more important than banking flows as was the case in the past.

Capital flows need to be regulated because unfettered trade in financial assets in the presence of distortions is not necessarily welfare-improving. To what extent they need to be regulated depends on the degree of distortions present in an economy and whether it is easier to remove these distortions and allow capital flows versus the difficulty of dealing with the distortions which makes such regulation necessary. It also depends on complementary policies that can be adopted to make capital more productive in an economy to increase welfare obtainable from capital flows. The fact is that many EMEs today are running current account surpluses rather than deficits as in the past means that there is less of a need for external finance. There remains the problem of recycling such surpluses to advanced economies such as the US that need them, which then return to EMEs in search of higher returns.

Having embraced economic liberalization, however, should not preclude efforts to find ways to reduce the potential damage from pro-cyclical capital flows through their regulation. Unfortunately, while capital regulation has worked in some cases, for example, to lengthen the maturity of flows, there is little evidence that such regulation alters the composition of flows nor work over extended periods of time. There is also little evidence that EMEs can be spared the effects of a large externally-initiated financial crisis no matter what they do. The lack of success in regulating capital flows by individual countries underscores the need for international cooperation in the design and implementation of such regulation of capital flows.

Under the current predominantly US dollar standard, there is a huge incremental demand for “safe” dollar assets that are reflected in perverse flows from the EMEs to the US and advanced economies. There is also little incentive for the US to weaken the dollar to correct its large deficit. However, as the reserve currency of the world, authorities in the US need to, and the rest of the world expect them to, maintain the strength of the dollar. The dollar standard also exacerbates pro-cyclical capital flows to EMEs such as those under carry trade. The adjustment burden tends to be shifted onto surplus countries to either continue to recycle their surpluses to the US and advanced economies and maintain the status quo, or to take on riskier assets for global adjustment to occur.

The radical solution to the problems of pro-cyclical capital flows and systemic crises would be to reform the global reserve system through the adoption of a supranational global reserve currency. Absent this, regulating capital flows may be regarded as a

second-best solution. To be effective, such regulation should try to increase the policy space for countercyclical policy and requires international cooperation to raise the chance of success of measures adopted to regulate capital flows. To the extent that reforming the global US dollar-based reserve system could take time, and given continuing financial globalization, regulating capital flows becomes a necessary collective challenge.

Several questions remain in the agenda for future research. These include the following:

Is there an ideal amount of capital inflow for a country based on its institutional capacity and other structural features? When can capital flows be regarded as excessive? Is there a best type of capital countries may wish to attract?

What drive these inflows-cannot be fundamentals alone-neighborhood effects, non-economic factors like herding behavior? If so, what is the best way to attract the best types of capital or prevent the less desirable types from coming in? Do policies to regulate the amount of capital work equally well whether these are designed to affect inflows or outflows?

Is there a reasonable way to estimate a country's gains from trade in financial assets akin to the calculation of gains from trade?

What are the specific financial and real market distortions present in developing countries or emerging markets? How are they different from those in developed countries? Can these distortions be identified and quantified? To what extent can these distortions be adequately addressed so that a country can more safely trade in international trade in assets?

Is it easier to remove or reduce the distortions present in an economy or impose capital restrictions (and thereby judiciously apply another distortion) and other policies to control the volume and types of capital flows?

What are the mechanisms or transmission channels of financial crises? Have these changed over time and are new ways to respond to them needed?

What combination of capital control and other macro policies gives rise to intended results? Do the results affect the volume, type, maturity of capital or all of these? If there are negative externalities from introducing these, can they be easily reversed and can losers be compensated?

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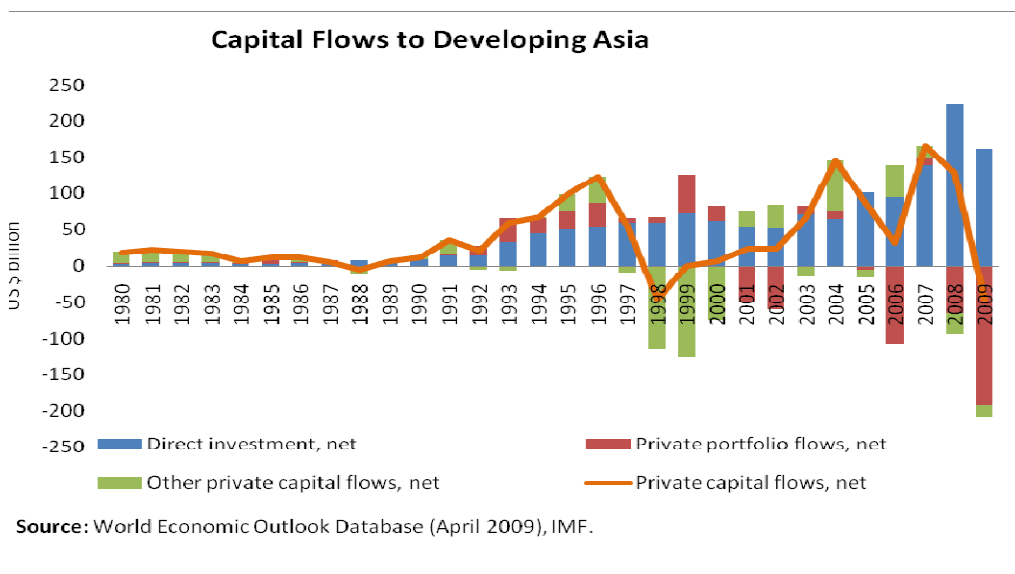
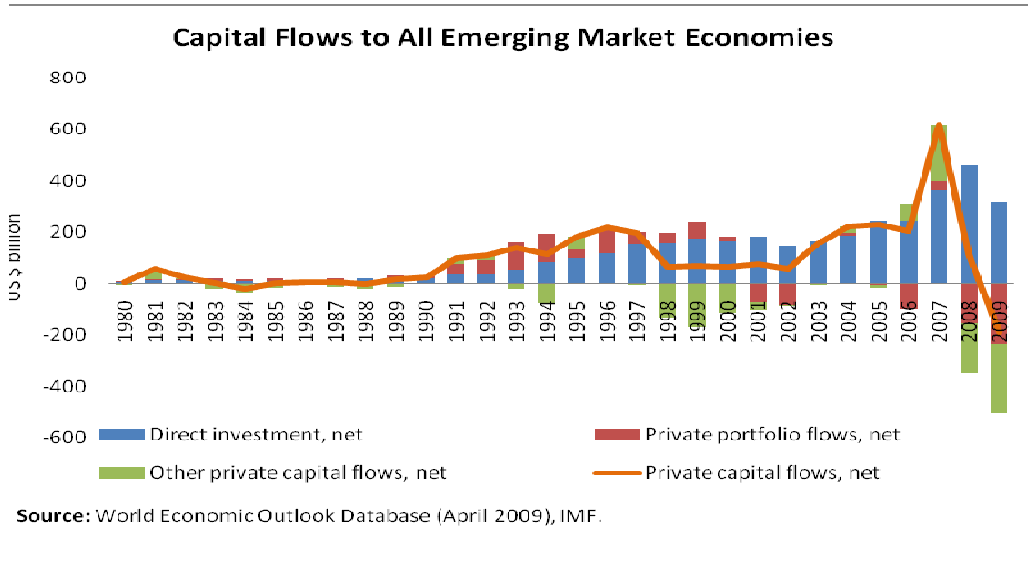
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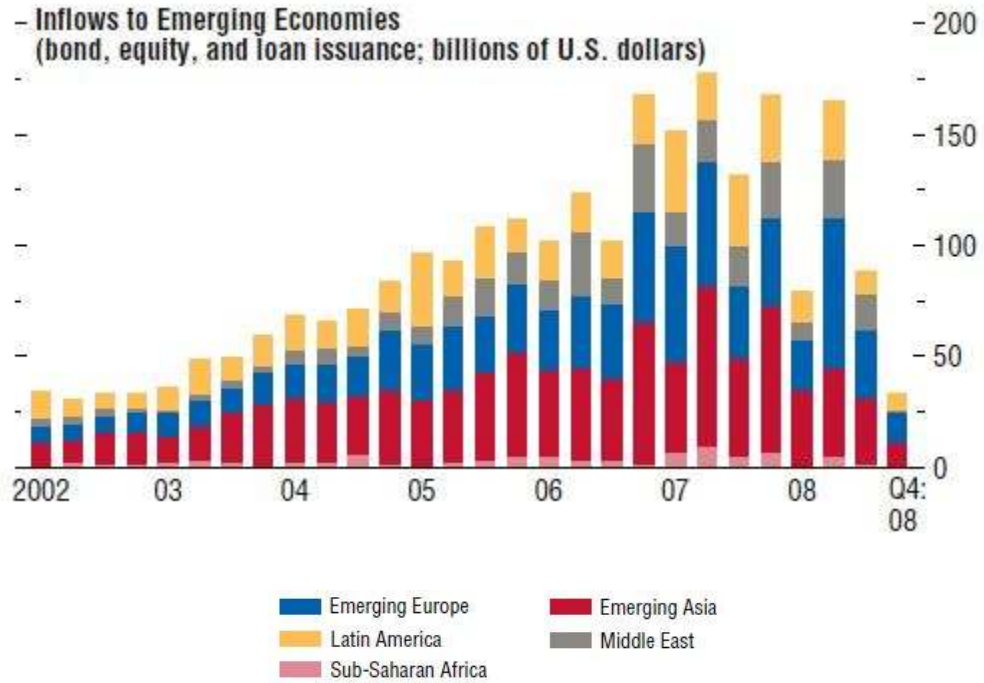
Chart 1 : Capital Flows to All EMEs and Developing Asia

(US \$ billion)



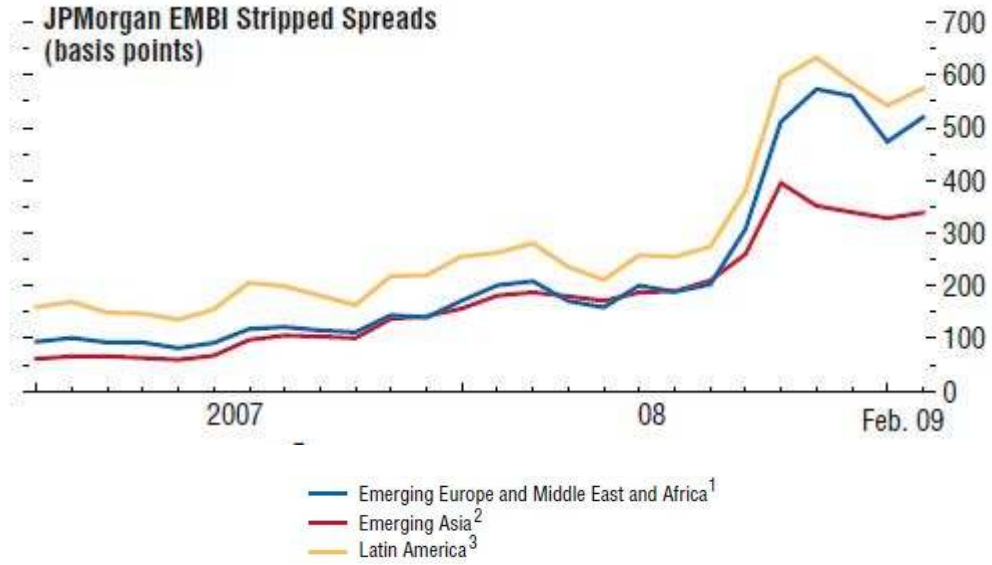
Source: Mohan, 2008, p.7.

Chart 2



Source: IMF World Economic Outlook, October 2009, p. 141.

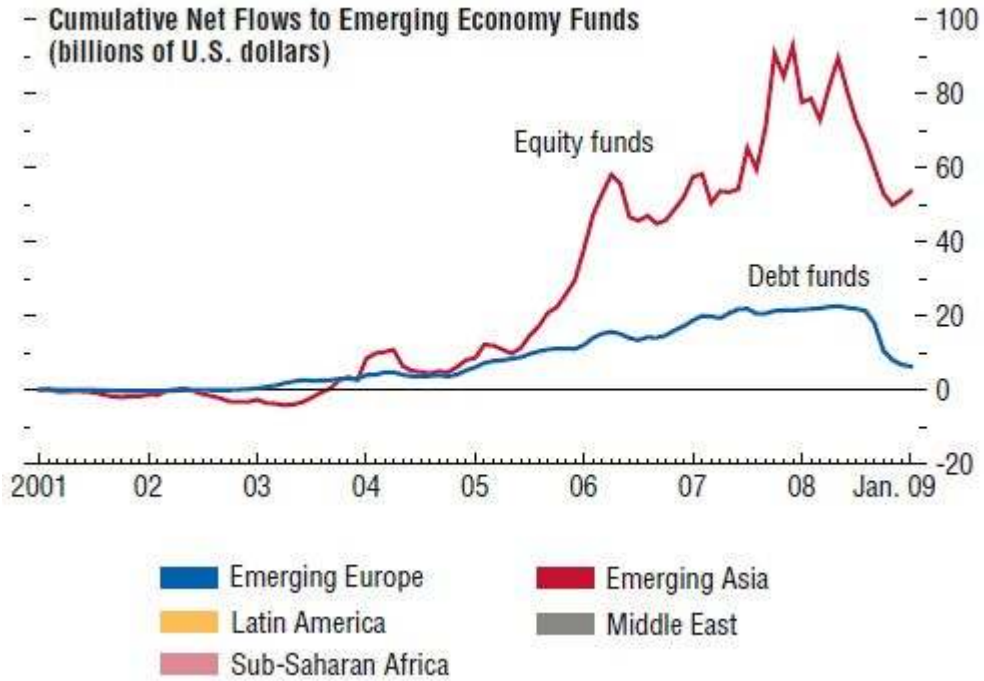
Chart 3: Emerging Market Interest Rate Spreads



Sources: Datastream; IMF, International Financial Statistics; and IMF staff calculations.
¹Emerging Europe and Middle East and Africa: Czech Republic, Egypt, Hungary, Israel, Morocco, Poland, Romania, Russia, Slovak Republic, Slovenia, South Africa, and Turkey.
²Emerging Asia: China, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Sri Lanka, and Thailand.
³Latin America: Argentina, Brazil, Chile, Colombia, Mexico, and Peru.

Source: IMF World Economic Outlook, October 2009, p. 140.

Chart 4



Source: IMF World Economic Outlook, October 2009, p. 141.

Chart 5



Sources: Bloomberg Financial Markets; EmergingPortfolio.com; Bank for International Settlements; and IMF staff calculations.

¹ Latin America consists of Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela. Emerging Europe contains Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovak Republic, Slovenia, and Turkey. Emerging Asia includes China, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, and Thailand.

Source: IMF World Economic Outlook, October 2009, p. 141.