TOO MUCH OF THE WRONG SORT OF CAPITAL FLOW

Adair Turner

Conference on *Capital Account Management and Macro-Prudential Regulation for Financial Stability and Growth*

Centre for Advanced Financial Research and Learning (CAFRAL)/Reserve Bank of India

New Delhi, 13 January 2014

> "*On both the empirical side and on the calibration side, it has so far proved hard to find robust support for large quantifiable benefits of international financial integration."* (Hélène Rey, *Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence.* Jackson Hole, August 2013)

The global financial crisis of 2007 to 2008 was in some senses not global at all – but a crisis within the financial systems of the most advanced economies, in particular the US and Europe. And among its origins lay profound mistakes in the regulation of domestic financial markets and of major financial centres.

But it is widely believed that imbalances in the global economy and inadequacies in the international monetary system were also root causes of both this latest and of previous financial crises. Among the arguments made are that:

- Large current imbalances, reflecting a surplus country "savings glut", lay behind the harmful explosion of unsustainable credit in deficit countries.
- Inadequate IMF official liquidity facilities encouraged precautionary reserve accumulation, and thus contributed to the large imbalances.
- The US $'s status as the predominant reserve currency allows the US the "exorbitant privilege" of running large current-account deficits matched by unsustainable domestic credit extension.

- Short-term capital flows unrelated to economic fundamentals introduce dangerous instability.

To some indeed, the international monetary and financial system is best described as the "international non system". And in response, a number of solutions are proposed. These include coordinated agreements to reduce current-account imbalances; improvements in IMF facilities; a rejuvenated role for SDRs or other alternative reserve assets; and capital controls of various forms.

But while many proposals are made, there is no consensus on their relative importance. Nor is there a consensus on whether and in what specific way reforms to the international monetary system are truly vital elements in our response to the global financial crisis, rather than desirable improvements which have been debated on and off, without clear conclusion, for many decades.

My aim today is therefore to suggest a framework for thinking about the relative importance of these different problems and potential solutions, and about the interrelationship between the domestic drivers of financial instability and the international dimension.

I suggest the following conclusions:

Defining the problem. To think straight about the international dimension, we need first to be clear about the drivers of financial instability which could exist even in a closed economy with one currency and one government.[1]

- The fundamental problem, whether within or between countries, derives from too much of the wrong sort of debt. Free financial markets left to themselves generate excessive credit unrelated to new productive investment. Financial deregulation and increasing financial intensity can therefore cause harm.

- The problems created by current-account imbalances and capital flows are a subset of this general problem. But for reasons inherent to their international and inter - currency nature, they have a particularly great capacity to create instability. Current arrangements and policies result in too much of the wrong sort of capital flow.

[1] I am indebted to Philip Coggan's book *Paper Promises* for focusing my attention on the need to place international monetary system developments within the wider context of the growth of leverage. [Coggan, 2012]

Assessing the policy options. Given this analytical framework, the following policy priorities follow:

- Improvements in internationally official liquidity facilities, while potentially valuable, are not fundamental to a more stable global financial system
- Actions deliberately designed to reduce the reserve currency role of the US dollar are not a priority
- Primarily national policies to remove the structural drivers of large current imbalances, in both surplus and deficit countries, are the highest priority
- Actions to constrain harmful short-term capital flows are also important. They should include macro prudential policies focused on credit creation dynamics, and the ring fenced subsidiarisation of large international bank operations. Concerns about the "balkanisation" of global capital and banking markets are not valid.

Section II and III set out the arguments for these conclusions. But first as background, a brief reminder of some familiar but still intriguing facts about the recent pattern of global imbalances and capital flows.

I. GLOBAL IMBALANCES AND CAPITAL FLOWS: SOME FAMILIAR ODDITIES

Current-account imbalances grew very significantly in the decade before the financial crisis. Exhibit 1 set outs some salient facts. The aggregate of all current surpluses grew from around 0.5% to 2% of global GDP: and so necessarily did the aggregate of all deficits[2].

- China was the most important of the surplus countries, but Japan, Germany and the major oil exporters were also significant
- Among deficit countries the US dominated, but the UK also ran a significant deficit.
- And what we now label the peripheral Eurozone economies ran deficits which were large as a percent of their own GDPs (Exhibit2). In the case of Ireland, the deficits only emerged in the five year pre-crisis; in the case of Spain, they grew from 4% to 10% of Spanish GDP in those five years.

[2] As is well known data deficiencies mean that the available figures, reflected on Exhibit 1, do not always precisely match, suggesting (usually) a net global deficit.

Such large current-account imbalances, and the necessary balancing capital flows, are not unique in economic history. The UK ran large current-account surpluses in the period before the First World War: in 1911 to 1913 they amounted to about 10% of UK GDP. But today's flows are different from those pre-First World War flows in several crucial respects.

The origin and economic function of pre-First World War capital flows was clear. Britain was then among the richest countries on earth, and generated domestic savings in excess of apparent domestic investment needs. In its own colonies and in other emerging economies (for instance in Latin America), there were major investment opportunities but limited domestic savings resources. Capital flowed, largely in the form of long-term debt or equity, to finance capital investment which, it was hoped, would generate return with which to repay the debt and reward the equity investors.

Most modern imbalances and capital flows differ from this pattern in three crucial respects. They are:

- "Uphill not downhill". By far the largest surplus country, China, is still relatively poor: and by far the largest deficit country is the still rich US. Poorer countries are lending money to richer borrowers. And within the Eurozone, large current imbalances and offsetting capital flows arose between countries of roughly equal income level.
- Financing consumption not investment. The countries running the deficits typically do not have high investment rates. Capital exports from China help finance US consumption not increased US corporate or government investment.
- Two-way not one way. Gross flows greatly exceed net flows. When pre-First World War UK investors bought Argentinian railway bonds, very few Argentinian investors were simultaneously buying claims on the UK. Gross capital flows were fairly easily explicable in terms of the underlying net current imbalances. In today's world, gross flows both among advanced economies and between advanced and emerging, involve enormous two-way flows. American and European investors, for instance, take and continually readjust large positions in emerging economy markets, irrespective of the direction of the net capital flow.

In addition, most modern capital flows take a debt form, whether public (e.g. Chinese authorities buying US Treasury and agency bonds) or private (e.g. German Landesbanks

buying US mortgage-backed securities in the years before the crisis). Here the distinction with the pre-First World War era is less extreme: even then long-term bond purchases played a major role. But what is distinctive is the significant role of cross-border bank credit, and, in the pre-crisis years, the role of complex shadow banking intermediation claims, which mirrored the maturity transformation function of banks but outside the formal banking sector. Thus, for instance, UK mortgage-backed securities were financed via long chains of intermediation at the end of which stood US investors holding instantly available money market mutual fund investments.

These characteristics of modern current-account imbalances and capital flows have important implications both for the resulting net social benefit (or detriment) and for appropriate policy.

II.1 TOO MUCH OF THE WRONG SORT OF DEBT

The focus of this conference is on the international monetary and financial system. But to think straight about the particular problems arising from financial relationships between nations and currencies, it is useful first to be clear about the causes of financial instability within countries which would exist even if the global economy were one economy, with one currency and one government. We can then consider what additional complications are added when we introduce the complexity of multiple nations, governments and currencies.

The origins of the financial crisis of 2007 to 8, and the weakness of the post crisis recovery, lay in two pre-crisis developments.

- First the long sustained growth (reaching back to the 1960s or even earlier) in real economy leverage, with growth in credit extended to real economy companies and households running ahead of nominal GDP growth. Total US private sector leverage in 1945 was 50% of GDP; by 2008 it was over 200% (Exhibit 3). UK household debt stood at 15% of GDP in 1964; by 2008 it was 95%. (Exhibit 4)
- And second, increasingly from around the 1970s, a remarkable growth in intra-financial system intensity, with trading activities among financial institutions growing far faster than real economic activity. Balance sheet claims to and from other financial institutions accounted for an increasing share of all debt within the

economy (Exhibit 5); and multiple non-bank institutions grew far faster than traditional banks (Exhibit 6).

Each of these developments could have occurred and caused instability even within a closed economy.

Increasing real economy leverage

Modern macro-economic theory has paid relatively little attention to the role and complexities of the financial system. But the predominant assumption has been that growing leverage is either a neutral or benign development. In fact, however, free financial markets can create debt in excessive and unstable quantities, and in forms which cause instability rather than growth.

I set out the detailed arguments for that proposition in a recent lecture [Turner, 2013b]. Today I will simply reiterate three key points.

1. Most credit extended in advanced economies does not perform the function which economics and finance theory describes.
    - When modern economics or finance theory does describe the role of debt contracts and banks, it almost always assumes that savings flow from households to entrepreneurs/businesses to finance new capital investment. [3] And it describes why, in a world of imperfect and asymmetric information, debt contracts can play a useful role in facilitating higher capital accumulation [Townsend, 1979.] As a result, increasing real economy leverage can be positive for growth. Empirical studies reviewed by Ross Levine [Levine, 2004] provide support for this conclusion, with positive correlations between indicators such as "Bank credit to GDP" and growth.
    - Even when debt is used to finance capital investment in new projects, it can be extended in excess, generating wasteful investment booms. But in

[3] Thus for instance, in Gertler and Kiyotaki [2010] the bank intermediation channel is described as follows: "At the beginning of the period each bank raises deposits from households in the retail financial market at the deposit rate Rt+1. After the retail market closes, investment opportunities for non-financial firms arrive randomly".

fact most credit in advanced economies does not finance new capital investment, but instead (Exhibit 7) finances either:

- Consumption in excess of current income capacity
- The purchase of already existing and to a degree irreproducible assets, in particular houses or commercial real estate, and effectively the land on which they sit

A reasonable estimate suggests that only around 15% of bank lending in the UK finances new capital investment.

- These other categories of credit extension create specific risks:
  - Financing consumption in excess of current income can be welfare enhancing if it enables consumption smoothing within a lifetime earnings constraint. But it does not create an increased income stream to ensure repayment. And it can also be used, and in the pre-crisis years often was used, in an attempt to finance consumption in excess of permanent income[4].
  - Financing the purchase of already existing assets, such as real estate and the locationally specific land on which it sits , can produce endogenous changes in asset prices and as a result in the net worth and confidence of both lenders and borrowers, which generate self-reinforcing cycles of further credit extension and further asset price rises. (Exhibit 8)[5]
- These risks are increased if debt contracts are short-term, producing rollover risks. And they are yet further increased by the existence of

[4] This consumption finance can be provided, and often is, through mortgage debt, with rising house prices appearing for a time to provide additional permanent resources. US sub-prime mortgage debt was used extensively to enable increased consumption, with demand in part driven by rising inequality and inadequate permanent income relative to consumption aspirations/needs. See Raghuram Rajan's FaultLines [Rajan2009]

[5] The extent to which increased credit supply to finance house purchase produces an increase in the price of existing houses (and of the underlying land) versus investment in new housing, is strongly influenced by the extent to which housing demand is locationally specific and by the available supply of new housing land or house development opportunities. These in turn reflect both population density and the severity of planning constraints.

fractional reserve banks, which can create new credit and money ab initio, and which introduce maturity transformation risks.[6]

2. As a result, a free market financial system can create harmful quantities of debt to finance consumption, the purchase of existing assets, or wasteful new investment. The risks created by different categories of harmful credit extension are moreover interrelated and mutually reinforcing. Thus (Exhibit 9)
    - Increases in the value of existing real assets (in particular real estate) can produce wealth effects, which may induce increases in consumption at the expense of savings, whether via reduced incremental savings out of income, and/or via "equity release" type borrowing against rising house values.
    - And increases in the price of existing real estate assets may induce new investment construction booms. In the US, Spain and Ireland, for instance, the pre-crisis real estate credit and asset price booms were accompanied by construction booms which resulted in wasteful investment[7].
3. When excessive credit creation leads to eventual crisis, a "debt overhang" effect depresses post crisis recovery.
    - This "debt overhang" effect results from falls in asset prices and resulting reductions in net worth, and from the asymmetry of response between net debtors and creditors. The former cut consumption or investment in an attempt to delever, but the latter feel no matching need or desire to increase consumption and investment, and may indeed themselves reduce consumption in the face of increased uncertainty about the value of their debt claims.
    - Gauti Eggertson and Paul Krugman have set out a formal theoretical analysis of this asymmetry and its consequences [Eggertson and

[6] A shadow banking system such as developed pre-crisis can also perform the functional equivalent of bank maturity transformation, and thus introduce similar risks.

[7] This was much less true in the UK, where, partly because of tight planning constraints, the housing credit and asset price boom was focused strongly on already existing assets

Krugman, 2012]. A forthcoming book by Atif Mian and Amir Sufi provides powerful empirical evidence of the importance of the debt overhang effect in the US household sector in the aftermath of the 2007-08 crisis [Mian and Sufi, 2014].

- The strength of debt overhang effects reflects the level of leverage in the economy, in aggregate or by sector. One of the most important reasons why recovery from the 2007-08 crisis has been so weak is that the big increases in real economy leverage which occurred over many decades have left us with a large debt overhang.

Thus while debt contracts play a useful role in an economy, they can also cause harm. Levine's analysis supports the conclusion that increasing leverage is positive for welfare and growth across some range (and thus that countries like India might benefit from increased aggregate real economy leverage), but not that the relationship is limitless and linear. The relationship is more likely to be an "inverse U" with the impact of increasing leverage positive up to some level but negative beyond: analysis by Steve Cecchetti and Enisse Kharroubi provides some tentative empirical support for this hypothesis. [Cecchetti and Kharroubi, 2012] [8]

Increasing intra- financial system complexity

Alongside rising real economy leverage, intra-financial intensity also increased dramatically in the pre-crisis period. For each unit of real economy lending or asset management, the financial system conducted more intra-financial system activities. Trading volumes in many markets – foreign-exchange, commodities and securities – increased far more rapidly than GDP. And whereas in the 1960s, the balance sheets of major banks were dominated by loans to and deposits from real economy households and businesses, by 2008 the balance sheets of many of the world's biggest commercial banks (e.g. Citibank, Barclays, Deutsche, UBS) were dominated by claims vis-a-vis one another or vis-a-vis other financial institutions such as hedge funds.

[8] This is consistent with the conclusions which also emerge from work by Alan Taylor, Moritz Schularick and Oscar Jordá. (See e.g. Taylor and Schularick 2009)

These changes reflected multiple interlocking developments [see Turner, 2013c], including:

- Securitisation which multiplied the number of intra-financial system contracts involved in credit intermediation
- The development of derivatives, which banks and other financial institutions could use to hedge risk, but also to place position taking bets
- Intense activity by asset managers, involving a complex nexus of securities lending and secured financing activities [FSB 2012], in an attempt to squeeze out additional return without additional apparent risk.

Ahead of the crisis, the predominant official sector assessment was that these developments were positive. They delivered more complete markets and greater market liquidity: as a result, they must, it was assumed, ensure improved "price discovery" and better capital allocation, and enable the distribution of risks and return combinations into the most appropriate hands. [See e.g. IMF, 2006]

But in retrospect it is unclear whether increasing complexity delivered any allocative efficiency benefits: and quite clear that it contributed to increased financial instability. That reflects the fact that financial market completion and increased market liquidity can produce harm as well as benefit, for reasons well explored in the economics literature:

- Since financial trading is not driven by fundamental differences in productive capacity and consumer preferences, but by differences in information availability and beliefs/expectations, the general presumption that additional trade will be beneficial does not apply in finance, and financial trading activity and information gathering can be "overproduced" relative to social optimality [Stiglitz, 2000; Stiglitz, 1989; Summers and Summers, 1990]
- Liquid trading markets may not always deliver prices in line with economic fundamentals [Shiller, 1981, 2000, 2003] and increased trading activity might under some circumstances increase harmful volatility [Stiglitz, 1989, Summers and Summers, 1990]
- Any financial innovation which helps complete markets, and which thus makes possible superior hedging, also makes it possible for firms to place potentially destabilising bets.

- And securitisation, by multiplying the number of steps in the intermediation chain, amid conditions of inherent information imperfections, increased the potential adverse impact of misaligned incentives. It increased the danger that credit originators and distributors would have limited interest in the underlying credit worthiness of the securities they sold. [Stiglitz, 2010; Bhide, 2013]

As a result, the explosion of intra-financial market intensity, far from delivering benefits, both facilitated the provision of harmful credit to the real economy, and increased the dangers of instability arising from the proliferation of gross contract values and contractual complexity.

Risks in the one economy world

Excessive debt creation – both in the real economy and within the financial system itself – can thus increase financial and macro-economic fragility. And all of the developments described in this section could in principle arise within a single closed economy. They are causes of instability somewhat independent of the international monetary and financial system.

But they also provide a framework for understanding why the particular pattern of international current-account imbalances and capital flows which developed pre-crisis contributed further to instability.

II.2 TOO MUCH OF THE WRONG SORT OF CAPITAL FLOW

The core driver of the 2007-2008 crisis was that the financial system created too much of the wrong sort of debt, both in the real economy and within the financial system. At the international level, we have created too much of the wrong sort of capital flow.

Section III.2 discusses the fundamental structural drivers of current-account imbalances, from which the net capital flows result. This section considers their consequences. It also considers the phenomenon of gross capital flows greatly in excess of net current account financing requirements.

Unsustainable net flows

Capital flows can play a valuable role in enabling countries with investment opportunities to fund investment in excess of domestic saving. Capital flows of this sort, and the current deficits they finance, can be beneficial even when sustained over many decades: the US was a major importer of capital for much of the 19th century.

Foreign direct investment can play a particularly valuable role, since it may bring with it technologies and expertise as well as finance. Portfolio equity investment represents a permanent funding of capital investment, its reward contingent on the success of the business projects. And while debt capital creates non-contingent fixed repayment and return requirements, if it funds successful rather than wasted investment, it creates future income streams with which to meet those debt servicing needs.

But the net capital flows which grew so rapidly in the pre-crisis decade were not predominantly of these types. They did not finance increased and sustainable investment in the receiving countries, but instead financed an interrelated mix of: (Exhibit 10)

- In almost all deficit countries, asset price booms in already existing housing and commercial real estate.
- In some countries, booms in the construction of new housing and commercial real estate, much of which was wasted: Spain and Ireland were prime examples.
- And within particular social groups, in particular low income people, consumption expenditure not clearly sustainable in the light of prospective permanent income prospects. Sub-prime mortgage lending in the US, for instance, often facilitated such unsustainable consumption.

As already discussed in Section II.1, the effects of these categories of lending are interrelated. And the international and domestic aspects are also mutually reinforcing: (Exhibit 11)

- If structural factors (as described in section III.2) drive continuous current-account surpluses in one country and deficits not matched by investment in others, an increase in debt financed consumption in the deficit country is the inevitable result.
- But the increase in domestic debt which eventually results can be far higher than the net capital flow, as bank and shadow banking systems in combination create yet

further credit and matching money (or money equivalent), and further increases in asset prices.

- And through the interactions shown on Exhibit 9, increased asset prices can drive increased consumption, which increases the current account deficit.

Thus the Spanish and Irish credit booms were in part financed by capital flows, direct or indirect, from banks and other entities in current-account surplus countries such as Germany. But to an even larger extent they were domestically financed by bank credit and money creation.

International and domestic factors can thus combine into what is effectively, as Hélène Rey has recently demonstrated, a global credit cycle [Rey, 2013].

Net debt capital flows can thus create harm by both facilitating and adding to excessive domestic debt creation, particularly when the debt finances consumption, unsustainable rises in the price of existing assets, or excessive and wasteful new physical investment.

And once financial crisis comes, the debt burdens created by net capital flows contribute to the "debt overhang" effect, exacerbating the potentially deflationary consequences of asymmetric reactions between net debtors and net creditors.

- In the debates about the design of the Bretton Woods system, Keynes and other economists worried about the possible deflationary bias created by the asymmetric reaction of countries to large current-account imbalances: once markets or policymakers became concerned that imbalances were unsustainable, deficit nations would feel compelled to reduce consumption or investment, but creditor nations would be under no equivalent pressure to stimulate. As Robert Skidelsky comments, the chief purpose of Keynes's International Currency Union proposal was "to secure creditor adjustment without renouncing debtor discipline" [Skidelsky, 2003].
- These potential problems of asymmetric adjustment between nations, and potential deflationary consequences, are however simply a subset of the wider problems created by net debtor/net creditor asymmetry which Eggertson and Krugman explore. But they are a particularly problematic subset, given that action to offset

asymmetries between nations may require internationally coordinated action (as discussed in Section III.2) rather than simply domestic policy initiatives.[9]

Destabilising gross flows

Net capital flows not matched by valuable long-term investment therefore played an important role in the origins of the financial crisis.

But a striking feature of modern capital flows is that their gross value is massively higher than their net value – capital does not simply flow to finance current-account deficits, it flows back and forth between advanced and developing countries, and among advanced economies, in massive quantities.

This might of course be socially useful and beneficial. Optimal investor portfolios in country A might require investments in country B, even while country B investors choose to invest in A. In an efficient global capital market, a continual search for optimal combinations of risk and return would in theory deliver improved price discovery and capital allocation. And that search will generate continual readjustment of portfolios and trading activity, and thus gross flows greatly in excess of the net flows which finance current-account deficits.

The possible benefits of large gross two way flows therefore derive from the theoretically possible beneficial impact of market completion and increased market liquidity. But as section II.1 described, there are strong reasons for doubting whether financial market completion and increased market liquidity always deliver the supposed benefits.

Even within a one economy system, market completion and increased liquidity can facilitate trading activity which at best absorbs additional resources to no net social benefit, and at worst generates instability. Gross two-way capital flows represent a subset of increasing intra-financial system intensity, and could have the same adverse economic effects. It is, for instance, unclear what positive economic benefit – at the social rather than the private levels – can possibly result from carry trade activities which seek to exploit interest rate differentials and expectations of future exchange-rate movements. But they can certainly cause harmful complications to effective domestic policy.

[9] Within an individual country, the deflationary impact of asymmetric debtor/creditor reactions to debt overhang can be offset by domestic fiscal or monetary policy stimulus (or in extreme circumstances by Overt Money Finance of fiscal deficits [Turner, 2013(a)]. Between countries simultaneous domestic action in both surplus and deficit countries is required for an optimal result.

Gross capital flows, like excessive trading in general, can thus in theory have harmful effects. Indeed international capital flows might be more likely to have harmful effects than flows within a single economy.

- Multiple currencies introduce exchange-rate risk, which, interacting with credit and market liquidity risk, can greatly increase the danger that equilibria will be multiple and fragile. And multiple governments introduce multiple political risks.
- Faced with higher perceived risks, market participants may react in ways which are individually rational but collectively destabilising. Investment analysis may tend to focus even more than in domestic markets on the anticipation of other investors' anticipations; or may be driven by broad asset categories ("BRICS", "fragile five", "emerging markets") rather than by more fundamental analysis.
- And a high premium may be placed on holding short-term liquid positions, which can be exited rapidly. But with the collective effect that when confidence breaks, the rush for the exit creates self- reinforcing price changes.

Bonanzas and sudden stops in credit supply are observed within domestic markets, and could exist even within a "one nation" global economy: but they may be inherently more likely and more disruptive when they operate at the international level.

As a result it is not surprising that empirical analysis has failed to find much or indeed any evidence that short-term capital flows deliver positive benefits. Hélène Rey's review of the literature leads her to conclude that "on both the empirical side and on the calibration side, it is hard to find robust support for large quantifiable benefits of international financial integration" [Rey, 2013]. An authoritative report by the Committee on the Global Financial System in 2009 [CGFS, 2009] reached the same conclusion: "despite the numerous cross-country attempts to analyse the effects of capital account liberalisation, there appears to be only limited evidence that supports the notion that liberalisation enhances growth". And it commented on the danger that "large swings, over a very short period of time, complicate the conduct of monetary policy and liquidity management in the Emerging Markets Economies".[10]

[10] One striking feature of the literature on the benefits (or not) of short-term capital flows is a strong tendency to hold out the possibility that further analysis might reveal benefits which have so far eluded discovery. Even authors highly sceptical

The evidence reviewed in the CGFS report and elsewhere indeed is strongly consistent with the proposition that the benefits of capital flows are closely related to their type and tenor. Recent analysis by McKinsey illustrates the very different volatility of different capital flows (Exhibits 12 and 13). Foreign direct investment is the least volatile and most beneficial because it results in incremental investment and often also in technology transfer. Equity portfolio investments, while liquid for the investors, at least represent a permanent commitment of funds to the issuing company. But short-term debt flows are more volatile, and short-term bank intermediated capital flows the most volatile of all.

The available empirical evidence does not suggest that these short-term debt capital flows deliver economic value.

Overall assessment: net and gross flows

Section II.1 argued that debt contracts (and resulting leverage) can be overproduced in the real economy: and that intra-financial system activity can generate additional risk without certain benefit. This could be true even within a single nation economy with one government and currency.

Capital flows represent a special case of this general argument, but a particularly important one:

- Net capital flows in debt form which finance real estate speculation or consumption rather than real sustainable investment can be severely harmful.
- And gross two-way flows – particularly in short-term bank credit form – can add additional volatility without benefit.

The most important required reforms of the international system are therefore those which address these risks.

III. REFORMING THE INTERNATIONAL MONETARY/FINANCIAL SYSTEM

of the benefits, often feel the need to stress the tentative nature of their results. Thus Hélène Rey states that "I do not claim that there are no benefits of international financial integration, only that they have been remarkably elusive so far given the scale of financial globalisation the world has undergone". This caution reflects the dominance within modern economics of the market completion paradigm, and of the presumption that market liberalisation ought to be beneficial.

Given the above analysis of the problem, what are the implications for the various reform proposals frequently discussed? I suggest four:

1. Improvements in international official liquidity provision, while potentially useful, are not fundamental.
2. The most important challenge is to overcome the primarily domestic determinants of large continuous current account imbalances.
3. Short-term debt capital flows should in some circumstances be constrained. Macro-prudential levers are likely to be the most effective. Policies focused on international bank legal and operational structures (e.g. the required subsidiarisation and ring fencing of local bank operations) could also play a useful role.
4. Reforms aimed directly at reducing the US $'s reserve currency role are not a priority

III.1 IMPROVED INTERNATIONAL OFFICIAL LIQUIDITY?

One often discussed reform of the international monetary system would be enhancements in the provision of official (i.e. IMF) liquidity facilities. Some enhancements were indeed made in the wake of the global financial crisis, with, for instance, the creation of the Flexible Credit Line facility in March 2009. Further enhancements might usefully improve the capacity of emerging economies to manage the consequences of capital flows and exchange-rate volatility.

But deficiencies in international official liquidity provision did not play a key role in the origins of the global financial crisis.[11]

The provision of appropriate international liquidity has always been a key IMF function. Initially under the Bretton Woods system, this was as an alternative to constrained private capital flows: subsequently, in a predominantly floating exchange rate regime, official

[11] "International liquidity," is a slippery and often ill-defined term. I use it here to refer to the ability of either private or public entities to command resources relevant to the financing of either current-account deficits or of capital flows. "Private international liquidity" enables private entities within a country to borrow money abroad, financing net current account deficits: a crucial issue is how volatile "private liquidity" is: whether it is continually available or vulnerable to sudden stops. "Public/official international liquidity" enables a government/central bank either directly to finance current-account deficits or (and more frequently these days) to offset sudden private capital outflows via, for instance, exchange-rate interventions. Public/official international liquidity can take the form of either already existing financial claims on the rest of the world (e.g. foreign-exchange reserves), or the right to borrow funds, either bilaterally or from the IMF.

international liquidity provided countries with a means of response to sudden stops and reversals in private capital flows. Without access to international liquidity, whether in the form of financial asset claims on the rest of the world (FX reserves) or in the form of a right to borrow from the rest of the world (bilaterally or from the IMF), economies would be more exposed to the danger that sudden reversals of private capital flows would result in domestic credit crunches and over -shooting exchange rate reactions.

The issue of the appropriate scale, conditionality and terms of IMF official liquidity provision is therefore crucial, and has been continually debated throughout IMF history. Greater quantity, easier interest rate terms, or less stringent conditionality, increases governments'/central banks' ability to offset harmful sudden reversals of private capital flows; but too easy conditionality might, it is feared, create the moral hazard of undisciplined domestic policy.[12] The debate is clearly an important one. And there may be good reasons for enhancing IMF official liquidity facilities, increasing the quantities available, and changing conditionality and interest terms.

But my aim today is not to consider all elements of optimal policy, but to focus on those aspects of the international monetary system which played a crucial role in the origins of the global financial crisis. Inadequate official liquidity facilities did not, I suggest, play more than a peripheral role.

The argument that they did goes as follows:

- If emerging economies cannot be certain of access to international liquidity when needed, of sufficient scale and on attractive enough conditions – then they will self-insure by running large current-account surpluses, building up foreign-exchange reserves.
- And the necessary counterpart to those reserves must be large debt financed deficits elsewhere, probably matched not by increased investment in deficit countries, but by increased consumption.

[12] The optimal policy is also of course complicated by the fact that if financial markets see the use of supposedly unconditional facilities as a sign of trouble, governments will not willingly use them, making the additional "liquidity" in a sense non-existent.

- Inadequate official international liquidity has thus played a crucial role in driving the "wrong sort of capital flows" which I argued in II.2 is the core problem we need to address.

Improvements in official international liquidity are therefore, the argument goes, essential to the reduction of harmful imbalances. To some indeed, this argument is so compelling that we should consider not just the provision of additional international liquidity in a traditional "right to borrow" form, but in the extreme form of outright IMF international money creation – effectively an international helicopter money drop.[13]

And there is clearly some power to this argument. One reason why some countries – particularly in emerging Asian – accumulated foreign exchange reserves in the decade from 1997 to 2007, was their experience of the Asian financial crash of 1997. Private capital flows went through the cycle from bonanza to sudden stop; official IMF liquidity was available only on onerous terms and conditions; countries have therefore accumulated FX reserves to give them unconditional access to international liquidity in any future crisis. And that accumulation has played a role in fostering the wrong sort of capital flows.

But the figures on Exhibit 1 suggest that this role has been minor: reserve accumulation for precautionary liquidity reasons has not been the major driver of current-account imbalances and resulting capital flows.

- Germany was not accumulating foreign exchange reserves; its current-account surpluses were matched at least in the years before the crisis by the accumulation of private sector international claims.[14]
- Japan has accumulated reserves, but as a means of preventing appreciation of the yen, not in order to build up precautionary reserves.

[13] The issue of whether the IMF should provide unconditional liquidity (i.e. a liability of the IMF which is an absolute asset of the country with the claim) or a conditional right to borrow (which once drawn becomes an asset of the IMF and a liability of the country, but with matching reserves created at the point of drawdown) was extensively discussed during the 1960s and 70s debates about the adequacy of international liquidity [James 1996, Crockett 1977]. The resolution of those debates was, in Andrew Crockett's words "a typically ingenious negotiating compromise". The difference between a right to borrow from the IMF and international fiat money is indeed not an absolute one but a spectrum defined by the conditionality of credit access, the tenor, and the interest rate terms. A right to borrow from the IMF which was entirely unconditional, with no repayment requirement and interest free, would be equivalent to an IMF creation of international fiat money, i.e. to an international helicopter money drop.

[14] What is true is that as the Eurozone crisis developed, German and other private sector claims against peripheral Eurozone countries were dramatically reduced and replaced by official claims, primarily in the form of ECB Target 2 balances.

- The oil exporters have not been accumulating FX reserve and sovereign wealth fund assets for precautionary liquidity reasons, but because windfall gains from high oil prices have swollen revenues above short-term consumption and investment absorption capacity.
- And, crucially, China's accumulation of reserves has gone far beyond the level likely to make sense for precautionary purposes, and is driven by different causes and motivations.

Only in the case of some of the non-China emerging markets did precautionary liquidity accumulation play a crucial role. The figures on Exhibit 1 therefore imply that only a small fraction of the current account imbalances and capital flows which played a role in the origins of the global financial crisis derived from precautionary reserve accumulation, and can thus be ascribed to the inadequacy of official international liquidity facilities.

It is therefore on the other drivers of current-account imbalances that we need to focus analytical and reform efforts.

III.2 FIX THE STRUCTURAL CAUSES OF GLOBAL CURRENT ACCOUNT IMBALANCES

In the 15 years before the crisis Chinese current-account surplus grew to close to 10% of its GDP, and the US ran large current-account deficits[15]. Within the Eurozone, Germany ran large surpluses, while the peripheral countries – Spain, Ireland, Portugal, Italy and Greece – ran increasingly large deficits. The capital flows which matched the surpluses and deficits primarily took a debt rather than equity form: and primarily financed consumption and wasteful real estate booms, not unsustainable investment. They played an important role in the origins of the global financial crisis. It is therefore crucial to understand the root causes.

As Michael Pettis argues in his recent book "The Great Rebalancing" [Pettis, 2013], good analysis requires that we reject the "inanity of moralising" and recognise the importance of accounting identities. Arguments about "who is to blame" – over prudent savers or over-indulgent borrowers – add little. And accounting identities define the essential analytical framework: countries run current-account surpluses if their national savings exceeds

[15] The growth in Chinese surpluses was however concentrated in the last five years, with Net Exports of Goods and Services growing from 2.5% of GDP in 2004 to 8.8% in 2009 [Lardy 2012). As Lardy argues, the really dramatic imbalance of the Chinese economy (at least in its external dimension) developed after 2003.

national investment: at the global level aggregate national surpluses must be matched by aggregate deficits: and in countries with deficits, national savings runs below investment.

Given these identities, the flow of causation could be either way. Structures and behaviours can produce an excess of S>I in surplus countries, and as a result make deficits in other countries inevitable. But structures and behaviours in deficit countries can also be autonomous drivers of the imbalance. In the real world indeed, causation can flow both ways and be mutually reinforcing: initial motive forces in either surplus or deficit countries can provoke reactions in the other country which further increase the size of the imbalance.

Pettis argues that the initial motive driver for the large pre-crisis imbalances lay primarily on the side of the surplus countries. In relation to China, I think he makes a reasonable case, but the importance of both autonomous and stimulated reactions within the US financial system and economy must also to be recognised. In relation to Germany and the peripheral countries of the Eurozone, I suggest that the balance of causation was the other way.[16]

China and the US [17]

In 2007 Wen Jiabao, then premier of China, described the Chinese economy as "unsteady, unbalanced, uncoordinated and unsustainable". Since then it has become still more so, as a result of the investment led and debt financed stimulus launched in early 2009. As experts such as Nicholas Lardy have argued [Lardy, 2012] the stimulus package was an effective short-term response to the dangers of significant economic slowdown after the global financial crisis. But it has further increased the challenge of moving China onto a more balanced growth model.

The essence of the imbalance is not so much towards exports versus domestic demand as towards investment rather than consumption. Household consumption has fallen from around 50% of GDP in the 1980s to 35% in 2008-2010: gross investment as a % of GDP was

[16] Conclusions on the balance of causation, however, carry no necessary implications for the policies required to escape from the debt overhang problems created by past imbalances.

[17] It is of course an oversimplification to treat the Chinese surplus as balanced by the US deficit and the German surpluses as matched by peripheral Eurozone deficits. Surpluses and deficits arrive at an equilibrium position due to the interaction of all countries multilaterally, and surpluses in one country will carry implications for all other countries even if the bilateral surplus/deficit between any given pair of countries is small or in a different direction to their positions vis-a-vis the rest of the world in aggregate. The comments on China and the US in this subsection, and on Germany and the peripheral Eurozone countries in the next, therefore have general implications and not just for the other side of the "pairs" on which debate focuses.

in the high 30s in the 1980s and 90s, reached the low 40s in 2004 to 2008, and has subsequently grown to almost 50% [Lardy 2011, Pettis 2013]. This skew towards investment reflects, Pettis argues, three factors: depression of real wages; "financial repression" which subsidises borrowers (primarily businesses) at the expense of depositors (primarily households); and an overvalued exchange rate, which penalises consumers and subsidises export orientated business. In addition, state-owned enterprises pay almost no dividends to their ultimate owner the state (and thus the Chinese people), but instead retain and invest almost all of their high profits.

The combined impact of these policies/behaviours is to depress consumption and increase savings and investment. In principle, such a bias could be neutral in its effects on the external balance – with higher savings fully matched by higher investment. But in fact there has been a tendency, varying over time and perhaps driven essentially by the overvalued exchange rate, for the increase in savings to outweigh the increase in investment, producing large current account surpluses. Foreign-exchange intervention and capital controls mean moreover, that the resulting net capital outflow primarily takes the form not of Chinese private ownership of equities or physical assets overseas, but of state foreign exchange reserves invested in foreign government and agency debt securities, above all in the US.

Described in these terms, the Chinese surplus and US deficit seem to derive essentially from a Chinese "savings glut". And increasing Chinese current-account surpluses and purchases of US securities almost certainly did contribute, as Ben Bernanke argued, to a fall in long-term global interest rates. That in turn both facilitated credit creation and stimulated a search for yield which made investors highly susceptible to claims that financial innovation had managed to create superior combinations of risk and return. To a degree therefore, Chinese surpluses helped stimulate credit growth in the US.

But it is important also to recognise developments in the US which were either wholly autonomous, or which responded strongly and in a magnifying fashion to the initial stimulus. US private sector leverage was on a strong upward path well before the emergence of the large Chinese current-account surpluses, and was driven in part by financial deregulation and by innovations (such as securitisation and derivatives) which began in the 1980s. And as Raghuram Rajan argues compellingly in Fault Lines [Rajan, 2009], rising inequality made low income Americans particularly susceptible to the apparent

promise that mortgage borrowing would enable them to participate in ever rising house price appreciation: and "let them eat credit" was a politically acceptable response to inequality within a political system incapable of agreeing on more fundamental offsetting action.

Surplus and deficit country characteristics, and international imbalances and domestic factors, thus inter –relate and reinforce one another.

Germany and peripheral Eurozone

Similarly within the Eurozone, it is possible to argue, as Pettis does, that the emergence of German surpluses reflected in part deliberate German domestic policy put in place 1990s – in particular employer and trade union agreements to constrain wages in order to improve competitiveness. This, Pettis suggests, opened a wedge between German and peripheral Eurozone labour costs.

But at least as large a role, indeed I would argue a larger one, should be ascribed to domestic financial developments in countries such as Spain and Ireland, with large current account deficits emerging as the equilibrium result.

- Increasing economic confidence after years of good growth generated expectations of rising incomes and house prices.
- Bank lending supply and household (and corporate) lending demand combined to fuel a credit and asset price boom which was to some extent financed by borrowing from abroad, but primarily by domestic credit and money creation.
- That in turn both increased existing house and commercial real estate and land prices, and stimulated real estate construction booms.
- The construction boom led to rising real wages which left traded sectors of the economies uncompetitive with Germany. Rising asset prices drove wealth effects and increased consumption. The combination made large current account deficits the equilibrium result.
- And the fact that the private sectors in surplus countries such as Germany were willing to finance these deficits facilitated yet further credit creation, asset price increases, and unsustainable investment.

Again international imbalances and domestic factors combined and interrelated, but with the balance of importance lying in this case, I would argue, with private credit creation in the deficit countries.

Implications for policy

Structural factors in both surplus and deficit countries have thus interacted to produce large current-account imbalances and net capital flows financing consumption and real estate speculation rather than sustainable investment. The residue is a debt overhang and a severe deflationary bias resulting from the asymmetry of response between net creditors and debtors.

That debt overhang carries implications for the policies needed to get out of the mess created by past imbalances, but I will not comment on those policies today[18]. Instead my focus, in keeping with the theme of this conference, is whether and how we can limit the future emergence of large sustained current-account imbalances matched by unsustainable debt capital flows.

The actions required in principle to achieve this are reasonably clear: the challenge is that they do not entail technical adjustments to things such as IMF liquidity facilities, but the implementation of wide-ranging reforms within major national economies.

- China needs to achieve its stated intention to transition to a more balanced and less investment led economy. That is a priority for China, and vitally important for the rest of the world. But the political and economic challenges involved in that transition are huge.
- And advanced economies need to implement financial reforms which guard against excessive debt creation both in the real economy and against excessive intra-financial system complexity and fragility. Those reforms need to go significantly beyond those agreed so far.

Without such actions unsustainable global current-account imbalances and capital flows are likely again in future to contribute to global financial instability and crisis.

[18] *Debt, Money and Mephistopheles* [Turner, 2013(a)] considers the resulting challenges.

III.3 REDUCING CAPITAL FLOW RISKS VIA MACRO- PRUDENTIAL POLICIES AND BANK SUBSIDIARISATION

Section III.2 considered the underlying causes of unsustainable current-account imbalances and thus net capital flows. But as discussed earlier, problems are also created by unstable gross capital flows. Countries running sustained current-account surpluses, for instance, can nevertheless experience large short-term capital inflows followed by sudden stops and reversals. And gross capital flows of this sort can interact with local credit markets to create destabilising booms and busts in domestic credit supply and asset prices. The most appropriate policy responses are those which operate at the interface between the global and domestic credit cycles.

Global credit cycle and policy dilemma

Hélène Rey's recent paper [Rey, 2013] describes how large gross capital flows can produce a global credit cycle out of sync with a country's specific macroeconomic conditions and needs. Gross global credit flows are strongly correlated with global measures of risk aversion and uncertainty, such as the VIX index[19], and high gross credit inflows have a strong influence on local asset markets.

The implication which Rey spells out is that the famous "trilemma" of national monetary independence – that one cannot have fixed exchange rates, and free capital flows, and an independent monetary policy – is actually a dilemma. Even with floating exchange rates there can be a choice between free capital flows and the policies most appropriate for domestic macroeconomic conditions. As Rey concludes: "whenever capital is freely mobile, the global financial cycle constrains national monetary policies regardless of the exchange-rate regime".

This dilemma has been thrown into sharp relief by the period of unconventional monetary policies and by anticipation of exit from them. Ultra-low policy interest rates and QE operations have created strong incentives for carry- trade capital flows unrelated to real economy investment projects or needs: and even rumours of exit or tapering caused considerable market stress in some emerging markets in summer 2013.

[19] These correlations are much weaker in relation to net capital flows.

But the dilemma which Rey highlights is more general. Unstable short-term capital flows played a major role in the origins of the 1997 Asian financial crisis despite advanced economy interest rates which at that time were at "normal" levels. Carry trades can be driven by expectations of exchange-rate appreciation even when interest rate differentials are much smaller than in today's exceptional circumstances. And a search for yield through direct or indirect participation in domestic asset price booms could drive short term capital inflows, even if interest rate differentials and exchange rate expectations were not favourable to simpler carry trades.

Capital constraints, taxation and macro-prudential policies

The question is therefore whether and in what way policymakers can and should constrain capital flows and in particular the most harmful varieties – short-term capital flows, especially but not solely those intermediated by banks.

One possibility is to use capital control or taxation instruments, for instance placing tax or quantitative controls on short-term inflows.[20] There are issues about the effective enforceability of such policies in a world of free current account exchange and multiple arbitrage opportunities. But there is a strong case for them in principle, and, as Rey argues, they should not be excluded from the policy toolkit.

But there are still stronger arguments for imposing macro prudential constraints which seek simultaneously to constrain capital account credit inflows and the domestic credit creation cycle. If the fundamental problems arise from the combination and interaction between capital flows and domestic credit creation, policy should focus on this nexus. As Rey puts it, since "it is really excessive credit growth that is the main issue of concern, capital controls should be viewed more as partial substitutes with macro-prudential tools. The latter tend to be more targeted".

Macro-prudential tools can and should include counter cyclical bank capital and liquidity requirements and tight supervisory constraints on exchange-rate mismatches. But there is

[20] The consensus that constraints which focus on outflows, and particularly if imposed in response to an already emerging sudden stop or reversal are almost certainly ineffective, is well founded.

clearly a risk, in a world of free global capital flows, that such constraints can be undermined by borrowing from abroad either via capital markets or from international banks.[21]

Macro-prudential tools focused on domestic bank lenders may therefore need to be complemented by direct constraints on borrowers, particularly in real estate markets, for instance via maximum loan to value or loan to income limits. Their limitations may also, as Rey argues, make some category of capital control or taxation instrument essential in some circumstances.

Subsidiarisation and ring-fencing

I would like, however, to propose one additional possible policy instrument, which would focus on the legal structure and the prudential supervision of global banks operating in multiple countries. This would require major foreign banks which have significant domestic credit exposures to operate as subsidiaries not as branches, and would impose supervisory requirements to reduce their reliance on short-term funding from abroad, whether from their own parent or from other parts of the banking system.

Such subsidiarisation is imposed by some authorities today, and may play an important role within the policies required to ensure that major banking groups can be smoothly resolved. But attention has not often focused on the role that such subsidiarisation might play in changing the stability of cross-border bank capital flows.

Such requirements would not limit useful capital flows: global banking groups would be free to make equity investments in subsidiary bank operations, bringing the benefits of technology and expertise transfer which can accompany foreign direct investment in banking as such as in other industries. Nor would they limit the ability of the banking group to fund local subsidiary expansion via medium term debt issues, whether subscribed by the bank holding group or by the global capital markets. But it would place some limits on the ability of banks operating as branches to fund rapid credit expansion out of globally flexible

[21] The Basel III rules on the counter cyclical capital requirement, do include a "reciprocity" device, which will require foreign banks to face incremental capital requirements on lending into an economy where the domestic macro prudential authorities have imposed such requirements on local banks. The extent of this required action is however limited to a capital surcharge of 2.5%: this may well prove insufficient.

liquidity pools, contributing to bonanzas of credit expansion often followed by sudden stops[22].

The merits of balkanisation

Talk of such policies, as indeed of quantity or taxation based capital controls, is often met by objections that this will lead to a dangerous "balkanisation of the global capital market", preventing the free flow of capital and thus stymieing its allocative efficiency benefits. And such arguments have often carried considerable weight with global policymakers: the presumption that global financial integration delivers value, including in the form of short-term capital flows, is strongly embedded.

But if as Rey and many previous investigations have found, the evidence for the benefits of financial integration is at best "elusive" and "ambiguous", some "balkanisation" of short-term international debt markets could be a good thing. Policy should not be driven by an axiomatic confidence that market completion and market liquidity will by definition deliver value, but by the empirical reality that short-term global capital flows, particularly in debt form, can increase the dangers of financial instability.

Policy actions focused on the interface between the international and domestic aspects of the globally correlated credit cycle are therefore a high priority.

III.4 REMOVING THE $'s EXORBITANT PRIVILEGE?

How does the US $'s reserve currency status fit into this picture? It is widely believed that it plays a pivotal role, granting to the US the "exorbitant privilege" of borrowing from the rest of the world in its own currency, and as a result facilitating the US credit boom which led to crisis and post-crisis debt overhang.

Proposals are often therefore put forward for a co-ordinated move away from reliance on the dollar as the dominant global reserve currency. In a and important essay published on

[22] There is anecdotal evidence that in the global credit crunch of 2008, emerging market domestic credit provided by international banks operating as branches was much more volatile than that provided by global bank subsidiaries. Some international banks operating as branches in several emerging markets cut lines suddenly in response to global funding pressures: credit supply from local incorporated subsidiaries proved significantly more resilient. The prevalence and importance of this effect merits further detailed analysis by the BIS.

the central bank's website, Zhou Xaiochuan, Governor of the People's Bank of China, suggested that "the outbreak of the current crisis and its spillover in the world have confronted us with a long existing but still unanswered question, i.e., what kind of international reserve currency do we need to secure global financial stability and facilitate world economic growth, which was one of the purposes for establishing the IMF?"

But I would like to conclude by arguing that the dollar's role as a reserve currency, while certainly contributing to the emergence of destabilising balances, is not central: that attempts to eliminate the reserve currency role without addressing other fundamental drivers of imbalance will be ineffective: and that the shift away from a dollar centric system will likely occur as the by-product of other developments, not as something which can be consciously managed.

Reserve currencies in a floating rate world

In principle a world of floating exchange rates and of free trade and capital flows does not need a "reserve currency"[23]. If all exchange rates floated entirely free, with no central bank intervention, there would be no need for government/central banks to hold foreign exchange reserves. And in a world of cheap and effective computing power, there would appear to be no absolute need for one currency to dominate in the pricing of international trade in goods and services. Thus for instance, there could in principle be oil prices quoted in dollar, euro and yen: the currency denomination of spot sales and purchases would be of no economic consequence; and counterparties could choose to denominate forward contracts in whichever currency they preferred.

But in practice a set of naturally arising and mutually reinforcing factors has resulted in a dominant role for the US dollar both as an international store of value, and as an international unit of account and means of exchange[24] [25]. These factors include:

[23] The point is well made in Crockett 1977, still 37 years later an extremely valuable summary of key arguments and concepts.

[24] I use the phrase "has resulted in a dominant role for the US dollar" but it might be more accurate to say "has maintained a dominant role". For in part the US dollar's reserve currency status in the post Bretton Woods floating rate world is simply a path dependent continuation of its more obviously necessary role within the pre-1971 Bretton Woods system. Within that system the US dollar link to gold, served as the reserve currency anchor of fixed exchange-rate regimes. Partly as a result it developed dominant roles within global financial markets and global trade. Those dominant roles therefore already existed at the onset of the global floating exchange rate regime.

- Many countries, in particular emerging economies, hold foreign-exchange reserves for the reasons described in Section III.1, to provide resources with which to manage the consequences of volatile capital flows and of potential irrational exchange rates overshoots. In principle they could hold those reserves as claims in several currencies and against counterparties in different countries. In practice because of the other factors at work, they have a tendency to hold them in US dollars.
- To the extent that people and businesses still make payments in paper currency (rather than bank account form), their ability to do so is enhanced if their potential counterparties also hold, or are willing to receive, the same currency. $500 billion of US currency bills circulate outside the USA.
- World trade is facilitated and business risks reduced by denominating many contracts in the same currency, and because the US is the world's largest economy, international practice for many traded commodities, goods and services has gravitated towards US dollar pricing. Companies active in global trade therefore hold some operational balances in US dollars, and may in addition hold dollar liquid assets even when these are in excess of pure operational needs.
- Private investors value liquidity, and the US financial markets are the most liquid in the world. Their asset preference is therefore more skewed towards US dollar holdings than would otherwise be the case; and as a result $ markets become yet more liquid.
- In turn therefore official holders of foreign reserves also have a preference to hold a significant part of their reserves in dollar securities.
- And so on round in iterative loops in which cause and subsequent effect, chicken and egg, cannot be precisely distinguished.

Together these factors imply an equilibrium result in which the rest of the world will tend to hold significant gross claims against a reserve currency, at present the US $, in a relatively liquid form. That claim could in principle reflect either

[25] The introduction to Barry Eichengreen's book "Exorbitant Privilege" [Eichengreen, 2011] provides a good account of the real world complexities and transaction costs which produce divergence from the theoretical possible costless and frictionless world in which no reserve currency would be required.

(i) A net US liability to the rest of the world reflecting the accumulation of past current-account deficits; or

(ii) a gross claim offset by US claims, for instance in foreign direct investment, equity portfolio or long term debt form, against the rest of the world.[2627]

The self-reinforcing dynamic

The factors described above mean that other countries will tend to accumulate stocks of claims held against the reserve currency nation and in its currency. However they do not imply that a current-account deficit will necessarily result (the effect can be all in form (ii)) nor do they imply that any current-account deficit will necessarily be large and continuously growing: once a target stock of reserves has been accumulated, those reserves need only grow in line with global GDP or trade, potentially implying only a small equilibrium deficit in the reserve currency country.

But once a currency has achieved dominant reserve currency status, a dynamic may develop in which result (i) is likely to dominate, with the reserve currency country running large and continuous current-account deficits, and accumulating net liabilities to the rest of the world much larger than those strictly necessary to the operation of a single reserve currency system.[28] Thus:

- If the rest of the world has a strong preference to hold US dollar assets, that will tend to have three effects versus the counterfactual in which no such preference pertains. The superior liquidity of US and/or US dollar markets will tend to be reinforced: US dollar interest rates will tend to be slightly lower than for securities of

[26] Thus for instance when the US dollar first emerged as a significant reserve currency in the 1920s, foreign accumulations of monetary claims against the US did not arise from US current-account deficits, but from US long-term capital exports, in particular in the form of long-term loans. Similarly in the 1950s, foreign accumulations of monetary claims against the US derived to a significant extent from large US capital exports, including in foreign direct investment form [James 1996, Eichengreen, 2011]. Only in the 1960s did large US current account deficits emerge.

[27] In either form, however, the reserve currency nation might appear to enjoy an exorbitant privilege. Indeed when Valerie Giscard D'Estaing first referred to "exorbitant privilege" in the 1960s, French concerns were as much focused on the US ability to buy companies and assets in Europe funded (indirectly) by European holdings of US monetary liabilities, as by the US's ability to fund current account deficits.

[28] Thus while the famous Triffin dilemma /paradox is usually described in terms of the necessity for the reserve currency nation to run large current deficits, in order that other countries might hold reserves, the scale of those deficits (in the 1960s as today) can be seen as in part an unnecessary and unwelcome consequence of reserve currency status. Triffin's insight that such large deficits would eventually create instability in a fixed exchange rate world, however, holds independent of whether we consider the deficits as necessity or consequence. In a system underpinned by the convertibility of $ into gold, the continual accumulation of monetary/short term claims against the US $/US was bound to undermine its sustainability.

equivalent risk denominated in other currencies; and the dollar exchange rate will tend to be somewhat higher.

- These effects will in turn facilitate relatively low priced credit creation within the US economy[29]. And easy credit, if used to finance consumption will, when combined with a higher exchange rate, produce/be reflected in a larger current-account deficit.
- A deficit which however , unlike in the case of non-reserve currency countries, is unlikely (at least for a long time) to provoke a move out of US dollars securities, given the underlying and self-reinforcing desire to hold such securities.

As a result, reserve currency status can indeed deliver the "exorbitant privilege" of being able to run larger debt financed current-account deficits for longer than other countries would allowed : though whether, given the subsequent debt overhang problem, this is an exorbitant privilege or burden is, as Michael Pettis suggests, a moot point [Pettis, 2013]

It therefore follows that the reserve currency status of the US dollar played a role in the emergence of the global imbalances which contributed to crisis.

But action against the $ privilege not an essential priority

Despite that contributory role, however, I want to end by arguing that attempts to reduce the US dollar's s reserve currency role through actions of the sort that Governor Zhou proposed are not essential, are less important than other measures, and cannot be successful unless those other measures are first implemented.

- They are <u>not essential</u> because the US dollar's reserve currency status does not require the scale of imbalances that arose in the decade before the crisis. The argument is essentially the same as that made in relation to international official liquidity facilities in section III.1 above. A small part of reserve accumulation and of the resulting US deficit reflects deliberate precautionary accumulation of holdings of the world's dominant reserve currency: but the far greater part reflects the over investment bias within the Chinese economy, and the over consumption bias within

[29] In fact, to be precise, a high demand to hold US dollar assets will facilitate credit creation in US dollars, which in a world of free capital markets, might be extended to counterparties outside the US as well as within. Even in such a world however a significant proportion of likely demand for US dollar credit derives from US counterparties: as a result credit extension within the US is stimulated.

the US, which could both be addressed by domestic policy measures in each country, even in a world which still used the US dollar as the major reserve currency[30].

- They are therefore less important than the measures to address the fundamental causes of imbalance discussed in section III.2
- And they cannot be successful unless actions to address the fundamental causes are implemented. The argument is well made by Michael Pettis. If government/central banks or private investors, which currently accumulate large quantities of US dollars securities, wish to diversify the currency of those holdings, they could freely do so today, and the technical device of a basket currency such as the SDR[31] does not increase their freedom of manoeuvre. But if China runs a large current-account surplus as the by-product of an over-investment focused economy: and if the US allows its financial system to facilitate excessive credit creation, then either (i) China will continue to be a massive holder of US dollars securities, or (ii) any action it takes to diversify the currency of its holdings will have to be matched by other governments/central banks or private sector investors increasing their dollar holdings and reducing their other currency holdings by a precisely offsetting amount.

Technical reforms to the international reserve asset arrangements, cannot therefore be substitutes for addressing the more fundamental drivers of large current-account imbalances and resulting capital flows. And if those actions were taken, many of the problems currently ascribed to the US dollar's reserve currency role would greatly diminish.

SUMMARY

My aim today has been to consider how the nature of the international monetary system contributed to the global financial crisis, and the relationship between domestic and international financial instability. My essential argument is that:

[30] A similar point may be true looking at the debates of the 1960s. Discussions of the need for additional official liquidity focussed on the fact that without sufficient liquidity, countries which might need reserves to cope with future possible payments deficits, had first to run surpluses, offset by reserve country (i.e., US) deficits. The Triffin dilemma suggested that the large US deficits were the inevitable consequence of the "need for reserves". But from the early 1960s onwards, the accumulation of reserves was increasingly dominated by Germany and Japan, and the predominant driver of those accumulations were a combination of domestic factors and the desire to prevent exchange rate appreciation/revaluation. In the 1960s as today, only a relatively small proportion of US current account deficits and matching reserve accumulation seems likely to have been by precautionary liquidity motivations.

- The fundamental cause of the global financial crisis lay in the growth of real economy leverage unrelated to new capital investment, and the rising intensity and complexity of intra-financial system debt claims. We have too much of the wrong sort of debt.
- The most important international factors are a subset, but a particularly important subset, of those rising net and gross debt claims. Large current imbalances and net capital flows in debt form unrelated to capital investment in the receiving country are a major cause of instability. And large two-way gross capital flows exacerbate the dangers. We have too much of the wrong type of capital flow.

The most important policy measures required, are therefore focussed on the primarily domestic drivers of large current-account imbalances, and on the interface between gross capital flows and domestic credit cycles. The challenge is that agreeing and implementing such policies may be considerably more difficult than negotiating technical changes in IMF liquidity facilities.