Global Imbalances, Currency Wars, and U.S. Monetary Hegemony

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September 2016

This paper is prepared for PARCC conference “Transforming Intractable Conflicts: Restructuring and Reframing”, September 22-24, 2016, Syracuse University. Please do not quote without author’s permission.

¹ I would like to thank Yizhan Huang for outstanding research assistance.
Six years into the recovery from the Great Recession its underlying causes remain contentious. One candidate for core contributor has been less prominently featured in the popular press - global financial imbalances between chronic current account surplus and deficit countries. Moreover, macroeconomists have ascribed the recent crisis besetting the European Monetary Union (EMU) to similarly outsized imbalances between surplus countries like Germany, Finland and the Netherlands, on the one hand, and deficit countries such as Spain, Portugal and Greece, on the other (Pettis, 2013; Wolf, 2014; King, 2016).

Seeking the fundamental cause for the Great Recession, and for the subsequent EMU crisis, in intercountry trade and financial imbalances is understandable. Large external imbalances among key countries and regions have persisted since the late-1990’s – for the Eurozone since the 2000’s – widening in the run-up to the crisis. Yet, correlation is not causation and the argument linking the financial crisis to trade (financial) imbalances is hardly air-tight. Nor is it self-evident that the Achilles heel of the international monetary and financial system then and now lies in net capital flows and the asymmetry of macroeconomic adjustment between surplus and deficit countries, respectively. For example, a distinct challenge to the international monetary system lies in its (in)ability to cope with the explosion of gross foreign assets and liabilities. Does the global financial crisis owe more to the heightened pace of financial globalization writ large, rather than intercountry imbalances more specifically?

This paper argues that the central conflict that galvanizes the international community over today’s global monetary and financial architecture combines these twin developments – the persistence of large net directional cross-border flows and the accumulation of large gross external financial claims. Of particular concern is how these features intersect with reference to the world’s leading economy. The centrality of the United States’ public-cum-private financial sector has been a feature of the global system since the end of World War II. It assumed new shape with the collapse of the Bretton Woods system beginning in 1971 and proceeding all the way up to the Great Recession. The causes and aftermath of the Great Recession moreover place US monetary and financial dominance in fresh perspective. In essence, conflict over the contours of the international monetary and financial system (IMFS) overwhelmingly centers on the special structural position occupied by the United States.

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2 While this may seem remarkable and equally disconcerting, it appears less surprising in light of the debates that still exist over the origins of the Great Depression of the 1930’s.

3 The current account of the balance of payments is the broadest measure of a country’s trade balance, its exports less imports of goods and services. It includes net investment income earned (paid) on its external assets (liabilities) and remittances. It represents the difference between what the country currently spends and earns on its international economic transactions.

4 Net international capital flows are defined as gross capital outflows less gross capital inflows. An emphasis on gross flows per se shifts the focus to the overall size and composition of both outflows and inflows.
This centrality incorporates several distinct roles: First, the US is the main provider of globally perceived “safe” financial assets. Second, the US dollar remains the overwhelmingly dominant currency for every dimension or function of international money. Third, the US Federal Reserve is the leading provider of global liquidity and hence the key determinant of monetary conditions around the world. Fourth, the US enjoys singular veto power within the International Monetary Fund. Finally, the United States remains the largest current account deficit country and the global economy’s largest net debtor.

A well-functioning set of monetary arrangements should ensure a provision of money (monies) that provides a stable unit of account, means of payment and store of value. Financial globalization together with the shift in the locus of global economic power over recent decades has vastly complicated the backdrop. Many countries – both advanced and emerging – appear united in the belief that the US plays too large a role in monetary affairs and that the international monetary and financial system is excessively US dollar-centric. Such critics believe that US dominance renders the IMFS inherently unstable and unfair. Thus, this paper asks whether U.S.-centered conflicts over the practices and institutions underpinning the global monetary and financial system are bridgeable or intractable.

The rest of the paper is organized as follows: In section I we review the reasoning that ascribes principal blame for the Great Recession to global imbalances. It likewise considers the prospects that global imbalances can unwind in a ‘disorderly’ manner sometime in the future. This multi-dimensional issue encompasses disputes over alternative monetary-cum-exchange rate policy stances that have sparked mutual charges of beggar-thy-neighbor “currency manipulation” and “currency wars.” It also concerns a structural shift in the direction of global capital flows that appears to undermine theoretical orthodoxy over the geographical pattern of current account imbalances. The focus of our discussion throughout remains on U.S. external deficits and their structural role within the global monetary order.

Section II shifts the discussion from net to gross capital flows. The focus remains on the U.S. but from an alternative perspective: We assess the (de)stabilizing role of the United States in its role as “monetary superpower” (Beckworth and Crowe, 2016). Here the arena of potential conflict involves the U.S. Federal Reserve and US Treasury versus the rest of the world. In particular, the following themes are considered: Which better describes the international financial role of the U.S. – ‘exorbitant privilege’ or ‘exorbitant duty’? Is an international monetary system anchored by a single national fiat currency and a single national menu of financial assets inherently unstable? (Zhou, 2009) If so, what are the feasible alternatives to a U.S.-dominated monetary order?

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5 These include assets generated by US fiscal deficits – notably Treasuries – but also non-Treasury public paper, and certain categories of private-label assets including mortgage-backed securities and corporate debt.
The concluding section III considers the grounds for reconciling the (U.S. centered) conflicts discussed in the paper. A central observation is that these disputes often mirror competing perspectives among reputable macroeconomists. In effect, the macroeconomics profession may not constitute a sufficiently unified epistemic community to persuade the international community to adopt a set of Pareto-improving changes to the global monetary architecture (see e.g. Eichengreen, 2011). Given the complexity of the issues involved, the paper refrains from suggesting specific reforms to the prevailing international monetary regime. Its more modest goal is to isolate key conceptual conundrums that bear consideration in evolving toward a more stable and less conflictual set of monetary arrangements.

I. Global Imbalances and Currency Wars

From an accounting perspective, current account deficit countries have to “borrow from abroad,”\(^\text{6}\) to finance an excess of national expenditure over national output, or equivalently a surfeit of domestic investment over national savings.\(^\text{7}\) By attracting the requisite foreign capital, in principle current account deficits can be sustained indefinitely. In practice, chronic deficits render them vulnerable to “sudden stops,” a precipitous cessation of capital inflows and ensuing balance of payments crisis.\(^\text{8}\)

According to standard accounts, impeding a less costly (less crisis-driven) resolution of current account imbalances has been a longstanding, structural asymmetry underpinning the global monetary architecture. This asymmetry consists in a burden of macroeconomic adjustment that falls disproportionately on deficit countries. Under the norms currently governing the international monetary system, surplus countries – including those pursuing mercantilist trade strategies – lack the effective incentive (penalty) structure to share commensurately in the adjustment process.\(^\text{9}\) Yet, barring an increase in national expenditures and associated acceleration in the importation of goods and services in surplus countries,

\(^{6}\) This commonly used phrase is actually a misnomer. The counterpart of current account imbalances involves equity as well as debt capital flows, with only the latter, strictly speaking, representing “borrowing.”

\(^{7}\) That the current account balance for any country is, by definition, equal to the difference between national output and expenditure and simultaneously national savings less investment is a national income accounting truism. For a detailed explanation and derivation see for example, Feenstra and Taylor, 2014.

\(^{8}\) During the Great Recession, capital flows to the largest current account deficit country (the United States) and certain other advanced current account deficit countries (e.g. within the European Monetary Union) arguably also propelled the build-up of leverage that ultimately brought the global economy to its knees. Still, macroeconomists remain divided over the primary driver for the Great Recession, with some favoring monetary policy mismanagement over global imbalances and other principal explanations. For more see discussion below.

\(^{9}\) Globally the sum of current account deficits must be counter-balanced by an equivalent sum of current account surpluses. Countries can maintain their rate of “borrowing” only if other countries maintain their rate of “lending.”
deficit countries must choose between higher unemployment and still greater foreign indebtedness.\textsuperscript{10} This imposes a decidedly deflationary bias to the global economy.

As with the Eurozone periphery countries and the many developing and advanced countries that have faced prior balance of payments pressures, standard macroeconomic adjustment programs tend to require significant “austerity” measures intended to restore internal and external balance. While designed to reverse overspending and contain foreign debt accumulation, creditor country reluctance to work towards lowering their surpluses can impose still more stringent requirements on deficit countries. In contrast, a concerted effort by surplus countries to revalue would in principle help to maintain adequate demand for deficit country goods and services as the latter restrain domestic spending.\textsuperscript{11}

At issue, therefore, is the purportedly central conflict between current account deficit (borrowing) and current account surplus (lending) countries over the distribution of macroeconomic adjustment required to restore global external balance and hence more balanced economic growth. The prevailing rules of the game appear to favor surplus countries to the decided detriment of deficit countries. But our focus here is more targeted: As a chronic current account deficit country, yet economic superpower, is the United States qualitatively different?

At the Bretton Woods conference in 1944, economist John Maynard Keynes, was acutely aware of the global imbalance challenge. He was equally concerned about erecting a system that was overly US-centric. Yet, his efforts to promote a set of international monetary arrangements in which surplus countries could not avoid a commensurate role in global macroeconomic adjustment, lost out amidst the superior clout enjoyed by the largest surplus country at the time, the United States.\textsuperscript{12} The one major advantage (among even greater disadvantages) of the pre-war gold standard was that it had provided, at least in principle, an automatic adjustment mechanism that systematically eliminated intercountry imbalances.\textsuperscript{13} Such a mechanism proved absent with the gold exchange standard (where the US dollar was fixed to gold), a factor that was integral to the demise of the Bretton Woods system beginning in 1971.

\textsuperscript{10} Employment in surplus countries is buttressed by external demand while deficit countries are forced to rely exclusively on domestic demand (and international borrowing).

\textsuperscript{11} In addition to the reluctance to lower current account surpluses is the reluctance to entertain the prospect of debt forgiveness. Of course, additional resources provided by multilateral (and official bilateral) sources would further smooth the deficit country adjustment process.

\textsuperscript{12} It appears ironic that the leading deficit country today sought to erect an international monetary arrangement at Bretton Woods in which it (and by extension other countries) could avoid effective external pressure to adjust its macroeconomic policies as a surplus country at the time. For an excellent review of the negotiations over a new monetary architecture at Bretton Woods, New Hampshire, including Keynes’ views on a clearing union that would tax outsized current account surpluses as well as deficits see Steil, 2014.

\textsuperscript{13} The operative phrase here is “in principle” because in practice, real income reductions often trumped relative price adjustments (see e.g. Kregel, 2010).
In the event, global imbalances have resurfaced during various periods since 1971, with the most recent proliferation occurring in the 2000’s (see figure 1). Dominating the deficit side of the ledger has been the United States, whose current account deficit peaked at 5.8 percent of national GDP and 1.6 percent of world GDP in 2006. 14 That the US was not alone among deficit countries is clear from table 1. While English-speaking countries, such as Australia, the UK, and New Zealand, all ran up large deficits as a share of their respective gross domestic products, in absolute dollars such national deficits paled against that of the U.S. In 2006 alone, the year preceding the Great Recession, the U.S. deficit exceeded $800 billion. 15 Comprising the principal group of surplus countries, meanwhile, was a more wide-ranging group including net energy exporters, a group of advanced countries dominated by Germany and Japan, and a third group of emerging economies concentrated in East Asia with China in the vanguard (see again figure 1).

[Figure 1 about here]

[Table 1 about here]

The rise of emerging economies to current account surplus status, in particular, appeared to confound economic orthodoxy. A staple presumption had been that emerging economies should be expected to run (moderate) current account deficits. As comparatively capital poor countries, the latter were thought to offer a higher marginal productivity of capital, hence be the logical recipients of net capital inflow from the rest of the world (Lucas, 1990). If sensibly allocated, such a marginal capital injection would support faster economic growth and convergence to the per capita income levels of advanced countries. Contradicting this logic was a momentous, and some would argue perverse shift in the direction of capital flows from North-South to South-North. 16

A closer examination of emerging market (including Asian) capital flows is revealing, however. As figure 2 shows, while certain large emerging economies became net exporters of capital, they remained net importers of private capital. In particular, they continue to be net importers of the most stable and productive form of private capital flow – foreign direct investment. Net portfolio capital and other private capital remained rather more volatile. Reconciling these factors – net (overall) capital exportation and net private capital importation - is the build-up in official foreign exchange reserves after the Asian financial crisis. (figure 3) This form of capital export for specific, large emerging economies has trumped private

14 The U.S. has been consistently running a current account deficit since the early 1980’s with the exception of a modest current account surplus in 1991. While other countries have accumulated larger net foreign liability positions as a share of GDP, the U.S. commands the largest net liability position as a share of global GDP ever.

15 In fact, the U.S. had been running a current account deficit in every year except one since the early 1980’s.

16 It should be emphasized that far from all emerging economies ran surpluses and certain advanced economies did in fact run sizeable surpluses on current account.
inflows. Hence, the so-called Lucas puzzle to which we referred above appears to overstate the ‘uphill’ flow of capital.

[Figure 2 about here]

[Figure 3 about here]

Returning to figure 1, one observes that the size (dispersion) of global imbalances as measured by their arithmetic sum as a share of global GDP peaked just before the Great Recession. In the aftermath of the crisis global imbalances have moderated, mainly owing to the decline in national income (hence lower imports) triggered by deleveraging in the deficit countries. In particular, the deficits and surpluses of the United States and China, respectively, have declined to the range of 2-3 percent of GDP. This merits at least two caveats. First, according to IMF projections such current account imbalances are expected to remain wider than that of the late 1990s and the early 2000s (see again figure 1).17

Second, stock imbalances associated with persistent current account flows have continued to mount and are projected to reach new heights over the forecast period. That is, the persistence of current account imbalances, albeit at lower levels than the recent past, implies a continuation in the same directional pattern of cross-border lending (borrowing). Continuous borrowing (lending) entails an ongoing increase in the stock of liabilities (assets). This serves to augment the disparity between the stock of net foreign assets of current account surplus and deficit economies, respectively. Figure 4 provides a global overview of global, net international investment positions (gross foreign assets less gross foreign liabilities). The latter points to a central macroeconomic constraint: Net foreign ‘debtor’s must credibly signal an ability and willingness to run sufficiently large trade surpluses at some point in the future. And because the sum of current account balances (net investment positions) must necessarily sum to zero globally, surplus countries must eventually run trade deficits of comparable size and timing to make this happen. [For an overview of the key macroeconomic identities that form the basis for these conclusions see boxes 1 and 2].

[Figure 4 about here]

[Box 1 and 2 about here]

What of the claim that global imbalances, was a - if not the - principal cause of the Great Recession? At the risk of over-simplification two diametrically opposed positions on this linkage can be identified. As the system’s main current account deficit country, the first school of thought levels principal blame at the United States; that the U.S. was ‘spending above its means’ created the fundamental pre-conditions for the crisis.

17 The specific nature of these country-specific policy (and behavioral) adjustments is discussed below.
One plank of this argument centers on the so-called “twin deficit” phenomenon. Through its (negative) contribution to aggregate national savings the U.S. fiscal deficit is mirrored in its current account deficit. (See again box 1). One seeming puzzle is that U.S. fiscal and current account deficits have not always moved in lock step; in fact, they have sometimes moved in opposite directions (figure 5).18

[Figure 5 about here]

But the U.S. current account balance, by definition, also mirrors U.S. private (household plus corporate) savings and investment. (See again box 1). The secular decline in household savings in particular coincided with a rapid increase in residential housing investment (see figure 6). Household behavior can be explained by the perception of a permanent increase in U.S. private wealth - turbocharged by both rising housing prices and a bullish equity market. The latter along with the decline in US interest rates appeared to justify a decline in the rate of saving out of current disposable income. The latter of course proved unwarranted ex post. Furthermore, the external deficit reflected robust fixed investment demand, driven by a US-led technological revolution - at least up until the slowdown in US productivity growth around the mid-2000’s. The upshot, however, is that the ‘blame-US’ school places the onus on U.S. (public and private) profligacy.

[Figure 6 about here]

An alternative perspective, most closely associated with former Federal Reserve chairman Ben Bernanke (Bernanke, 2005), cited a “global savings glut” for the pattern of net capital inflows and easier financial conditions in the U.S.19 This savings glut coincided with the rapid accumulation of official reserves, either as a by-product of preventing the nominal appreciation of (largely Asian) currencies for international competitiveness motives, or as a precautionary build-up to strengthen the defenses against a potential speculative currency attack in the future.20 This reserve build-up reflected a recycling of private savings for which underdeveloped domestic financial systems in Asian economies offered scarce viable outlets (see e.g. Caballero, 2006).

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18 Cross-sectional empirical work reveals a wide variation in the correlation and causal relationship between fiscal and current account imbalances.

19 While a drop in investment demand rather than an increase in saving in the aftermath of the Asian financial crisis may better explain that region’s rising current account surplus, the resulting impact on global current account balances is the same. We will see below that some lay major blame at the doorstep of the Federal Reserve under Bernanke’s predecessor, Alan Greenspan, for delayed efforts to tighten U.S. monetary policy. In his defense Greenspan had cited a “conundrum” over the fact that eventual hikes in the U.S. federal funds rate had failed to prevent longer-term U.S. interest rates from declining (Greenspan, 2005).

20 There is a large literature that tries to estimate the share of appreciation-prevention versus precautionary reserve build-up but this is beyond the purview of this paper. See, for example Aizenman and Lee, 2005).
This seemed to point to a new central driver in international finance – an accelerated search for “safe assets” in which to invest surplus global savings.\(^{21}\) The essence of the savings glut argument is that net capital inflows to the U.S. – mirroring the US comparative advantage in the production of marketable financial assets - necessitated that the U.S run a current account deficit.\(^{22}\) By driving up the price of US assets, it also meant that U.S. rates would be depressed, feeding the ‘search for yield,’ hence the greater risk taking (lowered risk premia) that helped to fuel the subsequent U.S. credit boom and bust. U.S. savings and investment were thereby at least in part, endogenously determined by external economic decisions and flows. The upshot was that the global savings glut incentivized the US financial sector to meet the global excess demand for saving vehicles.

How do such competing positions map into the extent of concern over the inherent dangers of global imbalances going forward? Although the overlap is imperfect, those who side with the savings glut perspective and the complementary safe asset demand hypothesis, tend to adopt a “soft landing” perspective. In contrast, those who focus on reckless U.S. macroeconomic behavior tend to favor a “hard landing” view.

Proponents of the “soft landing” perspective remain less alarmist about the imminent dangers and costs associated with unwinding global imbalances. First, they remind us that one does not want to impose a world of artificially balanced trade. There is nothing irrational or unfair per se about certain countries running persistent deficits or surpluses, at least based on the varying, microeconomic inter-temporal decisions made by producers, consumers, savers and investors around the world (see e.g. Corden, 2007).

Second, the “soft landers” contend that market forces will gradually eliminate imbalances and that eventual adjustment will prove incentive compatible for countries on opposite sides of the fence. To the extent that official intervention serves to artificially prolong them, imbalances will eventually prove unsustainable, forcing policy reversal. With a systemic crisis being unlikely, no obvious need exists for an institutional referee such as the IMF to coordinate preemptive (anti-imbalance) policy action. While “soft-landers” would concede the systemic asymmetry between deficit and surplus countries, they would also maintain that multilateral solutions like macroeconomic coordination or sanctions, remain unrealistic.

\(^{21}\) The increased search for safe assets, in stark contrast to the ‘search for yield’ that characterized so much of the run-up to the Great Recession is a crucial development to which we will return in a subsequent section of this paper. (See e.g. Caballero and Krishnamurthy, 2009).

\(^{22}\) Note that the demand for safe assets need not be limited to situations involving savings gluts (i.e. current account imbalances), even if the two phenomena tended to coincide in this case.
As the world’s largest “net debtor,” is the U.S. an unstable anchor for the global system, as the Chinese central bank governor, famously suggested? Consider this alternative take from a decided member of the soft-lander camp:

The rapid reversal of this position is unlikely. The funding for the U.S. current account deficit is not grudging or volatile, but reflects a fundamental desire by non-U.S. residents to build up stocks of safe assets, turning to the U.S. as banker to the world given its demonstrated comparative advantage in this area. The fact that this funding is freely given is most obviously reflected in the relatively poor returns that foreigners earn on their U.S. assets. But the stickiness of this funding is also obvious when you consider if there is any other country that could fulfil this role. (Beckworth and Crowe, 2016, p. 5).

In contrast, the so-called “hard-landers” have long cited global imbalances as among the world economy’s principal risks; many prominently predicted that such imbalances would precipitate a costly crisis. Although the Great Recession confounded their specific predictions – in the event the U.S. dollar appreciated and US rates fell – this school of thought maintains that by aggravating the credit boom and bust cycle the net inflow of capital to the U.S. fueled the crisis. Furthermore, these observers, who foresee a potentially more disruptive crisis in the future absent decisive official action, are the first to stress that IMF statutes provide a clear mandate for coordinating a pro-active solution. In particular, Section 1 of IMF article IV states that IMF members are obliged “to collaborate with other members of the Fund to assure orderly exchange arrangements and to promote a stable system of exchange rates.” (IMF, 2006). Furthermore, the same article states that “In particular, each member shall...(iii) avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain unfair competitive advantage over other members…”

In the absence of effective enforcement capabilities, the IMF’s efforts to serve as systemic coordinator have largely failed. Many who remain exercised over the risk that global imbalances will re-widen in the future, advocate taking the issue to the World Trade Organization, the multilateral institution that governs international trade. Their hope is that the WTO can use its dispute resolution facilities (including threats of punitive actions) to pressure current account surplus countries, in particular, to adopt policy course redirections. Alternatively, the hard landers advocate retaliation by deficit countries (see e.g. Bergsten and Gagnon, 2012).

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23 In addition to currency issues, the IMF has consistently pressed surplus and deficit countries to adopt underlying macroeconomic and structural reforms that would help reduce these imbalances.
While certain “hard landers” may hold out hope that something akin to the 1985 Plaza Agreement could eventually help to resolve the problem most are focused on proactive national efforts to arrest the practice of “currency manipulation.” The latter refers to the artificial repression of currencies to afford exporters and import-competing producers an unfair competitive advantage. Either the perpetrators regularly devalue or avoid appreciation amidst a chronic excess demand for the local currency. This involves persistent official intervention, mirrored in a unidirectional, secular build-up in official reserves at the central bank. Hard-landers believe that such neo-mercantilist practices that lie at the heart of an export-led development strategy are akin to the “beggar-thy-neighbor” strategies that prolonged the Great Depression and which today, like then, export unemployment to others.

It bears emphasis that trade deficits per se need not cause national unemployment. After all, the U.S. and other advanced countries (e.g. Australia) have maintained full employment during many, prior current account deficit episodes. Macroeconomic policies have proven adequate to maintain a level of aggregate demand that supports full employment, notwithstanding the loss of particular jobs in the tradeable sector owing to higher imports. In fact, jobs have been created to support the importation of goods and services; and many imports represent intermediate capital goods that are incorporated in exportables. In the current post-crisis environment, however, macroeconomic policy in advanced countries world has often failed to ensure full employment. This despite unprecedented efforts to stimulate the economy fiscally and later through massive increases in the monetary base.

The current situation thus seems to buttress the arguments of those who blame foreign exchange intervention for laggard economic recovery. Still, at least until recently such arguments have failed to persuade policymakers in the U.S. and elsewhere to enforce norms on currency manipulation. One reason lies in the resistance by certain sectors of the U.S. economy that are experiencing a rapid growth in exports to surplus countries. Another factor is the need to balance such concerns against the imperative to cooperate with these countries over a spate of other compelling policy imperatives. Nevertheless, pressure by the hard-

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24 The Plaza Agreement of 1985 involved coordinated macroeconomic action and foreign exchange intervention to reverse the overvaluation of the US dollar. See Bergsten and Green, 2016 for a series of views on the Plaza agreement and its relevance today.

25 This notion of currency manipulation need be distinguished from the right of countries to manage their currencies. Under existing norms countries are permitted to adopt some (softer or harder) variant of a fixed exchange rate regime. The presumption, however, is that the currency is set in rough approximation to an “equilibrium” rate that mirrors economic fundamentals. One significant challenge is that economic theory offers no universally accepted concept of exchange rate equilibrium (see e.g. Chinn, 2015).

26 This seeming inability of macroeconomic policy to ensure full employment today is the source of much debate today, often in the context of the lower bound constraint of zero interest rates and theories of ‘secular stagnation.’

27 The Peterson Institute of International Economics is one of the main proponents of this view. See for example, the contributions of Gagnon, 2013, Bergsten, 2014, and Cline and Williamson, 2010.
lander lobby did succeed in getting a provision against currency manipulation included in the 2015 Congressional “Defending Public Safety Employees’ Retirement Act.”

We postpone the rest of our discussion over currency manipulation and the break-out of so-called currency wars to section II below. The rationale is that the currency war controversy tends to conflate the two concepts that this paper is attempting to differentiate – net versus gross capital flows. Rather than the national savings-investment nexus that underpins the issue of global imbalances, currency wars can involve accommodative monetary policy in the advanced countries triggering a surge of capital outflow that vastly complicates the macroeconomic policy framework in emerging economies (see below). However, before considering the broader issue of gross capital flows, we need to complete the discussion of net capital flows (global imbalances) with brief reference to the world’s leading export-led countries.

The Special Cases of China and Germany

As one of the world’s leading current account surplus countries, China looms large within this broader global equation as Germany does more regionally. China’s leadership ostensibly seeks a revolution in its growth strategy, from a more investment- and export-led arrangement to one based more on household income and consumption growth. If China were to succeed in its promised transition, global imbalances should narrow significantly. And given its centrality to the world economy, the fate and speed of China’s transition will also help to moderate the resistance of other emerging economies, particularly in Asia, to resist currency appreciation, further containing imbalances.

Yet, impeding the transition in China is an internal power struggle among those favoring the status quo and those promoting the shift in growth strategy. Key actors within China have greatly benefited from the export-led development strategy and resist change. In contrast, the apparent goal among certain factions within China’s leadership is to aggressively promote reserve currency status for the renminbi as a means to accelerate Chinese reform. A successful transition should have the side effect of reducing imbalances, thus lowering the prospects for a future crisis-prone adjustment. But would such a development auger a loss of

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28 Sections 12 of the Act state the following: “The principal negotiating objective of the United States with respect to unfair currency practices is to seek to establish accountability through enforceable rules, transparency, reporting, monitoring, cooperative mechanisms, or other means to address exchange rate manipulation involving protracted large scale intervention in one direction in the exchange markets and a persistently undervalued foreign exchange rate to gain an unfair competitive advantage in trade over other parties to a trade agreement, consistent with existing obligations of the United States as a member of the International Monetary Fund and the World Trade Organization.” (US Congress, 2015)

29 Indeed, there is evidence that certain elements of this transition are already in place.
economic clout associated with erosion in the dollar’s current global dominance? Or can China and the United States agree to share the world stage along this important dimension of global economic governance?

The controversy over China’s export-led strategy represents more than a conflict involving the nation states of China and the United States (not to mention other advanced and emerging deficit and surplus countries). It is also an internal struggle pitting different factions within each country, including the tradeable versus nontradeable sectors, different segments of the tradeable sector and those who have gained or lost from these arrangements in terms of employment and real incomes. Although China’s integration in the world economy has entailed a huge boon to global poverty reduction, its export-led-cum-capital control strategy has required a degree of financial repression that has kept consumption growth well below that of overall GDP. Meanwhile, while workers in a host of U.S. manufacturing sectors have borne the brunt of Chinese import competition, the U.S. public as a whole has been an enormous beneficiary as importer of Chinese products (Autor, Dorn, and Hanson, 2016; Acemoglu, Autor, Dorn, Hanson, and Price, 2014).

Imbalances can likewise be viewed as central to the macroeconomic instability that has marred the European Monetary Union. For a monetary union to work effectively core macroeconomic parameters among country members need to converge. This never happened sufficiently within the EMU; in particular, expected (and actual) inflation across the union’s nineteen countries has failed to equalize. This has produced a sharp divergence in the real exchange rates – the euro exchange rate adjusted for national inflation - facing constituent low versus high inflation members, engendering a disparity in international competitiveness. The result has been a persistent tendency for low (high) inflation countries to run a current account surplus (deficit).

Owing to the absence of effective political union - which in principle should precede monetary union – the system has not allowed for the necessary union-wide, institutional reforms and automatic cross-country transfers to cope with these imbalances. In effect, members have failed to delegate the kind of supranational authority that would allow the EMU to mimic an “optimal currency area” like that of the United States. Instead, the surplus countries led by Germany have insisted that the deficit countries restore external adjustment via “internal devaluation.” With a fixed (nominal) exchange rate the latter requires a process of wage and price deflation that inevitably engenders depression-like output and employment declines. Meanwhile, the one size fits all monetary policy has produced markedly different real interest rates among these deficit and surplus countries that aggravates this adjustment burden. For reasons that extend

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30 Despite being a unified political entity with a single currency, the U.S. exhibits significant differences among its constituent regions which effectively require real exchange rate adjustments as regions cope with asymmetric economic shocks. These adjustments are provided via central fiscal transfers, high interstate labor mobility, and a unified banking system.
beyond the scope of this paper, Germany has resisted pressure to increase its public spending, wages and inflation in order to shoulder more of this adjustment. Hence, its current account surplus has continued to soar even as deficit countries cut back on domestic spending in order to reduce imports, hence external deficits. Nevertheless, the latter’s full employment deficits remain unsustainably large (see e.g. King, 2016, chapter 6). The EMU imbalance challenge may be primarily a regional one but given its sizeable share of global GDP the ramifications are global as well.

Certain observers would argue that not all current account surplus countries should be treated equivalently. In particular, while advanced countries such as Germany are slow-growing notwithstanding their large and mounting surpluses, many of the surplus emerging economies represent among the most dynamic drivers of global economic growth. As large manufacturing exporters, the latter have exploited positive externalities for economic growth via the maintenance of more competitive exchange rates (Rodrik, 2008). Given the limits to ongoing trade deficits in the rest of the world, including those of certain developing as well as advanced economies, this would tend to support the argument for some rebalancing among faster-versus slower-growing current account surplus economies (Marcó del Pont, 2011). But is it realistic to expect enough advanced countries, other than the US, to run the necessary deficits to allow much of the emerging world to maintain their export-led growth strategies?

To summarize, the locus of conflict over international monetary arrangements varies with the particular problem or risk under investigation. In this section we focused on the challenge of global imbalances. The latter suggested a number of potential conflicts. The first concerned that between current account surplus and deficit countries writ large over the asymmetry of macroeconomic adjustment. This situation, which involves highly varied levels of international competitiveness, arguably lies at the very heart of the instability plaguing the European Monetary Union. Through an alternative lens this conflict can also be viewed more generally as a struggle between footloose capital and less mobile labor residing in deficit countries (Kregel, 2010).

More recently, this long-standing issue has morphed into a quasi-North-South conflict that reflects the penchant of many emerging economies to invest in greater self-insurance against future speculative currency attacks, hence their serial foreign exchange intervention. The resulting surpluses presuppose that other countries run deficits on current account. That the deficit side of the ledger has been dominated by the issuer of the global reserve currency places the issue in a special light. That the leading surplus country is the US’ main geopolitical challenger today further complicates matters. Yet, as we have seen the global imbalance challenge also transcends trade (financial) relations between the world’s two largest economies.
II. Gross financial flows, national balance sheets and US monetary hegemony

Our discussion to this point has concerned global imbalances, i.e. the balance on current account and the associated net international flow of capital. While current account imbalances did indeed expand in the run-up to the financial crisis, gross international assets and gross international liabilities had been expanding at a still faster clip for decades. Some of the latter were associated with trade in goods and services, but the bulk reflected purely financial or investment transactions (see figure 7).

[Figure 7 about here]

Theoretically, heightened cross-border financial flows yield important advantages such as expanding the menu of savings vehicles and enlarging the basis for risk sharing and diversification. Global capital flows can also provide financing for viable investment projects in economics lacking sufficient domestic savings; and they can help to promote financial reform and the deepening of financial markets (Ostry, et al, 2010). Yet, these forces can also create significant risks and tradeoffs for particular actors within the global economy. Financial cycles occur and various types of financial imbalances develop. A concentration of risk anywhere within the global financial system endangers not only the entity directly impacted; costly spillovers impact sectors and individuals all over the world. The potential international, intra-national and even class conflicts so engendered are likely to diverge from those associated with the trade-related imbalances discussed in section I above.

Among the countries directly exposed to the recent global crisis were core Eurozone countries, including those countries that were running largely balanced current accounts. Highly leveraged financial institutions in Europe were the main buyers of complex, private-label (“toxic”) securities concocted by US financial intermediaries. That they were perceived as relatively safe at the time owes much to the financial wizardry of the U.S. shadow banking system. In responding to the global ‘search for yield’ it succeeded in securing AAA ratings through the creative pooling and tranching of mortgage- (and other asset-) backed securities. Meanwhile, the largest demand for safe public assets, notably U.S. Treasuries and agency paper, actually came from East Asian central banks who, in the aftermath of the Asian financial crisis, sought to hold surplus national savings in the most liquid global financial instruments. Thus, notwithstanding former Fed chairman Ben Bernanke’s initial argument that these perpetrators of a “global savings glut” are primary culprits for the global crisis (Bernanke 2005), the picture as even Bernanke later admitted is more complex (Bernanke et al; 2011).

This perspective on the Great Recession raises a fundamental question: does the overriding emphasis by macroeconomists and policymakers on the current account, hence global imbalances, remain
justified? After all, the evidence suggests that certain actors within advanced countries running more balanced current accounts engaged in the riskiest asset purchasing behavior in the run-up to the crisis. Furthermore, investors in large current account deficits like the UK were large purchasers of private-label US assets. Moreover, prior research on financial crises in emerging markets reveals that current account positions are often not statistically significant in foreshadowing currency and/or banking crises (Obstfeld, 2012). Instead currency, maturity and other stock ‘mismatches’ on national balance sheets can be much more revealing about financial vulnerabilities. Such mismatches in combination with exchange rate overvaluation and rapid credit growth appear to be more robust predictors of crisis (Gourinchas and Obstfeld, 2012). This raises associated issues about the importance of focusing on the NIIIP. After all, are investors seeking risk-adjusted returns focused on their net exposure to a country or rather their gross exposure to particular residents of that country?

Thus, rather than focusing disproportionately on current accounts (net capital flows), more prominent attention arguably should be given to the composition of a nation’s stock of foreign financial assets and liabilities. After all, the national external balance sheet reflects the much more numerous gross capital flows that underpin financial globalization. Furthermore, an examination of particular sectors that comprise the national balance sheet can be even more revelatory. To cite just one example, financial intermediaries or non-financial corporates that borrow abroad in hard currency but whose receivables are in local currency are vulnerable to unhedged currency movements. Alternatively, financial institutions that borrow and lend in foreign currency may face greater non-performing loans if their corporate and/or household borrowers are themselves hit by a currency depreciation.

The growing complexity of international financial transactions requires still more caveats. For example, most workhorse models in international macroeconomics are based on the so-called “triple coincidence” principle. Analysis takes place at the national territorial level which defines the geographical boundary for gross domestic product. The latter is presumed to aggregate the productive activities of operational units residing within that territory. It is further assumed that the scope for a given nation’s currency is largely confined to that same delimited physical area. Globalization today, however, is replete with examples in which this residential boundary for enterprises and currencies is violated. In a world of multinational companies and global currencies national income and balance of payments data fail to capture what is more evident by examining the consolidated balance sheets of economic actors defined on a national rather than residential basis. For example, international contamination from the U.S. sub-prime sector in part involved so-called “round-tripping” by which the U.S. affiliates of Western European banks borrowed dollars

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31 This question is increasingly being posed by international macroeconomists. See for example, Obstfeld, 2012 and various BIS working papers, notably Borio and Disyatat, 2011.
from U.S. wholesale markets (e.g. money market funds), on-lending those dollars to U.S. issuers of mortgage-backed securities (see e.g. Borio and Disyatat, 2011).

A related phenomenon has been the global explosion of dollar credit. The increase in dollar-based lending to non-U.S. residents has far outpaced lending to U.S. residents in recent decades (see figure 8). Some is extended by U.S.-based institutions but much of it has been issued by foreign affiliates or non-U.S. financial institutions abroad. 32 Some of it is cross-border debt (i.e. dollars borrowed in the US or in another country but on-lent to entities in a third country). Other cases involve locally generated dollar debt. In particular, a leading vulnerability cited by the IMF and other institutions is the rapid growth of dollar credit to emerging market multinational corporations (see again figure 8). Whenever the dollar depreciates this improves the balance sheets of dollar borrowers but the recent trend of dollar appreciation has worked in the opposite direction. Depending on their size and significance to the national economy, dollar appreciation can negatively impact other (domestic and foreign) creditors and require a costly bailout of dollar borrowers by local governments. While such lending in hard currency is not limited to dollars, dollar credit to non-US residents trumps comparable lending in euros or other currencies (see figure 9).

[Figure 8 about here]

[Figure 9 about here]

Notwithstanding the collapse of Bretton Woods some 45 years ago when President Nixon removed the dollar’s linkage with gold, the United States continues to function as a “monetary superpower” (Beckworth and Crowe, 2016). Its national currency, the US dollar, dominates in every feature of a global currency – medium of exchange, store of value and unit of account. This is evident from figures 10a, 10b, 10c. As the leading provider of global liquidity the U.S. is also a quasi-lender of last resort - including via swap agreements with other central banks to meet the excess demand for dollars during emergency circumstances - and the leading provider of “safe” financial instruments. Moreover, as explained further below the US can be said to provide “insurance” to the rest of the world against bad economic states.

[Figures 10a, 10b, 10c around here]

The global consequences of gross capital flows, and in particular gross dollar-denominated flows, require us to shift attention back to the United States – isolating in particular the unique nature of its external balance sheet. As discussed in section I, a country’s net international investment position – the stock of foreign assets less foreign liabilities – changes in direct relationship to its current account balance. The

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32 According to McCauley, McGuire, and Sushko, (2015) over 80 percent of dollar-denominated bank loans to non-US residents have been recorded outside the US: “Gross dollar credit: links to US monetary policy and leverage.”
reasoning is straightforward: if a current account deficit requires an equivalent net inflow of capital, this “borrowing from abroad” reflects a corresponding change in the NIIP (the country’s international asset/liability position).

As mentioned above, from a national solvency perspective a net debtor country must credibly convince markets of a potential to run a sufficient surplus of net exports of goods and services at some point in the future. In the US case, the global capital markets have proved sanguine, exhibiting scant alarm over the trajectory of the US external investment position to date. In particular, the US heretofore has confounded those who have long forecast an imminent saturation in the appetite for dollar-denominated debt (Mann, 2009; Cline, 2009).

For perspective, we provide comparative statistics on the NIIP for a sample of advanced and emerging economies (figure 11). Although the NIIP/GDP ratio for the U.S. has exhibited a downward trend owing to its long string of current account deficits, it has yet to deteriorate to the point of deviating markedly from that of other net debtors. Compare, for example, the U.S. to Australia. If the downward trend of US NIIP is unsustainable, there is little to indicate that it is soon approaching a crisis threshold (Bordo and McCauley, 2016).33

One characteristic of countries that issue global reserve currencies is that they can borrow internationally in their own currency. This contrasts demonstrably with the “original sin” syndrome plaguing emerging market countries (Eichengreen and Hausmann, 2003), which are more often forced to borrow in foreign currency. But the US also tends to have a greater share of total liabilities denominated in its own national currency as compared with other reserve currency countries (Gournichas and Rey, 2007a). This means that US dollar depreciation significantly retards the deterioration of US NIIP (as otherwise driven by its current account). The US thereby enjoys greater degrees of freedom in terms of international financial adjustment. Part of its adjustment occurs through financial as opposed to real channels, implying that it needs to generate less of a turnaround in net exports than otherwise (which means, that it ultimately requires a slower pace of currency depreciation).34

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33 A theoretically sounder comparison would arguably involve the ratio of the NIIP, a stock variable, with another stock variable, US wealth. Although inter-country data on wealth are less available, the disproportionate size of US wealth would probably favor the US (in which NIIP would appear comparatively lower in real terms as compared to using GDP in the denominator).

34 This channel was underemphasized by those experts who forecast that the dollar’s real depreciation needed to be in the range of some 30-40 percent in order to restore external balance. See e.g. Obstfeld and Rogoff, 2007.
In contrast, dollar appreciation accelerates NIIP decline because foreign currency-denominated assets are worth less in US dollar equivalent terms. This despite the fact that such appreciation tends to occur in situations of global “risk-off” wherein global investors flock to areas of perceived financial safety. When U.S. assets encounter unusually high demand is presumably not a time that investors would more severely question U.S. creditworthiness, quite the opposite. Yet, unlike periods of secular dollar decline U.S. external payments appear under more pressure when the dollar is appreciating.\(^{35}\) The dollar’s appreciation and the outperformance of US financial assets (see below) in fact provide a kind of financial windfall for foreign holders of US assets. This amounts to insurance in bad times – a form of “exorbitant duty” - which, annualized, transferred some 10-15 percent of US GDP abroad in the midst of the Great Recession (Gourinchas and Rey, 2007b; Gourinchas, Rey, and Truempler, 2012; Gourinchas and Rey, 2013; Beckworth and Crowe, 2016).\(^ {36}\)

A still more significant source of the divergence between the U.S. current account and (and the change in) NIIP lies in factors that revalue its stock of international assets and liabilities. The US has been accurately described as a ‘banker’ (Kindleberger, 1965) or alternatively, ‘venture capitalist’ to the world (Gourinchas and Rey, 2007b): It issues shorter-term, highly liquid and “safer” debt liabilities and transforms them into riskier longer-term (largely equity) assets that, in principle, support global development. The upshot is that this high risk-oriented balance sheet has afforded the U.S. a consistently positive international investment income.\(^ {37}\) That the U.S. earns so much more from its (relatively fewer) foreign assets than it pays on its (much greater) foreign liabilities means that the U.S. remains in an economic sense a net international creditor even though in an accounting sense it remains the world’s largest net debtor (Cline, 2005). This striking relationship between the deteriorating NIIP and net investment income in the U.S. is depicted in figure 12.

[Figure 12 about here]

A comparison with China is illustrative, especially owing to concerns that China’s creditor position and large holdings of dollar-denominated US debt affords it significant economic leverage over the U.S. Figure 13 examines China’s NIIP against its net international income balance. The contrast with the U.S. is striking: For most of the period 2004-2015 China has generated negative returns on its net creditor position (Brown and Wang, 2015).

\(^ {35}\) Investors tend to be less sanguine about emerging market countries which experience a pronounced, currency depreciation. This difference between emerging economies and the US reflects in part the often deleterious impact of depreciation on emerging market country balance sheets.

\(^ {36}\) In addition to currency effects, this wealth transfer occurred via the out-performance of US assets held abroad.

\(^ {37}\) Investment income is included in the current account. See again box 1.
This picture tends to reinforce perceptions that the U.S. enjoys an “exorbitant privilege” related to the dollar’s reserve currency role. This ostensibly “unfair” advantage consists in the U.S. being able to live beyond its means, importing global capital at artificially cheap rates while earning seigniorage on global dollar balances. Economist Michael Pettis has been in the vanguard of those who have questioned the size of these rents and their benefits to the U.S. Moreover, he shifts the onus of responsibility to those countries such as China and Germany whose macroeconomic strategies have forced the U.S. into the structural position of goods and capital importer of last resort (Pettis, 2013; Pettis, 2016). For Pettis, among others, the “exorbitant duty” to which we refer above is unsustainable and any advantages from exorbitant privilege are too meager to persuade the US to remain complacent about its current structural position within the IMFS.

Meanwhile, the US’ consistently positive net international investment income suggests that the constraints on its external deficits remain softer than that of most other countries. Forces that would surely precipitate financial crises in emerging market countries and other advanced countries, fail to impact the U.S. commensurately. While global economic stability ultimately requires a measure of macroeconomic discipline in the center country, the greater degrees of freedom granted the U.S. under the current “non-system” arguably render American public and international support for current international monetary arrangements more robust than otherwise. While this cannot eliminate tit for tat accusations over purported beggar-thy-neighbor policies, U.S. detractors seem to have little to offer in its place, at the present juncture at least.

During Bretton Woods, the Belgian economist, Robert Triffin, famously argued that the international monetary system was structurally unstable owing to a contradiction at the heart of the system (Triffin, 1960). In particular, the supply of global liquidity was premised on the U.S. exporting dollars via a balance of payments deficit. Yet, by causing the supply of dollars to outpace that of gold this would inevitably depress international confidence in the U.S.’s ability to honor the dollar’s link with gold. In the event, given the macroeconomic pressures on the U.S. owing to the Vietnam war and the Great Society programs, President Nixon ultimately severed the ties with gold.

Following the turbulent stagflation of the 1970’s, the U.S. embarked on the “Great Moderation,” a prolonged period in which U.S. macroeconomic policy kept inflationary expectations well anchored, generally sustaining global confidence in the dollar as a reliable store of value. Such confidence was further buoyed by the increasing breadth and depth of US capital markets, the country’s strong property rights and the U.S. led-

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38 The original use of the term “exorbitant privilege” is attributable to former French Finance Minister, Giscard d’Estaing during the Bretton Woods period.
39 The non-system refers to an international monetary regime that lacks a formal (currency or commodity) anchor.
40 We explore this theme further in section III.
ICT productivity growth revolution. Meanwhile, with the ongoing maturation of the Eurodollar market dollar issuance abroad exploded, alleviating concerns over a drying up of global liquidity. The state of the U.S. balance of payments no longer seemed to constrain the creation of global money.

Yet, for some international macroeconomists the Triffin dilemma has hardly disappeared; it has merely been transformed. Triffin’s original thesis centered on the limits of running current account deficits *per se* yet it is better understood today that the relevant parameters for global liquidity provision concern the entire US balance of payments (including the capital account). A modern variant of the Triffin dilemma underscores that the US’ ability to provide dollar liquidity in support of global economic growth is still limited by the willingness of global investors to continue to accumulate dollar “debt” indefinitely. The modern, Triffinesque concern has always been that the dollar would experience a steep secular decline, if not precipitous drop owing to the US need to ramp up spending in order to provide the world with sufficient liquidity (Zhou, 2009). And yet the explosion of USD credit issuance to non-residents in the aftermath of the crisis – notably the share booked outside of the US - suggests that global demand for dollars has hardly reached a saturation point. More ominously perhaps, the global excess demand for the (dwindling supply of) safe assets in particular would appear to require an explosive trajectory of US fiscal deficits, eventually threatening longer-term US solvency (Borio, 2016). The upshot is that the stability of the system requires a means of disciplining the main reserve issuing country while the need for global liquidity presupposes a relaxation of such discipline.

In the post-Bretton Woods hybrid system that emerged – in which flexible exchange rate arrangements predominated in the advanced economies while managed currencies were retained in much of the emerging world - new tensions emerged. In particular, with a revealed preference to manage their currencies against the dollar, in the absence of capital controls many emerging economies were compelled to import monetary policy from the U.S. While this would not have presented problems under symmetrical business cycles, the fact that their underlying economic conditions deviated from that of the U.S. meant that these economies had to contend with surges of undesired capital in response to expansionary monetary policy in the U.S.

Just like one’s terrorist is someone else ‘freedom fighter,’ the rich world including the United States, Japan and the EMU today stand accused of waging their own currency wars, not through direct foreign exchange intervention but indirectly, via unprecedented, (unconventional) monetary expansion. As standard theory would predict the latter effort at economic stimulus tends to depreciate advanced country

41 Former Brazilian finance minister, Guido Mantega, launched the initial broadside in September 2010, accusing the advanced countries who were engaged in massive monetary easing, of sparking a currency war against the emerging economies (Mantega, 2010).
currencies, while forcing emerging countries to cope with a wave of destabilizing, gross inflows of capital. Aside from feeding credit booms and fueling asset price bubbles, capital flow recipients seek to resist the pressure to appreciate their currencies in order to avoid a decline in global competitiveness. Having more recently signaled its intention to tighten monetary policy, the U.S. once again stands accused albeit this time of the opposite kind of currency war that effectively siphons capital out of emerging economies (Mantega, 2010; Rajan, 2014). Such critics maintain that center reserve countries, in particular, should be obliged to internalize the likely effects of their monetary policies on other countries. 43

The response from (slower-growing) advanced countries tends to include the following points: First and foremost, monetary policies that indirectly impact currencies cannot be equated with direct interventions in currency markets. 44 Countries facing inadequate demand conditions have the right, in fact duty, to employ countercyclical policies in order to boost growth. Second, capital flows reflect as much “pull” factors as “push” factors. Although monetary accommodation in advanced countries can have the effect of accelerating capital outflow, pre-existing economic “distortions” in emerging market countries can exacerbate the effects of capital inflow. 45 Third, aside from removing such distortions directly, emerging market countries have (or at least should have) at their disposal the requisite macroeconomic and macro-prudential tools – including tighter fiscal policy, lower interest rates, currency appreciation and foreign currency leverage limits – with which to insulate themselves from destabilizing flows (Bernanke, 2015). Finally, income effects tend to dominate the substitution effects from advanced country currency depreciation. In short, faster U.S., Japanese and European growth support emerging market growth through higher import demand. In fact, some would argue that global economy operating well below potential would benefit from ‘tit for tat’ monetary expansion. (Bernanke, 2015)

This clash in perspectives, largely but not exclusively between advanced country deficit and (often) emerging surplus countries, can be better understood in the context of a central principal of international macroeconomics. This principle concerns the “impossible trinity” or ‘macroeconomic trilemma’ involving monetary autonomy, exchange rate stability and international capital mobility. According to Robert Mundell’s classic formulation (Mundell, 1963) the co-existence of any two of this triplet is feasible while the coincidence of all three is impossible (see figure 14). Given highly mobile cross-border capital a country must

42 An increase in the monetary base does not always induce currency depreciation.
43 Strictly speaking, this request has been rejected by leading officials at the FED, whose charge is limited to the achievement of US domestic objectives. The FED does not have a separate mandate to be a genuine lender of last resort. See e.g. Fischer (2014).
44 It must be conceded that the conceptual line separating practices of direct foreign exchange intervention versus macroeconomic policies with predictable indirect currency effects can be fuzzy. See e.g. Rajan and Prachi, 2016.
45 Examples of distortions include underdeveloped financial markets and elaborate web of tax-cum-subsidies.
choose between two alternative exchange rate and monetary policy regimes. If it chooses to manage (fix) its currency against an anchor currency (currency basket) it loses effective control over its own monetary policy. Its interest rates, hence monetary growth, are essentially pinned down by that of the anchor country. Alternatively, the country can maintain its monetary policy independence if it chooses instead to allow its currency’s value to be freely determined in foreign exchange markets. A third option is to impose controls on global capital flows, which in principle allows the country to manage its currency while retaining monetary autonomy. In many emerging economies policymakers have opted for *de jure* flexible exchange rate regimes while *de facto* adopting more managed exchange rates for classic “fear of floating” reasons (Calvo and Reinhart, 2000). Resistance to currency appreciation has forced such emerging economies to sterilize their foreign exchange intervention. This has proven costly and in the event, has often failed to stem the inflow of capital.

> [Figure 14 around here]

Yet, the adoption of flexible rates may prove no panacea. While they theoretically insulate economies from real external shocks, macroeconomists are increasingly questioning the insulating properties of flexible exchange rates. In particular, Helene Rey (Rey, 2013; and Rey, 2014) argues that a flexible exchange policy may offer little defense against “the global financial cycle” - the overwhelming power of monetary policy in center countries to impact emerging economies. The trilemma is thereby reduced to a dilemma. If the choice of exchange rate regime is thus relegated to secondary importance, the question becomes whether or not to open up the capital account. In the event, even an orthodox bastion of free markets like the IMF has been reconsidering its prior repudiation of capital controls. (Ostry et al, 2010)

> Notwithstanding the periodic revival of U.S. ‘declinism’ (Brown, 2013), the U.S. remains, indisputably, the global monetary hegemon. The role played by the US in the international monetary and financial system far outweighs its share in global GDP. As much as 40 percent of global GDP can be considered a part of the dollar bloc, including countries that fix or manage their currencies against the dollar (Beckworth and Crowe, 2016). And this estimate excludes China, which in key respects remains the second largest member of the dollar bloc. The inclusion of China ramps the dollar bloc up to closer to 60 percent of global GDP, with the euro bloc a distant second at some 20 percent (Borio, 2016).

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46 Many emerging economies have been cautious about adopting flexible regimes particularly for fear that a currency depreciation, can wreck havoc on foreign currency borrowers.

47 Sterilization involves the use of open market operations and related policies to offset the expansionary impact on the monetary base of official reserve accumulation. The sale of domestic bonds tends to drive up local rates, raising debt servicing costs. Moreover, the resulting increase in the interest rate differential with other countries attracts further capital flows, reinforcing the original dynamic.
US monetary policy decisively influences nominal GDP growth throughout the dollar bloc. Yet, under certain domestic economic conditions in these countries, the rate of U.S. monetary growth can appear excessive. And as the ‘taper tantrum’ episode suggests anticipated US monetary tightening can prove equally destabilizing when domestic conditions in other economies require lower rates. Moreover, there is ample evidence that central banks outside the dollar bloc including the Bank of Japan and the European Central Bank regularly alter their monetary policies in direct response to prior actions by the FED (Beckworth and Crowe, 2016).

Thus, in contradistinction to the “savings glut” view discussed in section I, there are those who suggest that the underlying root cause of the Great Recession lies in a “liquidity glut” created by US monetary policy (see e.g. Taylor, 2007). By keeping interest rates too low for too long, the Federal Reserve allegedly fueled excessive credit creation and encouraged the excess risk taking that inflated the asset bubble whose bursting precipitated the crisis. Furthermore, it has been asserted that a rate of monetary expansion by the FED in excess of global economic needs during the early 2000’s ultimately reverberated to the detriment of the US itself. Rather than global imbalances, spillovers from the US to the rest of the world created the excess global liquidity that would eventually return to bid up US financial asset prices in the run-up to the Great Recession (Beckworth and Crowe, 2012).

The debate over the causes and aftermath of the Great Recession thus points to a larger issue than global imbalances per se. It involves the stability and representativeness of the international monetary system itself. In part this incorporates the issue of asymmetric adjustment to macroeconomic shocks, as discussed in section I. But it also pertains to adequate provision of global liquidity and monetary stability. Does the international system require a more effective monetary anchor than presently exists? And if so, does the answer lie in more formalized monetary coordination, the proliferation of additional reserve currencies or the introduction of a new global currency and monetary standard?

III. Concluding Thoughts

This paper has described a few key controversies over the rules and norms underpinning the prevailing international monetary system. The fundamental question it poses is whether flaws in the architecture of the international monetary and financial system (IMFS) itself can be considered a root cause of the Great Recession and a likely cause of systemic crisis in the future. Central issues such as global imbalances, currency wars and exorbitant privilege have been discussed as central arenas of conflict that have plagued the system. All center on the unique structural position of the United States within the IMFS. Does a more effective system of crisis prevention require an overhaul of US centrality?
The foci of conflict over international monetary arrangements amidst macroeconomic policy divergence shift according to what is currently considered the core risk threatening the global system. At times, the main concern may indeed be trade imbalances where the core interests of chronic surplus and deficit countries are ostensibly opposed. We have seen this played out at the global level and at a more regional level within the European Monetary Union. But, in addition, the interests of different sectors and actors within the deficit and surplus countries, respectively, can collide. For example, the producers and workers of certain industries in deficit countries may oppose retaliation, fearing negative ramifications for their particularistic business interests with surplus country partners. In parallel, certain coalitions of firms and citizens may welcome a reduction in their country’s current account surplus, notably when the latter is integral to a desired shift in growth strategy.

Such imbalances today can otherwise be portrayed as a type of North-South conflict. The successive wave of emerging market financial crises and the Great Recession have challenged orthodox economic thinking about the net benefits of financial globalization for many less developed economies and in particular, about the wisdom of running current account deficits. In the event, many economies have proved able to maintain rapid economic growth while running current account surpluses (Prasad, et al, 2006). And because such surpluses tend to improve their international creditor positions such economies arguably face, at least in part, reduced financial vulnerabilities. Meanwhile, the reserve accumulation that often accompanies this reversal in their current account positions has no doubt slowed the process of macroeconomic adjustment globally, exacerbating the pressure on deficit countries, including both advanced and emerging economies.

While one set of North-South conflicts concerns the sharing of macroeconomic adjustment burdens between current account deficit and surplus countries, another set of conflictual interests involves the acceleration in the overall level of capital flows. In particular, a strong counter-cyclical effort by the monetary authorities of slow-growing advanced countries has generated spillovers that challenge emerging economies. This ‘push’ characteristic of financial globalization involving a surge of capital flows has divided countries which find themselves at different junctures of the economic cycle and with disparate institutional arrangements. It has spurred a new conflict over what exactly constitute “currency wars.” It has led to a reconsideration of the efficacy of capital controls in bastions of financial orthodoxy like the International Monetary Fund. It has fundamentally exacerbated the tension between emerging market and advanced countries, and even among countries within each respective camp, over the equity of current international monetary governance.

A common thread of all such controversies involves the centrality of the United States qua monetary hegemon and the predominance of the US dollar qua global reserve currency. Since the end of Bretton
Woods the U.S. has served as the goods market and lender of last resort. During the post-Bretton Woods system of flexible exchange rates, in which the dollar functions as the global system’s numeraire, global investors have expressed their revealed preference for US dollar assets. Periodic “flights to safety” have exacerbated the demand for dollars. Yet, as a chronic current account deficit country it has long since emerged as the global economy’s largest net debtor. This phenomenon provoked the oft-quoted statement that “there is surely something odd about the world’s greatest power being the world’s greatest debtor” (Summers, 2004).

For itself the US, at least rhetorically, remains preoccupied over the imperative to unwind global imbalances. It believes that the leading current account surplus countries need to shift progressively toward domestic demand-led growth (US Treasury, 2016). For China this involves less resort to unilateral foreign exchange intervention among other factors. For Germany, which does not benefit from direct foreign exchange intervention, it means greater willingness to run fiscal deficits, in order to finance much needed infrastructure domestically but simultaneously to assume a greater share of the adjustment needed to reduce intra-EMU imbalances.

Yet, one wonders whether such conflicts would prove more soluble were it not for sharp divisions among international macroeconomists over core concepts and approaches. We have characterized divisions within the profession over alternative financial and monetary risks in terms of key constructs within international macroeconomics. These include the impossible trinity or trilemma, the triple coincidence assumption underlying balance of payments accounting and modern variants of the Triffin dilemma. Recent developments in the global economy have raised challenges to all three of these principles.

In the aftermath of the Great Recession, moreover, certain core economic categories that relate to international monetary arrangements have increasingly been contested. One particular source of tension within the economics profession concerns the emphasis that need be placed on the current account of the balance of payments. For example, proponents on either side of the global imbalance debate tend to view the main culprit as countries that either save too little or too much. US (or Spanish) profligacy is thus pitted against “saving gluts.” In the one case, the current account is viewed as quasi-exogenous, hence requiring an offsetting flow via the capital account. From the reverse perspective, net capital inflows to a country require an endogenous response on the current account with mirror alterations in the investment-saving balance.

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48 It should be emphasized that this concern is hardly confined to the US. Under the auspices of the IMF key country contributors to global imbalances have repeatedly committed to macroeconomic and structural reforms that would in principle reduce the scope of current account imbalances.

49 One could argue that the persistence of current account surpluses in EMU countries such as Germany has assumed more than regional significance as the overall EMU position has moved from balance to surplus. In addition to contributing to global imbalances, the absence of a robust EMU recovery constrains global growth.
Theoretical and empirical studies remain divided over the importance of the current account as an early warning indicator for financial crisis. This seems especially true for the case of the United States for which external financial adjustment is greatly facilitated by the dollar’s global role and which continues to receive more investment income from abroad than it pays out.

Such division leaves open the question of how concerned the international community should be about current imbalances per se. In particular, do these imbalances reflect primarily “beggar-thy-neighbor” competition among nations, involving disproportionate reliance on external demand in order to promote longer-term development and/or cyclical recovery? Are the global imbalances today likely harbingers of future systemic crisis? Are global imbalances attributable to domestic economic distortions or are they more often a benign and normal manifestation of the microeconomic decisions of savers and investors and the legitimate interventions of sovereign policymakers around the world?

A fundamental critique of current account-focused theory, advanced by economists at the Bank for International Settlement, insists on a conceptual distinction between savings and financing. While the savings-investment balance involves an economy’s real resource constraint – less consumption (more saving out of national income) makes room for more investment - the latter has little to do with the financing needed for investment or any other category of spending. In a monetary economy all spending requires the acquisition of purchasing power in the form of a medium of settlement, namely money. And the credit that gives rise to money creation has little to do with current account imbalances but rather the location of the lenders providing the credit. From this perspective, a current account deficit country can receive the bulk of its lending from domestic financial institutions or those located in countries with balanced or even deficit current accounts. The quantity of savings does not constrain investment; investment creates its own savings provided the requisite financing (money) is provided (Borio and Disyaitat, 2011).

Such economists stress that current account balances do reveal important information about issues of national solvency but that the disproportionate emphasis accorded the current account obscures broader aspects of financial imbalance. Advanced and emerging economies alike need to pay particular attention to an economy’s credit cycle and be willing to ‘lean against’ a rapid expansion of credit, including its international component, even in situations of low goods inflation – the focus of most central bank policy. They remind us how central actors in the global financial crisis – e.g. in core Western Europe - exhibited roughly balanced current accounts. Moreover, other countries that have run chronic current account surpluses such as Japan have faced severe financial vulnerabilities that could be exacerbated by policy changes that would principally target global imbalances. For such economists the key challenge involves reform at the national level to contain the high “elasticity” of credit creation and accompanying changes to rules and norms underlying the IMFS which “amplify” national credit creation (Borio, 2016).
This paper has also underscored the differential contribution to external financial adjustment of valuation effects impacting currencies and financial assets in emerging versus advanced countries. Where valuation effects are insignificant, a country’s NIIP primarily reflects cumulative current account balances. Yet, even here the composition of capital flows and their impact on the maturity, currency and debt/equity profile of the corresponding external stocks can prove crucial propagators of financial fragility. Concerns over such composition can be equally or even more elevated when gross capital flows accelerate, even under conditions of more balanced current accounts.

In addition to an examination of national external balance sheets, sometimes one needs to focus on the international funding strategies of individual actors within the global economy. The core risk in the system can pertain to a concentration of currency, maturity and/or debt/equity mismatches of multinational (non-state) actors. Their consolidated balance sheets and the currencies in which they transact may not coincide closely with the country in which they are headquartered. Their transactions – say for example multinational corporates headquartered in country X who fund their investments in country Y in the currency of country Z – may endanger not only themselves. Their decision-making can also threaten financial counterparties and innocent third party bystanders. This certainly can be said about central participants in the securitization of U.S. sub-prime mortgages, for example. Once categories of domestic product and income no longer neatly coincide with currency areas and operational units, one sees how a focus on global imbalances, on the one hand, and national balance sheets, on the other can conceal key risks and vulnerabilities.

Currency fluctuations and asset/liability valuation effects have proven especially critical for the viability of US external accounts. In this context, any critique of the efficiency and stability of the IMFS must weigh the factors that contribute to US exorbitant privilege versus exorbitant duty. Given the dollar’s central reserve currency role, and given the unique composition of the US external balance sheet, the US appears to be able to consistently spend more than it produces, financing the difference at low interest rates. Its NIIP is a particularly noisy indicator of financial fragility, given that the latter is strengthened both by dollar depreciation, and at least in ‘normal’ times the venture capitalist-type composition of its balance sheet. As we have shown, this advantage is reflected in a consistently positive net investment income.

In contrast, in times of crisis the world at large has exhibited an excess demand for safe assets, which are provided in disproportionate quantities by the U.S. public and private sectors. Such episodes are typically characterized by dollar appreciation and US financial asset outperformance which effectively transfer sizeable resources to the rest of the world. Meanwhile, demand for US assets has often perpetuated net capital inflows to the United States, which by basic balance of payments accounting requires a current account deficit, as discussed in section 1. As we have seen, and despite the moderating impact of valuation
effects described above, these chronic current account deficits have cumulated in a large stock of U.S. net foreign liabilities. Yet, warnings to the contrary notwithstanding, the US has heretofore avoided the oft-predicted financial crisis, at least one marked by a collapse in the dollar and a spike in interest rates driven by a capital reversal.\textsuperscript{50}

Still, given that the trend decline of US NIIP remains unsustainable, a leading issue for the IMFS involves the set of policy reforms and institutional changes that would at once lower the demand for safe assets and increase the supply of safe assets through an expanded role for non-US reserve currencies. Before lowering their demand for precautionary reserves emerging economies must be convinced that their needs for liquidity in a crisis can be more reliably met via global and regional mechanisms. This is especially imperative given the high costs of maintaining such reserves.

Regarding the supply of safe assets, the issue is one of global systemic reliance on one, overwhelmingly dominant reserve currency, which also serves as the national currency of the world economy’s leading ‘net debtor.’ Is a global currency issued by some supranational entity needed to anchor the system and if so, can the credibility of that currency be maintained while meeting the global economy’s need for ample liquidity? Or is greater multilateralization of national reserve fiat currencies required to ensure global monetary stability? While a full analysis of this complex topic is beyond the scope of this paper, it seems reasonable to conjecture that the rise to greater prominence of other national currencies would lower pressure on the U.S. For this to happen, however, Europe must reach a point where it is no longer focused as inwardly on its own challenges; and China must complete a robust transition of its economic (and political) system before its currency can assume a more global role. Alternatively, an international institution such as the IMF must be accorded sufficient resources to back a veritable global currency, well beyond the essentially bookkeeping function currently performed by its Special Drawing Rights (SDRs). Yet, none of these substitutes for the dollar’s current global role can be envisioned any time soon.

All such questions relating to reforms to the current IMFS involve several fundamental considerations: First, does a basis exist for national leaders -- with the help of international financial institutions -- to coordinate macroeconomic and macro-prudential policies to better reconcile competing interests? Or does the secular shift in the locus of economic power that the global system has been witnessing portend a more fundamental revamping of the international monetary architecture itself? If the former, then the presumption must be that such countries are otherwise unable to ‘keep their own house in order’ without creating distortions that ‘beggar’ others. Assuming the achievement of national

\textsuperscript{50} This observation has failed to allay the fears of many observers that the U.S. and the world at large remains vulnerable to disorderly US current account correction (see e.g. Obstfeld and Rogoff, 2005; and Edwards, 2005).
macroeconomic stability without significant economic distortions is judged unrealistic – this seems to be the case in a world economy marked by negative interest rates, on the one side, and outsized foreign exchange reserves on the other - then one needs to explain the very mixed track record of monetary policy coordination to date. (see e.g. Eichengreen, 2011; Frankel, 2016)

If the latter, can some core menu of reforms be envisioned to better cope with the underlying forces that to date have given rise to currency wars and financial crises, thus preserving the theoretical advantages of financial integration while moderating its potential downsides? Such a menu of reforms will need to ensure a more efficient and effective provision of the global public good of monetary stability that the US has heretofore, if imperfectly, provided. Perhaps the fundamental issue is that the IMFS is not a system of more or less symmetric, interactive parts. For better or worse, it comprises a set of rules and conventions disproportionately influenced by the most powerful monetary actor – a self-interested hegemon effectively charged with managing a complex collection action problem. Hopefully, the core concepts and contending approaches discussed in this paper can lend fresh perspective in addressing how to improve on existing international monetary and financial rules of the game.
References:


Mantega, Guido (2010) a speech in Sao Paulo to Brazilian industrial leaders ahead of presidential elections. September 27.


Figure 1:

Source: IMF World Economic Outlook Database, April 2016.
Note: EMA EX China = Major Emerging Asia Economies Excluding China (Hong Kong SAR, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, Thailand). OIL = Major Oil Exporters (Angola, Canada, Islamic Republic of Iran, Iraq, Kazakhstan, Kuwait, Libya, Mexico, Nigeria, Norway, Qatar, Russia, Saudi Arabia, United Arab Emirates, Venezuela). EURSUR = Major European Advanced Surplus Economies (Austria, Denmark, Germany, Luxembourg, Netherlands, Sweden, Switzerland). EURDC = Other European Economies with Precrisis Current Account Deficits (Greece, Ireland, Italy, Portugal, Spain, United Kingdom, WEO group of emerging and developing Europe). ROW = Rest of the World.
Table 1: Global Imbalances by Country and Region (absolute dollars and share of GDP)

<table>
<thead>
<tr>
<th>Surplus Countries</th>
<th>2000 USD billions</th>
<th>% of GDP</th>
<th>2007 USD billions</th>
<th>% of GDP</th>
<th>2011 USD billions</th>
<th>% of GDP</th>
<th>2015 USD billions</th>
<th>% of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>131</td>
<td>2.8</td>
<td>212</td>
<td>4.9</td>
<td>130</td>
<td>2.2</td>
<td>137</td>
<td>3.3</td>
</tr>
<tr>
<td>Germany</td>
<td>-34</td>
<td>-1.8</td>
<td>233</td>
<td>6.8</td>
<td>229</td>
<td>6.1</td>
<td>285</td>
<td>8.5</td>
</tr>
<tr>
<td>Developing Asia*</td>
<td>43</td>
<td>1.9</td>
<td>396</td>
<td>6.64</td>
<td>98</td>
<td>0.9</td>
<td>290</td>
<td>1.9</td>
</tr>
<tr>
<td>China</td>
<td>20</td>
<td>1.7</td>
<td>353</td>
<td>10.0</td>
<td>136</td>
<td>1.8</td>
<td>293</td>
<td>2.7</td>
</tr>
<tr>
<td>CIS</td>
<td>48</td>
<td>13.0</td>
<td>65</td>
<td>3.6</td>
<td>108</td>
<td>4.1</td>
<td>51</td>
<td>2.8</td>
</tr>
<tr>
<td>Middle East &amp; North Africa</td>
<td>87</td>
<td>10.8</td>
<td>269</td>
<td>13.6</td>
<td>415</td>
<td>13.9</td>
<td>-110</td>
<td>-3.9</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Deficit Countries</th>
<th>2000 USD billions</th>
<th>% of GDP</th>
<th>2007 USD billions</th>
<th>% of GDP</th>
<th>2011 USD billions</th>
<th>% of GDP</th>
<th>2015 USD billions</th>
<th>% of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>-2.7</td>
<td>-0.6</td>
<td>-16</td>
<td>-1.3</td>
<td>-78</td>
<td>-4.3</td>
<td>-26</td>
<td>-1.3</td>
</tr>
<tr>
<td>Australia</td>
<td>-16</td>
<td>-3.9</td>
<td>-63</td>
<td>-6.7</td>
<td>-44</td>
<td>-3.0</td>
<td>-56</td>
<td>-4.6</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-35</td>
<td>-2.2</td>
<td>-75</td>
<td>-2.5</td>
<td>-44</td>
<td>-1.7</td>
<td>-123</td>
<td>-4.3</td>
</tr>
<tr>
<td>New Zealand</td>
<td>-1.8</td>
<td>-3.2</td>
<td>-9.2</td>
<td>-6.8</td>
<td>-4.7</td>
<td>-2.8</td>
<td>-5.2</td>
<td>-3.0</td>
</tr>
<tr>
<td>Turkey</td>
<td>-9.9</td>
<td>-3.7</td>
<td>-37</td>
<td>-5.7</td>
<td>-74</td>
<td>-9.6</td>
<td>-32</td>
<td>-4.4</td>
</tr>
<tr>
<td>Euro area</td>
<td>-169</td>
<td>-2.6</td>
<td>10.6</td>
<td>0.08</td>
<td>33.2</td>
<td>0.2</td>
<td>345</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Source: IMF World Economic Outlook Database, April 2016.

Figure 2:

Emerging Market Financial Account Balance (Billions of Dollars)

Source: IMF World Economic Outlook Database, April 2016.
Figure 3:

Total Reserves, 1998 - 2015
(Includes gold, current US$, Billions of dollars)

Source: International Financial Statistics (IFS), Data by indicator, IMF.

Figure 4:

Global Financial Assets Imbalances (% of World GDP)

Source: IMF World Economic Outlook Database, April 2016.
Note: CHN+EMA = China and emerging Asia (Hong Kong SAR, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, Thailand); DEU+EURSUR = Germany and other European advanced surplus economies (Austria, Denmark, Luxembourg, Netherlands, Sweden, Switzerland); OCADC = other European countries with precrisis current account deficits (Greece, Ireland, Italy, Portugal, Spain, United Kingdom, WEO group of emerging and developing Europe); FUEL = Norway and WEO group of emerging market and developing economy fuel exporters; ROW = rest of the world. Data labels in the figure use International Organization for Standardization (ISO) country codes.
Box 1:

- $\Delta NIIP \approx \text{Current Account} = \text{Savings} (S) - \text{Investment} (I) = -KA$
- $\text{Savings} (S) - \text{Investment} (I) = \text{Foreign Investment} (I^*) - \text{Foreign Savings} (S^*)$
- $S - I = Y - A$ (where $Y$ = output and $A$ = absorption)
- Breakdown of the Savings – Investment (Flow) Gap:
  $$(S - I) = (S_p - I_p) + (S_g - I_g) = (S_p - I_p) + (T - G)$$
- Inter-temporal (Stock) Constraint:
  $$(-)NIIP \leq \sum_{t=1}^{\infty} \frac{CA_t}{(1 + r)^t}$$

Box 2:

- **Current Account**: difference between what domestic residents spend and earn abroad. Comprised of:
  - The (goods + non-factor services) trade balance
  - The (factor services) income balance
  - (Unilateral) Transfers

- **Capital Account**:  
  - Non-official
    1. FDI
    2. Portfolio (equity and debt) + bank lending
  - Official (Central Bank) financing

- **Net International Investment Position (NIIP)**: difference between the foreign assets held by domestic residents and the domestic assets held by foreign residents
Figure 5:

Current Account and Budget Deficit as % of GDP: 1982 - 2016

Source: US current account data is from IMF WEO database, April 2016, data in 2016 is estimated. US budget deficit data is from US Office of management and budget, data in 2016 is estimated.

Figure 6:

U.S. Households Saving and Gross Household Investment (% of GDP)

Source: National Data Section 5 – Saving and Investment, US Bureau of Economic Analysis.
Figure 7:

Total Foreign Assets (Trillions of Dollars)

Source: International Investment Position by Indicator, Balance of Payment Statistics (BOPS), IMF.

Figure 8:

Dollar Credits to non-Financial Sectors (Annual Growth)

Source: Data on Global Liquidity Indicators, Bank for International Settlement.
Figure 9:

Credits of International Currencies (Trillions of Dollars)


Figure 10a:

World - Allocated Reserves by Currency for 2016Q1

Source: Currency Composition of Official Foreign Exchange Reserves (COFER), IMF.
Figure 10b:

<table>
<thead>
<tr>
<th>Currency</th>
<th>Usage for Cross Border Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPY</td>
<td>7.0%</td>
</tr>
<tr>
<td>HKD</td>
<td>7.9%</td>
</tr>
<tr>
<td>CNY</td>
<td>12.7%</td>
</tr>
<tr>
<td>EUR</td>
<td>4.2%</td>
</tr>
<tr>
<td>OTHERS</td>
<td>4.6%</td>
</tr>
<tr>
<td>USD</td>
<td>63.6%</td>
</tr>
</tbody>
</table>


Figure 10c:

Share of World GDP at PPP for Currency Blocs

Source: PPP GDP data taken from IMF WEO Database, April 2016.
Figure 11:

NIIP (% of GDP) for A Sample of Advanced and Emerging Economies (1998 vs 2015)

Source: International Investment Position by Country, Balance of Payment Statistics (BOPS), IMF.

Figure 12:

US Net Foreign Assets and Net Investment Income Flows (Billions of Dollars)

Source: NIIP data for US is from international investment position section on International data, US Bureau of Economic Analysis.
NII data for US is from international transactions section on international data, US Bureau of Economic Analysis.
Figure 13:

China's Net Foreign Assets and Net Investment Income Flows
(Billions of Dollars)

Source: NIIP data for China is from International investment position by country, Balance of Payment Statistics (BOPS), IMF.
NII data for China is from Balance of Payments Standard Presentation by Country, Balance of Payment Statistics (BOPS), IMF.

Figure 14:

Policy choice
No monetary policy autonomy
Sacrifice goal 3 to attain 1 & 2

Policy goal 1
Fixed exchange rate

Policy goal 2
Capital mobility

Policy goal 3
Monetary policy autonomy
Sacrifice goal 2 to attain 3 & 1

Policy choice
Capital controls
Sacrifice goal 2 to attain 3 & 1

Policy choice
Floating exchange rate
Sacrifice goal 1 to attain 2 & 3