

# **The Financial Crisis Through the Lens of Global Imbalances**

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## I. Introduction

This is not the financial crisis we had expected. During the middle of the current decade, many of us were increasingly concerned about the sustainability of the US current account deficit. By the fourth quarter of 2005, this outflow had reached 6.5% of GDP and was being financed almost entirely by dollar reserve accumulations of foreign central banks. Debate among economists had centered on whether the US would experience a hard or soft landing, where the first would be marked by a run on the dollar and a spike in interest rates, and the second by chronically high interest rates and lower growth over many years, until imports had declined to a sustainable level. (Bergston and Williamson, 2004; Blanchard et al., 2005; Cline, 2006; DeLong, 2005; Eichengreen, 2006; Krugman, 2006; Obstfeld and Rogoff, 2005; Roubini and Setser, 2004; Summers, 2004; Xafa, 2007) In the end, neither forecast turned out to be correct. The landing is certainly proving to be hard, but where is it?

At the simplest level, the actual crisis differed from the expected one in three ways. First, it presented itself as a global upheaval, not one confined to the US or even primarily centered on it. More or less simultaneously, every economy experienced the same problems: a collapse of asset values that undermined the solvency of essential financial institutions, a sudden stop to new lending, and a sharp contraction of consumer demand. In fact, as the crisis unfolded the vulnerability of the US appeared to be lower than that of many other countries. For instance, as of the end of second quarter, 2009, 12 countries (nine of them transitioning) had drawn a total of \$35B from the IMF's Standby Account, and interest rate spreads pointed to several EU nations as being at far greater risk of default than the US. Second, the weakness of the financial sector in particular seemed to be characteristic of nearly every country. The sins of deregulation, dishonesty and incentives that reward reckless behavior were apparently universal, to the extent that, for many observers, the economic crisis was a financial crisis in all significant respects. Third, rather than collapsing, the dollar revealed itself, at least temporarily, to be a pillar of strength: the immediate response to the financial distress during the summer and fall of 2008 was a net capital inflow to the US and a rush to acquire short-term Treasuries in particular. Yesterday's controversies around US external deficits seem almost quaint at the moment, echoes from another era.

The main argument of this paper, however, will be that, while the crisis has not unfolded quite as anticipated, and although financial excesses were important for propagating it internationally, global imbalances were at the heart of events. Specifically, the financial rupture occurred as a result of the breakdown of the mechanism by which imbalances were being financed, and the emergency measures being taken to patch this mechanism can only succeed in stabilizing the downturn, not reversing it. One way or another, the route out of the crisis must lead to a different regime of global balances, one in which excess demand from the US no longer fuels export booms in creditor regions. This may well entail a significant ratcheting down of global output and a period of slow growth until the global capital stock adjusts to a new, and hopefully more sustainable, configuration of demand.

One final word of caution is in order. Behind the narrative that follows lies an implicit model that may seem peculiar to economists accustomed to thinking in terms of equilibrium outcomes. Instead, structural characteristics, especially the financing constraints that apply to incomes and expenditures, are emphasized. This does not mean that agency is ignored; I do take into account behavioral responses to changes in income and prices, but the underlying model is one in which the primary forces are inertial, behavior is largely governed by convention, and the fog of uncertainty prevents the attainment of an equilibrium end-state. In addition, political-economic considerations are central and provide the framework within which private actors adjust. To my knowledge, a formal model incorporating these features and sufficiently elaborated to capture the outlines of this narrative does not exist.<sup>1</sup> This necessitates a softer, less falsifiable style of explanation, but, in any case, a careful description of events is needed before one can begin to test hypotheses.

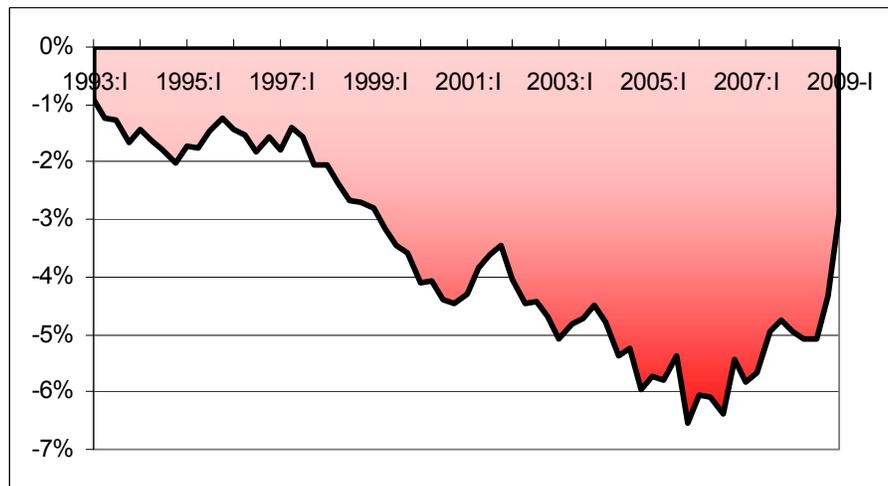
## II. Recycling Global Imbalances

At the risk of being too schematic, one can divide the recycling of current account deficits into two components or phases, which can be called "currency recycling" and "credit recycling". Both are necessary for such a deficit to persist for more than a trivially short period of time.

Currency recycling refers to the exchange of deficit for surplus currencies. Country A, let us say, runs a current account deficit (CAD) with country B. There is a net flow of A's currency to B. Recipients of this currency take it to B's central bank (CB) to exchange for their own. Now excess reserves of A's currency temporarily materialize at this bank. Some portion may be acquired by other individuals or institutions within B who wish to purchase assets in A; this would be an offsetting private capital flow. If private demand for A-denominated assets is not sufficient to deplete the excess reserves, two main possibilities present themselves. The CB of B could sell these excess reserves on the market in order to obtain other currencies, driving down the value of A's currency—and potentially contributing to a market correction for the current account imbalance. Alternatively, the CB could retain these reserves, holding them in the form of A-denominated assets. In other words, the CB could supplement private capital flows to A with a public capital flow.

Currency recycling in this sense is what captured economists' attention during the heyday of the US CAD. Figure 1 presents the now-familiar story of the US CAD during the years 1993-2009.

**Figure 1: US Current Account Deficit as Percent of GDP, 1993-2009**



Source: US Bureau of Economic Analysis, National Income Accounts

The deficit remained relatively stable at less than 2% of GDP until 1998, when it began the rapid descent that characterized the period 1998-2006. Roughly speaking, there were two phases to this downward trajectory. During the first, which ended with the NASDAQ sell-off of 2001, the CAD was financed by robust private capital inflows. These were either directly in the form of equity purchases or the acquisition of other assets that strengthened the demand for equities via portfolio substitution. Leaving aside the bubbly aspect of the dot.com boom, one might legitimately say that perceived investment opportunities in the US attracted foreign capital, yielding a stronger dollar and a greater trade imbalance than might otherwise have occurred, although taking into account the trajectory of the payments deficit over the entire period—before and after the boom—makes it clear that a transitory episode in equity markets was not the primary determinant of this imbalance.

The second phase was marked by the declining attractiveness of US financial assets to foreign investors. Beginning in 2001, private capital inflows were insufficient to finance the CAD and needed to be supplemented by sovereign purchases of dollar-denominated assets, primarily Treasuries and Agencies (issues supplied by Fannie Mae and Freddie Mac). By mid-decade, this sovereign inflow constituted the entire volume of net finance; as the CAD receded from its trough in 2006 sovereign flows now financed not only the US current account but also net private capital outflows, the latter reaching approximately \$200B on an annualized basis by the second quarter of 2007.<sup>2</sup> Perhaps we are now in a third phase of rebalancing, although the dramatic adjustment in the last quarter of 2008 and the first quarter of 2009 may reflect the short-term impact of the financial crisis rather than presaging a new trend—more on this later.

Given sufficient currency recycling (net capital inflows) to sustain a CAD, the second component is credit

recycling, the process that puts financial resources in the hands of those whose spending must necessarily exceed their income. The algebra is rudimentary yet oddly unfamiliar. National income is given, of course, by

$$(1) \quad C + I + G + (X-M) = Y$$

Aggregate expenditure, E, is

$$(2) \quad C + I + G = E$$

recognizing that C, I and G incorporate both domestically and externally produced components. Thus the sum of private and public budgets, B, is given by

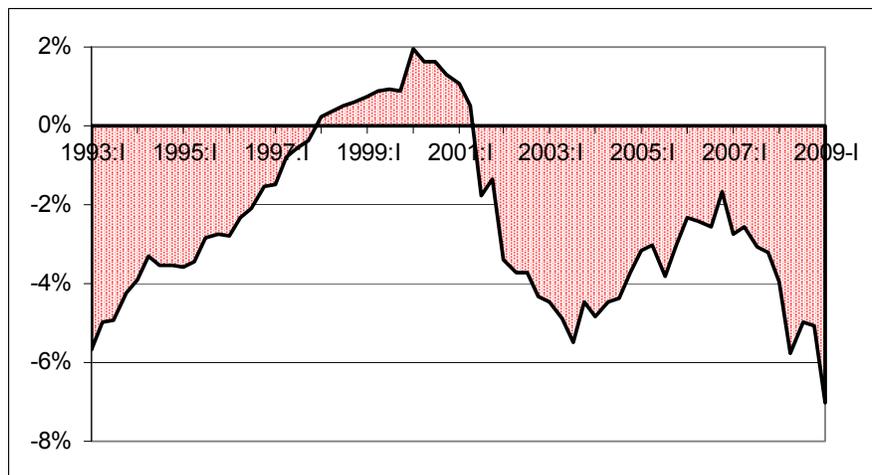
$$(3) \quad X - M = Y - E = B$$

A country with a CAD relies on credit (or a decumulation of assets) to finance the portion of its total expenditures corresponding to that deficit. This can take the form of either fiscal deficits or borrowing (reduced net asset position) by households and firms.

The point in this context is that the capital inflows associated with the balance of payments constraint must find their way into credit vehicles that finance the actual expenditures given by (2). For government spending this means new Treasury issues; for business expenditures the main vehicle is corporate bonds; for households we have to consider not only consumer credit but also mortgage lending. That this aspect of the recycling process was not given sufficient attention was due, in my opinion, to the failure of conventional macroeconomics to incorporate financial balances into its standard analytical workhorses.

To return now to our historical narrative, associated with each phase of currency recycling was a set of mechanisms for credit recycling. The first point, which needs to be made as strongly as possible, is that fiscal deficits, while important for the story, were hardly the most important element, despite the substantial economic literature on “twin deficits”.<sup>3</sup> Figure 2 displays US fiscal deficits as a percent of GDP during this same period as above.

**Figure 2: US Fiscal Deficits as a Percent of GDP, 1993-2009**



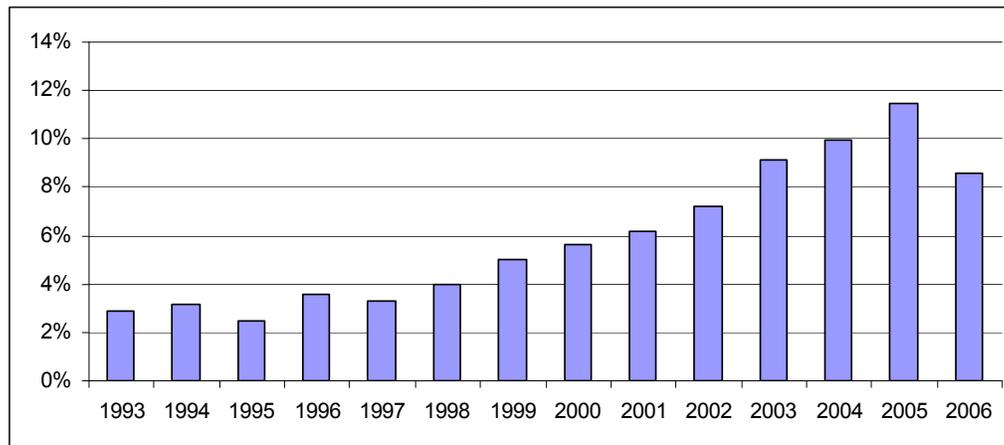
Source: US Bureau of Economic Analysis, National Income and Product Accounts

The period of initial rapid expansion of the CAD was also one of fiscal surplus: the capital gains generated by the equity bubble were sufficient to finance not only the expenditure deficit as defined by (3), but also the “negative contribution” to this aggregate borrowing attributable to net public revenues. Of course, the fiscal surplus vanished overnight with the collapse of equities and the onset of a recession; this permitted public

borrowing to pick up the recycling slack resulting from the closure of the equities channel. Indeed, fiscal deficits fully financed the CAD through the end of 2003, indicating that, on balance, growing private indebtedness during this phase was essentially a domestic affair—a net borrowing of one portion of the universe of households and firms from the other, in a context of dramatically increasing income inequality.

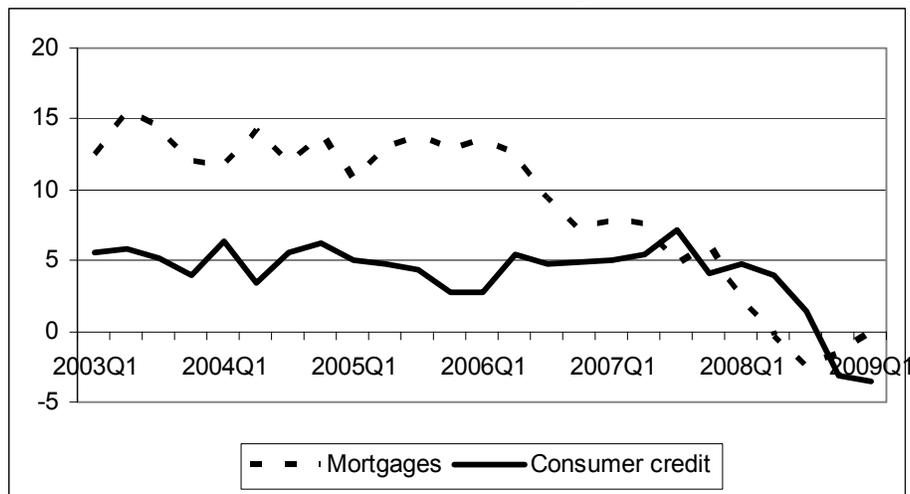
The subsequent three years, on the other hand, set the stage for the crisis as it was ultimately realized. Fiscal deficits declined to under 2% of GDP, while the CAD ballooned to 6.5%. Now borrowing to achieve credit recycling was the responsibility of households, and their primary vehicle was the housing market. Capital inflows, directly (via Agencies) and indirectly (via portfolio substitution), pumped up real estate values. Households converted these apparent capital gains into consumption finance via equity extraction, derived from realized capital gains, home equity loans and cash-out refinancing. Figure 3 shows annual gross equity extraction in the housing sector as a percent of GDP.

**Figure 3: Gross Equity Extraction from Housing, US, as Percent of GDP, 1993-2006**



Source: Greenspan and Kennedy (2007)

This can be taken only as a rough indicator of credit recycling via this channel. There are two issues: (1) Equity withdrawn from housing assets can be reallocated to other assets; Greenspan and Kennedy (2007) offer estimates of this first round cross-asset effect, but they are not able to trace the indirect process by which reinvestment of housing appreciation can lead to equity withdrawals by counterparties in non-housing asset markets. (2) Greater equity extraction by some households might be tied to greater saving by others. Recall that this was a period in which income inequality rose to levels not seen in nearly a century. Income shortfalls on the part of lower- and middle-income households were partly a reflection of the extraordinary earnings bubbling up to the top. There is some evidence that this process was responsible for a portion of increased mortgage and consumer debt at moderate income levels. (Boushey and Weller, 2008) Perhaps it also accounted for a portion of household savings among the well-off. If so, we could say that, in effect, those whose incomes were not rising sustained some of their consumption by borrowing indirectly from those whose incomes were. Of course, this complication, while qualifying the contribution of housing equity extraction to aggregate household dissaving, does not diminish its role in credit recycling. Overall, it is clear that housing played a predominant role in generating finance for household consumption during the period in which fiscal deficits were on the decline, at a sufficient scale to offset the public retreat from credit recycling. There was a corresponding increase in other forms of household debt, such as credit cards and auto loans, but housing saw the largest growth. This can be seen in Figure 4, which depicts the annualized growth rates in mortgages and consumer credit.

**Figure 4: Annualized Growth Rates in Household Borrowing, 2003–2009**

Source: Federal Reserve Board, Flow of Funds Accounts

Up to this point debt expansion has been discussed in an implicitly functionalist manner: private and public deficits played the role of making possible the recycling of capital inflows to agents whose expenditures exceeded their incomes. It is legitimate to ask, however, whether these inflows also acted causally on financial markets so as to generate “bubble finance”. This could be explored generally with a view to all assets potentially subject to appreciation and liquidity withdrawals, but the limited research thus far has considered only housing. As an introduction to this topic, consider the three European countries mentioned most prominently in connection with housing bubbles, Ireland, Spain and the UK. All had chronic CAD’s during the past decade, as seen in Table 1.

**Table 1: Current Account Deficits as Percent of GDP, Selected European Countries**

	2002	2003	2004	2005	2006
Spain	-3.3	-3.5	-5.3	-7.4	-8.9
Ireland	-1.0	NA	-0.6	-3.5	-3.6
United Kingdom	-1.7	-1.6	-2.1	-2.6	-3.4

Source: IMF World Economic Outlook, 2008

Of course, a more complete analysis would have to take into account conventional determinants of housing price inflation, as well as alternative venues for currency and credit recycling. Standard & Poors has examined several European countries in order to forecast housing prices; extending conventional real estate analysis to include current account positions, they conclude that CAD’s play a significant role in most cases. (Six, 2008a; Six, 2008b) A more systematic analysis is provided by Aizenman and Jinjark (2008), who examined a panel of 43 countries over the period 1990-2005; they found that, controlling for a wide range of other factors, a CAD of 4% of GDP is associated with a real housing price appreciation of 10% when all lagged effects are aggregated. This is not yet a confirmation of the hypothesis developed in this paper, since the authors do not incorporate variables for competing financial channels, but it is a striking result and difficult to explain except from a perspective similar to ours.

Variations in credit demand may also influence both equity extraction and CAD’s, as discussed by Cynamon and Fazzari (2008). A widespread increase in the willingness to rely on credit to increase consumption levels can be self-sustaining via the establishment of social norms; this would jointly influence both domestic credit and asset markets and trade balances. Even so, the timing and location of these credit-fueled import binges would need further explanation, and care must be taken to avoid providing a behavioral account for an

accounting relationship, as explained in Dorman (2007).

To sum up the argument thus far, the actual crisis deviated from the predicted one for several reasons, the foremost being that, while it was assumed that recycling vulnerabilities would reveal themselves at the international level (currency recycling), it turned out that the domestic component (credit recycling) was the one that failed. Borrowers overshot their sustainable credit limits, and securities whose ultimate value depended on debt service soured. This overshooting was facilitated by regulatory failure and a general excess of leverage throughout the US financial system.<sup>4</sup> (Ellis, 2008) Due to securitization, however, toxic assets were widely distributed throughout global markets, and the geographic distribution of subsequent near- or actual insolvencies corresponded more to the portfolio choices of different financial institutions than the US origins of the problem. Stolid Canadian banks, some a few miles from the US border, have been less affected than many of Germany's risk-seeking but unsophisticated Landesbanks.<sup>5</sup> Indeed, rather than triggering a run on the dollar, the financial crisis initially provoked a run *to* the dollar. Superficially, one could say that, while a breakdown in the recycling of global imbalances was at the root of the current crisis, it has played no noticeable role in its propagation or the scale of its effects. This could be true for the panic phase which has (perhaps) drawn to a close, but it is too soon to pass this judgment on the slump as a whole.

### III. Blame a Savings Glut?

Thus far the current account deficit has been treated as an exogenous factor, like the relative who was invited for dinner but somehow ended up living in a spare room ever since. Our task has been to map the consequences: the scale of capital account financing and the specific channels by which it made its way to the ultimate "excess spenders". Most economists, however, saw this process in reverse. They observed differential savings rates and associated financing gaps across countries, which for them implied capital account flows. Then corresponding (equal and opposite) current account imbalances were required to achieve recycling. Proponents of this view spoke of a "savings glut" in east Asia and the Gulf (Bernanke, 2005); some also suggested that the US had acquired a comparative advantage in financial intermediation such that foreign wealth-holders were eager to place their funds in US markets.

It will be useful at this point to review some of the arguments made in Dorman (2007) which address the issue of causality. Did macroeconomic imbalances (savings relative to investment) induce offsetting trade flows, or did trade imbalances compel offsetting capital flows?

Begin by recognizing that this question cannot be settled by appealing to accounting identities. The fact that at any moment a country's current account deficit or surplus must be the exact opposite of its net national savings (savings minus investment, both public and private) says nothing about the direction of causation. Actions that alter one alter the other automatically as a simple matter of bookkeeping. For instance, if I purchase an import from another country, and if this is the only perturbation in the trade balance, then my outflow of currency can only be spent (by its recipient, or more likely, a counterparty) on an asset, and the supplying of this asset (issuing a new equity or bond, selling an existing asset) is simultaneously a reduction of net national saving. No additional theory is required; indeed, there is no logical space for such a theory. We can't base the existence of identity relations on behavioral responses that may or may not take place.

Once this point is conceded, causality depends solely on the salience of mechanisms that might initiate such a process from prior changes in technologies, policies or other economic factors. Let's see how this would apply to the savings glut hypothesis. To simplify the issue, we can take as our starting point the simplest possible version of this thesis: citizens of east Asian countries (supposedly influenced by "Confucian values") prefer to save a substantial portion of their income, while Americans are incorrigibly profligate. Thus financial institutions in east Asia are stuffed with deposits compared to their American counterparts. Assume also that investment rates (relative to national income) are equal. The implication is that interest rates would be very low in east Asia and high in the US. But this cannot be an equilibrium situation in a world of financial openness. Excess savings would flow from east Asia to the US, reducing interest rate differentials; this in turn would raise the real (inflation-adjusted) value of the dollar relative to east Asian currencies, and dollar appreciation would induce a US trade (current account) deficit. The defensible version of this theory is not that an interest rate story is needed to show why a current account deficit must accompany a capital account surplus (since this is always true by identity), but that the entire set of outcomes could have been set in motion

by differential savings and could persist as an equilibrium. (An identity can be a disequilibrium; if so it will presumably be short-lived.)

The savings glut story as told here has a series of transmission mechanisms: an autonomous change in savings behavior leads to changes in interest rates, changes in interest rates lead to changes in real exchange rates, and changes in exchange rates lead to changes in bilateral trade balances. For the sake of argument, we can accept the first and third mechanisms as unproblematic, but what about the second? From a theoretical point of view, interest rate differentials in the current period will be reflected in real exchange rates only net of currency risk, but surely this risk is likely to pull in the opposite direction. Indeed, under covered interest rate parity, the causation is mutual, and exchange rate expectations can themselves be an influence on interest rates. How these factors sort out in practice is an empirical matter, and there is a substantial literature on the question. Very generally, one can sum up the current status of research by saying that models that attempt to explain exchange rates on the basis of interest rates and other macroeconomic fundamentals perform little better than a random walk, implying that changes in expectations, and perhaps other factors as well, are salient and confounding. (For documentation, see the references in Dorman, 2007.) In other words, the savings glut hypothesis requires a transmission mechanism that, according to the evidence, does not exist: differential credit market conditions do not explain the overvalued dollar of the past decade, nor its decline during the 2006-08 period.

Alas, the savings glut narrative has even more holes. (1) It depends on a portrayal of investment opportunities that is wildly at variance with the facts. A savings shortage did not make the US an investor's paradise; rather, it was the profit opportunities in east Asia, and particularly China, that attracted the larger part of cross-border private flows. Indeed, the higher return on US outward versus inward investment was at the heart of the mid-decade "dark matter" hypothesis that claimed that official statistics misrepresented the US balance of payments position. (Hausmann and Sturzenegger, 2007) And if savings rate differentials did not manifest themselves in returns on investment, by what other means could they drive capital flows? (2) The savings glut story purports to explain portfolio choices of private investors based on whether they are situated in savings-short or savings-abundant locations, but an increasing proportion capital flows to the US—ultimately, on the eve of the crisis, more than the entire net inflow—was from sovereign sources.

There is an alternative and far more likely explanation for the same phenomena. After the debt crisis of 1982, the major industrial countries established a policy regime that permitted, and to some extent required, debtor nations in the developing world to transform themselves into export platforms for acquiring hard currencies. Central to this regime was an opening of consumer markets in the wealthy countries and the deregulation of cross-border production and finance.<sup>6</sup> Following the example of Japan, first other smaller east Asian countries and then China took advantage of this institutional environment to generate very large trade surpluses primarily through an effective set of industrial policies. (Wade, 1990; Amsden, 2001) A key component of the strategy was to prevent currency appreciation in order to retain competitiveness, and this meant that either private wealth-holders or public entities in the surplus countries were compelled to acquire dollar (and pound and later euro) portfolios. In some countries and for some periods (such as during the dot.com boom or the initial inflation of the housing bubble) these portfolios were attractive to private investors, but when they weren't central banks and public equity funds stepped into the breach. While cultural factors may have some influence on national savings rates, the extraordinary extent of the realized savings differentials reflected simply the accounting identities: trade surpluses *are* net savings, and no further explanation is necessary. (Cultural factors, including consumption propensities, influence trade balances directly, of course.) The principle transmission mechanism in this story is the competitive advantage achieved by east Asian exporters that was unmatched by American producers. Its sources are microeconomic (wages and productivity) and policy-induced—especially in the form of industrial policies, import barriers and exchange rate management.

This is a stylized account of the regime of global imbalances; a more complete version would of course include the oil sector, the accumulation of reserves by other developing country exporters in the wake of the 1998 financial crisis, and the role of the eurozone in balancing, and thereby recycling, deficits with China and the oil exporters with surpluses vis-a-vis the US. It was ultimately unstable, since it required the indefinite expansion of US external deficits; sooner or later it had to break down. Had the credit recycling mechanisms held up for a few more years, it is possible that the rupture would have occurred in currency markets, but distressed American households and the quality of their debt collapsed first.

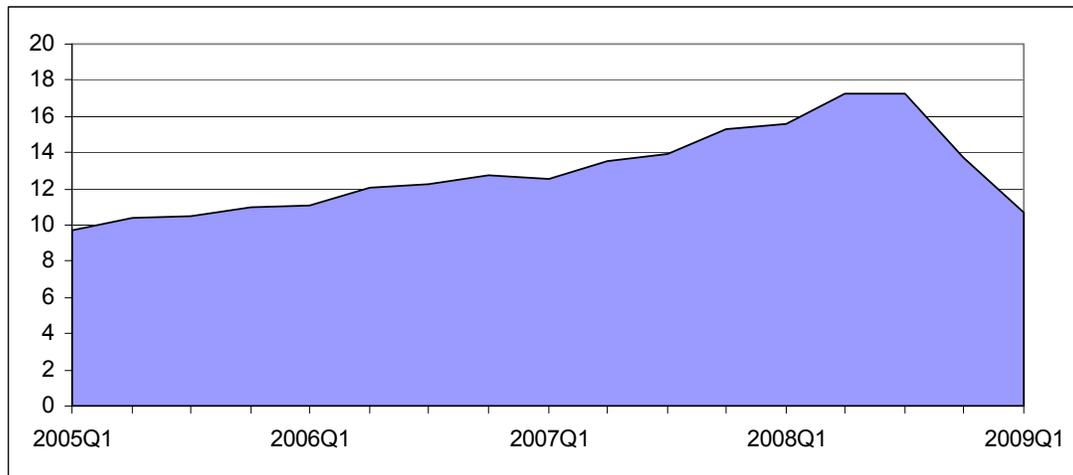
#### IV. Global Rebalancing

Now that the financial shock of 2008 appears to be contained, the central question is what form the recovery will take. The analysis in this paper implies that global rebalancing is the necessary objective.

To get a sense of the role that US deficits played during the era of imbalances, consider 2006. According to the IMF's World Economic Outlook database, the global economy, minus the US, expanded by \$2.56T at market exchange rates; the US CAD that year, according to the Bureau of Economic Analysis, was \$.79T. Thus, the demand represented by the external deficit could be said to have fueled nearly a third of the rest of the world's entire growth. This understates the importance of the imbalance in two respects: (1) Countries exporting to the US had national income multipliers greater than one. (2) Elimination of the US CAD would require both price (exchange rate) and quantity (national income) adjustment; the national income component would have further reduced global trade and income. Precise calculation would be difficult (it would depend on the accuracy of trade elasticity and multiplier estimates for all the world's principal economies), but it is enough for our purposes to say that the ability of the US to finance its CAD on such a colossal scale was indispensable to the world economy as a whole.

A shift in prevailing winds is often marked by a sudden stillness, and this appears to be the case for world trade as well. Just as trade grew much more rapidly than economic activity in general during the era of imbalances, it has now fallen off a ledge, if not a cliff. Figure 5 shows that the decline in trade during the past three quarters nearly equals its entire growth during the previous fourteen.

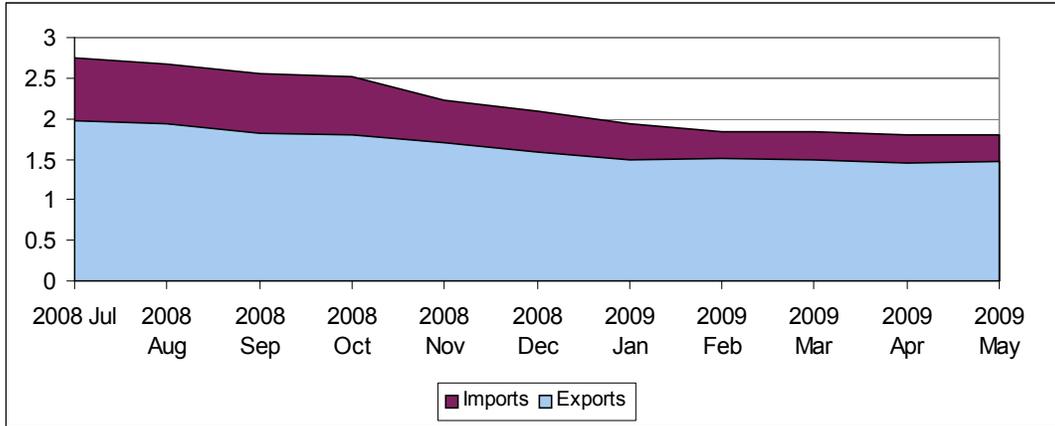
**Figure 5: Global Trade, 2005 – 2009, Annualized in Trillions \$US**



Source: World Trade Organization

The US contribution to this collapse can be seen in Figure 6, which presents US imports and exports on an annualized basis during the period July 2008 – May 2009. The trade deficit has fallen by an extraordinary 60% on a month-to-month basis; this has been accomplished by a shrinkage of imports (35%) in excess of exports (25%), from a larger base as well. The annualized decline in US imports is about \$1T, which represents almost two-thirds of the contemporaneous decline in global trade.

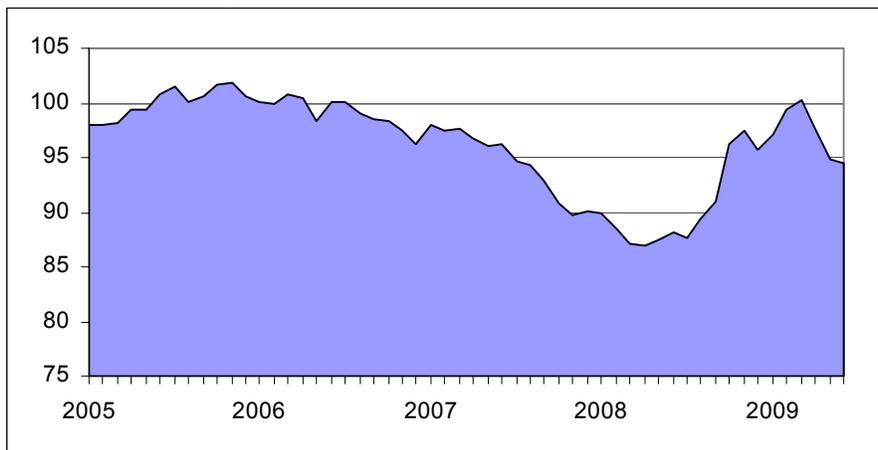
**Figure 6: US Imports and Exports, Annualized in Trillions \$US**



Source: US Bureau of Economic Analysis. Note: the darkly-shaded region reflects the trade balance ( $M - X$ ).

One more point needs to be made in connection with this adjustment: it is not due primarily to movements in the dollar. Figure 7 records the real effective dollar exchange rate since January 2005. The dollar declined steadily from its late-2005 peak until the intensification of the financial crisis in late summer 2008, but the current account and trade deficits did not plunge until the crisis took hold. In fact, the dollar spike associated with the panic phase has thus far had no discernible impact on trade flows. Nor has dollar's gyrations led to any visible trade diversion, as would be expected if price effects predominated. We can conclude that the popular interpretation is correct: trade has plummeted in response to a credit crunch and a subsequent implosion of demand.

**Figure 7: Real Effective Exchange Rate, US Dollar, 2005-09 (2005 = 100)**



Source: Bureau of International Settlements

In a nutshell, the financial crisis has depressed global imbalances, but it has not yet pointed the way to sustainable rebalancing. A US trade and current account deficit of approximately their current levels may (barely) be sustainable, but not if they can be obtained only as a byproduct of a profound economic slump. If the world economy rebounds, and if the US CAD returns to its previous dimensions, a rupture of either currency or credit recycling (a run on the dollar, a collapse of credit channels) is inevitable. The "solution" to the financial strains of uneven development devised in the post-1982 period is no longer a solution, and a new framework for growth has to be found. It is much too early to forecast where this search will lead, but the preceding analysis suggests at least a few necessary guideposts:

1. Currency adjustments sufficient to contain unsustainable imbalances cannot be depended upon in the current financial architecture, if they exist at all. Sovereign players, possessing enough financial muscle, can dominate foreign exchange markets, and in any case these markets show no propensity to settle on prices consistent with medium or long period equilibrium. The entire modern period of floating exchange rates has been marked by repeated crises, with the latest having pulled the world to the brink of abyss. Either exchange rate determination must change, or additional mechanisms, like capital controls, need to be instituted to promote balance, or both.

2. The export-led model, at least in its current incarnation, has exhausted itself. In a sense, it suffers from the same problem as import-substitution, only in reverse. ISI foundered on the need to procure foreign exchange with insufficient exports to exchange for it. The majority of ISI countries eventually choked on their external debt. EL industrialization foundered on the inability of the importers to sustain sufficient levels of debt – to recycle the surpluses amassed by the exporters. The model was successful only when its scale was small relative to global output; when China entered in force its end was already in view.

3. A substantial portion of the world's capital stock embodies the dead-end dynamics of global imbalances. China and other developing country exporters possess capacity in many industries which far exceeds domestic demand, and which has little prospect for profitable use in a world of more balanced trade. (The same observation applies to developed export specialists, like Germany.) By the same token, during its decades as an import powerhouse, the US failed to invest sufficiently in capacity that would enable it to increase its exports and provide domestic substitutes for foreign goods. In particular, it put off making the investments required to reduce its oil import bill, even though that issue has been on the table since the mid 1970s. Global rebalancing will take time and far-reaching political-economic adjustment: it will entail writing off some of the existing capital stock, replacing it with new investments, and propagating the institutions and policies appropriate to new, ideally more sustainable growth strategies.

## Endnotes

1. Like Godley and Lavoie (2006), the scaffolding is taken from accounting relationships in a flow of funds context, but I do not share their specific behavioral assumptions.

2. Estimates of private vs sovereign flows are inexact; those I rely on were extrapolated from official data (US BEA, BIS) by Brad Setser (2007), based on his assumptions regarding the composition of CB reserves and the likely, but unreported, holdings of Gulf Cooperation Council (GCC) members.

3. Here my analysis is indebted to the prescient work of Blecker (1992).

4. The spectacular character of these financial excesses have reinforced the view that they reached unprecedented levels and were principally responsible for the slump. It is a reasonable hypothesis, however, that financial practices are *always* problematic, in good times and bad, but only in a period of falling incomes or prices are they exposed.

5. In fairness, it is likely that the publicly-owned Landesbanks were responding to EU pressure to show market rates of return.

6. For more detailed discussion, see Dorman (2000).

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