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EXTERNAL ADJUSTMENT

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ABSTRACT

Gross stocks of foreign assets have increased rapidly relative to national outputs since 1990, and the short-run capital gains and losses on those assets can amount to significant fractions of GDP. These fluctuations in asset values render the national income and product account measure of the current account balance increasingly inadequate as a summary of the change in a country's net foreign assets. Nonetheless, unusually large current account imbalances, especially deficits, should remain high on policymakers' list of concerns, even for the richer and less credit-constrained countries. Extreme imbalances signal the need for large and perhaps abrupt real exchange rate changes in the future, changes that might have undesired political and financial consequences given the incompleteness of domestic and international asset markets. Furthermore, of the two sources of the change in net foreign assets -- the current account and the capital gain on the net foreign asset position -- the former is better understood and more amenable to policy influence. Systematic government attempts to manipulate international asset values in order to change the net foreign asset position could have a destabilizing effect on market expectations.

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Since the days of David Hume and before, the causes and effects of national trade imbalances have fascinated economists. Paramount in their analyses have been the questions:

- What is the definition of an "imbalance"?
- What shocks initiate imbalances?
- Is an imbalance ultimately self-correcting and if so, in what time frame?
- What is the nature of the dynamic adjustment process, and in particular, what are the implications for international and intra-national relative prices?
- Should government intervene to limit international imbalances?
- Which official interventions, if any, are likely to be beneficially effective?

These concerns remain highly topical today as analysts debate the implications of the unprecedented series of high current account deficits that the United States has run since the late 1990s. In this lecture I explore the extent to which recent vast changes in the functioning of international capital markets require a new view of external adjustment.

A quick historical review sets the stage for the discussion of recent developments. Hume's own description of a stable, self-correcting system, focusing on the net export balance, international gold flows, and the resulting changes in international terms of trade, was intended to refute claims of the need for and effectiveness of restraints on international trade. Later empirical research, for example, by Taussig and students of his such as Viner and White, broadened the Humean framework to consider capital movements and their effects on gold flows. Of course, even in Hume's eighteenth-century milieu, the omission of international flows of capital and the attendant policy complexities was anachronistic. During the fourteenth century, for example, Italian

bankers moved capital within Europe, sometimes experiencing default and systemic repercussions.

Even under the classical gold standard, the credibility of currencies' gold parities became a factor determining the speed and stability of the gold-flow adjustment process. A notable pre-1914 episode was the early-1890s U.S. dollar crisis sparked by the domestic agitation for silver. But by the interwar period, with the onset of the Great Depression and widespread banking instability, the situation became extreme. Countries losing gold (or gold-backed exchange) might be viewed by speculators as devaluation risks. The resulting capital flight and the associated gold hemorrhage often led to a much more rapid and possibly bigger depreciation than would have occurred absent speculation. Sometimes, instead or in addition, capital controls were part of the policy response.

The interwar experience heavily conditioned the arrangements that emerged after the 1944 Bretton Woods conference. The Bretton Woods system mandated fixed (albeit adjustable) exchange rates against the U.S. dollar, but it also allowed official limitations on private international capital flows. In a setting of restricted private credit, the net flow of liquid international reserves -- principally dollars or gold -- was the measure of international imbalance (with some debate over America's special role). Exchange rate adjustments provided a safety valve leading to more rapid adjustment should the slower Humean mechanism prove politically unworkable. (The dominant Mundell-Fleming analytical model of the 1960s reflected the emphasis on reserve movement, treating capital movements as relevant only insofar as they affected the stock of foreign reserves.)

But even in that environment, speculative capital flows became unmanageable, and by the early 1970s industrial-country dollar exchange rates were afloat.

At the start of the twenty-first century, a veritable explosion in international asset trade has occurred among a group of economies including the industrial countries as of 1970 and those once-poorer nations that have graduated, through euro zone membership or otherwise, to reasonably low perceived levels of credit risk. This asset trade involves a wide range of state-contingent instruments. For most of the poorer economies, there remains a more rudimentary connection with the international capital market, as well as a range of exchange-rate arrangements that typically fall short of conventional notions of "freely floating." Even so, the subset of "emerging market" developing economies also displays increasingly deeper integration into world finance, though not to the same degree as the rich nations. These dramatic -- indeed unprecedented -- developments call for rethinking the notions of "external balance" and "external adjustment" that have underpinned international economic policy analysis in the past.

I will argue that for a given country with a given degree of integration into world financial markets, appropriate concepts of external balance adjustment cannot be defined without reference to the structure of national portfolios. In general, an appropriate external balance concept nowadays relates to the evolution over time of a broadly defined concept of net external wealth. Particularly for the poorer countries though, liquidity considerations remain important and as argued prominently by Reinhart, Rogoff, and Savastano (2003), debt carrying capacity is sharply lower than for rich economies (just as is true for individuals).

I will also argue that the current account still "matters," even for the United States. We are far from a world in which, in the memorable words of former United States Treasury Secretary Paul O'Neill, the current account balance is a "meaningless concept"[1] -- although it is certainly true that, increasingly, the standard NIPA definition is inadequate because it omits valuation changes. This point has recently been emphasized anew by a number of authors, including Gourinchas and Rey (2004), Lane and Milesi-Ferretti (2001, 2004), and Tille (2003, 2004); for earlier discussions, see Obstfeld (1986) and Stockman and Svensson (1987). Flawed as they may be, however, current account figures contain useful information, just as do the flawed figures for government fiscal deficits.

There is no doubt that for the industrial countries, the proliferation of state-contingent international borrowing and lending has now created a situation in which external adjustment can occur much more rapidly through exchange-rate and other asset-price movements than was ever the case in the past. It remains unclear, however, whether actual private international portfolios guarantee that such price movements are in general stabilizing. Nor is it clear whether, even in the case of creditworthy rich economies, the resulting governmental incentives might not interact in undesired ways with market forces, generating adverse financial side effects. On these matters much more research is needed. In the case of the developing countries, there is little doubt that the nature of their portfolio options is too often destabilizing. As a result, the susceptibility to financial crises is much greater, and the gains reaped from international financial relationships lower, than for the industrial countries.

[1] See, for example, Kenneth Rogoff, Press Conference on the *World Economic Outlook*, April 18, 2002, http://www.imf.org/external/np/tr/2002/tr020418.htm.

External Adjustment in an Idealized World

An economic unit's profile of consumption possibilities is constrained by its specific foreign assets and liabilities, the international price schedules it faces, and any quantity limitations constraining its foreign trades. Conventional notions of external balance relate to changes in an economy's marketable net foreign wealth -- its external assets less its liabilities -- although obviously, changes in prices or in quantitative constraints can have equally serious effects on the benefits that can be derived from international trade over the future. Thus, while I will focus on marketable external wealth in this lecture, it is important in practice to keep in mind the entire set of international constraints on an economy. Price effects, in particular, have economic effects beyond their effects on market asset values. A full welfare analysis for the national unit must consider the entire shape of its intertemporal consumption possibility frontier, although marketable net foreign wealth is one important determinant of the frontier.

A useful clarifying, albeit highly unrealistic, benchmark for thinking about national portfolios is the nature of external adjustment in a world of fully enforceable state-contingent contracts covering all possible future random events. In that world, current account imbalances would be much reduced or even eliminated altogether. The reason can be grasped by contrasting the idealized case with that of a world in which international asset trade is limited to noncontingent instruments, bonds or loans. In the

noncontingent-assets world, a temporary output increase at home that does not affect investment opportunities leads to a current account surplus as domestic residents smooth their consumption over time through the accumulation of interest-bearing foreign bonds. Under complete Arrow-Debreu contracts, however, the home country is already insured, to the optimal extent, against the domestic income shock. It has sold to foreigners in advance much of its domestic output risk in exchange for claims on stochastic foreign outputs. Thus, when domestic output rises temporarily, domestic consumption rises commensurately with the equity share that the home country has retained, the balance flowing out as a dividend payment to foreigners and thereby reducing national income. Domestic and foreign current accounts need not move. As Stockman (1988) has stressed, the income effects of shocks differ radically as between complete and noncontingent asset markets, although the price effects may be similar. Deterministic changes would still give rise to changes in net external wealth as a result of intertemporal smoothing behavior, as would differences in time preference, but the current-account components due to such perfectly predictable trends are likely to be relatively small in practice.

In reality, firms may choose to retain earnings rather than pay out foreign dividends that would otherwise show up in the current account as service imports. But in that case, firms' stock-market prices would rise, resulting in the same end effect on net external wealth. An increasingly serious inadequacy of the standard current account measure is that it does not incorporate such potentially large valuation effects.

Consider next a shock that raises the profitability of domestic investment. Now there will be a current account deficit to draw in resources to be embodied in new capital. The balance-of-payment counterpart is the sale to foreigners of equity claims on the new

home investment, a financial inflow necessary to maintain globally diversified portfolios throughout the world. The home country in the end holds only its pro-rated share of the new capital, financed by its pro-rated increase in world savings. As Rogoff and I expressed it in our textbook (1996, p. 297), "in this case … the current account is merely an accounting device for tracking the international distribution of new equity claims foreigners must buy to maintain the efficient global pooling of national output risks."

But these idealized special cases have limited applicability in practice. The interesting question to ask is whether the world capital market is in any sense approaching this perfect-markets ideal.

The Evolution of Gross International Claims

As I have noted, a major change in the evolution of world capital markets has been the proliferation of two-way cross-border claims, primarily among the richer industrial economies. Figure 1 illustrates this evolution. These numbers, based on the valuable work of Lane and Milesi-Ferretti in constructing international position data adjusted for valuation changes, go through 2003.[2] The data and implications for international adjustment are discussed in Lane and Milesi-Ferretti (2004). Ratios of global foreign assets and liabilities to global GDP now far exceed the values they attained under the

[2] I thank Philip Lane and Gian Maria Milesi-Ferretti for providing the underlying data, which update through 2003 the 1970-98 data described in Lane and Milesi-Ferretti (2001). The series graphed can alternatively be viewed as the GDP-weighted average of nations' foreign assets (liabilities) divided by national GDP, where the average for each year is taken over those countries for which foreign wealth data are available in that year. The "assets" series is the sum of gross private assets plus non-gold reserves. For a comparison with the available (and much more fragmentary) data from the gold standard era, see Obstfeld and Taylor (2004, chapter 2).

classical gold standard. (While there may be some recent exaggeration in the extent of true foreign ownership of capital, the trend is unmistakable.)

Recent numbers for the United States, the world's largest economy, are fully consistent with these trends. In 1982, U.S. owned foreign assets were about 30% of U.S. GDP, U.S. liabilities a bit over 22%. For 2003, the corresponding foreign assets ratio is 72% and the liabilities ratio, 96% making the U.S. net foreign debt 24% of GDP. The United States' very large foreign debt is growing at the moment thanks in part to the largest current account deficit ever recorded, a circumstance to which I will return later.

These substantial asset cross-holdings represent an upsurge in international diversification -- through currencies with variable exchange rates, bonds of different maturities, and equities -- with the potential for sharp changes in asset prices leading to large international redistributions of wealth. For example, if the home economy holds large net stocks of foreign-currency assets, a depreciation of the domestic currency will raise net external assets relative to home GDP. Similarly, if foreigners hold our equities, a stock-market decline at home, provided it is not matched abroad, will reduce our net foreign debt. The early intertemporal models of the current account developed 25 years ago stressed the dynamic roles of saving and investment in altering net foreign assets, usefully focusing attention on the implications of borrowing for future consumption possibilities. Yet they assumed, in general, perfect certainty and external imbalances financed through trade in real bonds. If those models ever were reasonable approximations to reality, they now look manifestly inadequate to describe the dynamics of net foreign assets in the brave new world of huge two-way diversification flows.

Data for the U.S. external balance sheet again illustrate the point. Year-end data through 2003 are shown in Figures 2 and 3.[3] For U.S. gross foreign assets, shown in Figure 2, the striking change since the early 1980s is the sharp growth in foreign portfolio equity holdings (which has reduced, though far from eliminated, the equity home bias phenomenon for the United States). Only 1.8% of America's gross foreign assets in 1982, equities had increased to a full 25% by 2003. The implication is that a 10% decline in foreign stock markets, all else the same, would inflict a capital loss on Americans approaching 2% of their GDP.

The other striking feature of Figure 2 since the late 1990s is the relationship between the dollar's exchange rate and U.S. foreign assets.[4] To the extent that dollar exchange rates impact the dollar values of foreign equities, FDI, bonds, and loans denominated in foreign currencies, we would expect a strengthening dollar to reduce the dollar value of foreign assets and a weakening dollar to raise these dollar asset values. Figure 2 clearly displays such an effect, though for FDI and equities it is reinforced by stock-market declines in local currency terms. From end-1999 to end-2001, the dollar appreciated by about 15% against major currencies. Then, through end-2003, it depreciated by more than 25%.[5]

Figure 3 shows the composition of gross U.S. foreign liabilities. The most dramatic increase has been in the share of U.S. bonds held by foreigners. Foreign holdings of portfolio equity have increased more modestly since 1982, from 10.5% to

[3] I am grateful to Cédric Tille for generously providing these data.
[4] See Tille (2003) for a discussion of U. S. experience.
[5] Tille (2004) reckons that the dollar's 2002-2003 depreciation gave the U.S. a capital gain on net foreign assets amounting to nearly 4% of 2003 GDP. His paper also incorporates such international wealth redistributions into a new open economy macroeconomic model.

14.6% of total U.S. foreign liabilities. Since U.S. liabilities tend to be dollar-denominated, exchange rate effects are muted, but one can observe the effects of the stock-market meltdown (reducing the values of foreign FDI and portfolio equity claims after 2000). One also sees the effect of the concurrent bull market in long-term bonds as dollar interest rates fell (a development that, in itself, *raised* the value of foreign claims on the U.S.).

Some summary figures constructed by Cédric Tille decompose the changes in the U.S. international portfolio since 1982 into financial flows and valuation changes, with the estimated breakdown between exchange-rate and asset-price developments available starting in 1990. Clearly the magnitudes of valuation changes, even as a share of nominal GDP, have increased sharply in the last decade, sometimes exceeding substantially the flow components of gross asset changes (Figures 4 and 5). This is also true of the net changes (Figure 6), despite the tendency of world equity markets to move somewhat in a synchronized fashion.

Comparing Diversification and Development Flows

In the 19th and early 20th centuries, most capital flows were "development" flows--one-way movements, sometimes of large fractions of GDP, from rich countries such as England, France, and Germany to developing or peripheral nations such as Argentina, Russia, and Turkey. Reverse flows for the purpose of mutual risk diversification were small or nonexistent (Obstfeld and Taylor 2004). Now, in contrast, diversification swaps

have become a dominant feature of international finance, at least in trade among the richer nations. Can one devise a quantitative measure of this development?

One idea along these lines is to pursue the analogy between *inter-industry* trade -- in which countries export products that they do not at the same time import -- and *intra-industry* trade -- in which countries simultaneously import and export differentiated varieties within a single industrial category. I conceive of one-way asset trade, or "development" finance, as the export of currently available goods in return for the promise of future goods (or the reverse), giving rise to a imbalance on the current-account. I conceive of two-way asset trade, or "diversification" trade, as the mutual exchange of differentiated claims to future output, that is, claims on future output available in different states of nature. The analogy is not exact, but is, I believe, suggestive and useful. While in principle some asset trade can be rationalized in terms of comparative advantage, as Svensson (1988) has shown, models of endogenous asset production and trade such as the one developed by Martin and Rey (2001) provide settings in which international asset trade is quite analogous to intra-industry trade.

Nearly thirty years ago, Grubel and Lloyd (1975) suggested an index of the extent of intra-industry trade that, despite some shortcomings, has been widely used in the empirical trade literature. I propose to adapt it to international asset trade.

One way to do so is to define the following index of two-way asset trade for a country with gross foreign assets A and liabilities L:

$$GL = 1 - \frac{|A - L|}{A + L}.$$

The index equals 1 for a country with no net foreign assets or debt, one that therefore on balance, over time, has not engaged cumulatively in intertemporal trade. It takes the value of 0 when, for example, all liabilities are net liabilities (pure development finance). Clearly the index is imperfect. For example, if net foreign assets are 0, it would not capture a rise in leverage, as represented by equal increases in A and L. Thus, I will also report below measures of total asset trade, defined as $(A + L)/2Y$, where Y is nominal GDP. The Grubel-Lloyd measure also is very nonlinear, de-emphasizing possibly large increases in leverage when already close to 1. Nonetheless, the numbers, which I derive from the unpublished Lane and Milesi-Ferretti underlying Figure 1, are, I think, suggestive.[6]

Table 1 shows that for the emerging markets in general, diversification finance remains much less prominent than development finance. This is especially true if one computes a "non-reserve" Grubel-Lloyd index that (for most countries) is based primarily on private asset holdings; see the table's second column. Thus Korea's overall G-L index is close to 1. Leaving aside Korea's substantial official holdings of foreign (mostly U.S. dollar) reserves, however, its index drops to 0.59 because the private sector is indebted to foreigners. There are some exceptions among the emerging markets, notably Chile, which has shown remarkably good economic performance in several respects, and whose success at diversification has allowed it to move toward a truly floating exchange rate.

[6] The Grubel-Lloyd index does not capture whether a country is an international debtor or creditor. Thus, in 1913, when diversification finance was very limited but development finance was extensive, both the creditor United Kingdom and the debtor Canada would have shown low values of the index.

Chile also has (for an emerging market) a relatively high volume of international asset trade (see the table's third column). As a rule both the G-L index and my measure of asset trade tend to be well below 1 for the emerging markets.

This is not the case for High Income countries, though the overall G-L index is comparatively lower for those with high stocks of net foreign claims (Japan, Kuwait, Singapore) and for some lower-income European countries members (Iceland, Greece), as well as for Australia and New Zealand with their chronic deficits. For the United States, with a relatively high net foreign debt, the index is still 0.85, and for the United Kingdom it is 0.99. On average the volume of asset trade is much higher for the High Income group. Leaving aside Luxembourg (an obvious but small outlier), the simple average of the third column for the High Income countries is 2.32 for the High Income group, as against 0.64 for the Emerging group.

How can we assess the size of these numbers? Let us take the U.S. as an example for an exceedingly crude back of the envelope calculation. Imagine a homogenous world economy in which the U.S., while still representing a quarter of world GDP, also contains a quarter of the world's capital stock. Assume (as a lower bound) a global capital-output ratio of 2. Then the United States, if holding a fully diversified portfolio of global capital assets, would hold only a quarter of its own capital -- equivalent to 50% of GDP -- and hold an amount of foreign capital equal to 150% of GDP. Smaller countries would have higher ratios (as indeed is generally true in the High Income group). So the numbers suggest that, since the early 1990s, we have come considerably closer to full global financial integration, but are by no means there yet.

An important question is why, for the industrial countries and perhaps for some well-positioned emerging markets such as Chile, increasing international leverage has become possible. Obviously, the globalization process has involved a massive easing in financial constraints, which I suspect is in part driven by technological developments, but is mostly driven by the relaxation of the richer countries' administrative barriers to inter- and intra-national financial transactions. With this development, however, comes a need for more sophisticated risk management (as indeed we see being conducted), as well as the possibility of greater individual, national, and systemic risks.

The Economic Role of Valuation Changes

A key open question for economic research is whether valuation effects can be relied upon systematically to aid in the process of external adjustment. A broader but related question is to ask if international diversification has been beneficial, and if so, to what degree across different country groupings. The data we have seen already suggest that most emerging markets (leaving aside special cases such as Chile and Uruguay) are quite different from the established ones with respect to their use of international financial markets. Thus, one would definitely expect the answers to the preceding questions to be specific to the stage of development.

First, it is worthwhile saying something about the process of external adjustment, which I will view as the attainment of a current account balance consistent with a stationary ratio of net foreign assets to GDP. I will take it as axiomatic that at any point in

time, there is some long-run unconditional mean current-account balance determined by the intersection of a country's long-run supply of net foreign assets (a function of demographics, productivity growth, etc.) and world demand (based on global portfolio preferences, assessments of country risk, etc.). Obviously, it is a matter of great difficulty to put empirical meat on these theoretical bones, though in a given analytical model the concepts can be made quite clear.

There is strong evidence, developed by Taylor (2002) among others, that over the long run the current account-to-GDP ratio is statistically stationary. Thus, a current account deficit that is large relative to its long-run mean may be expected to decline, while one that is small may be expected to grow. In this process of adjustment, relative prices will change, bringing inter- and intra-national distributive effects that depend, in part, on the structures of different actors', and national, portfolios. If asset markets were complete, large expected price changes would not be a problem. But they are not, and the expected changes could play out abruptly and with the proverbial long and variable lags. This type of adjustment process raises the possibility of financial and political distress as the current account returns to a sustainable position.

A related question is whether, given national portfolios, current account imbalances can be expected to produce valuation changes that ease the extent of economic dislocations. For example, in the case of a high deficit country, do valuation changes shorten the expected period of consumption cutback before the economy reaches its stationary net foreign asset position?

An important new paper by Gourinchas and Rey (2004) suggests that for the United States, valuation changes on gross foreign assets and liabilities indeed speed the

external adjustment process. The starting point of their analysis is a country's intertemporal budget constraint, but in a context where the total rates of return on foreign assets and liabilities (inclusive of capital gains and losses) are variable and stochastic.

The budget constraint, in this context, has two predictions, one familiar and one less so. If rates of return are constant, then an expected stream of future net export surpluses must balance any net foreign debt. With variable asset returns, however, the need for future surpluses might be mitigated by sufficiently high returns on external assets relative to those on external liabilities. Gourinchas and Rey reason that a fall in the current ratio of net exports to net external assets must predict, as a matter of the budget constraint, either future increases in net exports, or future increases in the returns on foreign assets relative to foreign liabilities. In particular, the latter could occur through expected depreciation of the domestic currency, raising the relative return on foreign assets denominated in foreign currency. So on this theory, one would expect the ratio of net exports to net foreign assets to have predictive power for the exchange rate, with declines in the ratio signaling future home currency depreciation.

This prediction is borne out for quarterly U.S. data, both in within- and out-of-sample tests. Gourinchas and Rey find that net foreign asset portfolio returns are predictable up to two years out. Furthermore, at short and medium horizons, most adjustment appears to be through asset returns, whereas at longer horizons it occurs through changes in net exports.

These results, derived from a framework based entirely on an intertemporal budget constraint, are consistent with more than one economic mechanism. One is the phenomenon of home consumption bias, which suggests that current account adjustments

will be accompanied by adjustments in the real exchange rate and the terms of trade, with supply and demand elasticities lower, and therefore relative price effects greater, in the short run than in the long run. The undoubted frictions in domestic and world output markets certainly suggest a reason why extreme current accounts "matter." They must eventually be reduced, with potentially large relative price effects in the short run. In a recent study, Rogoff and I (2004) have estimated real dollar exchange rate depreciation as high as 30% or more as a result of a U.S. return to a zero current account. The Gourinchas-Rey results suggest that portfolio-valuation effects would ease this process somewhat, though quantitatively the mitigating effect on required dollar depreciation appears to be rather small.

The findings are also consistent with models of home currency portfolio bias, as embodied in the portfolio-balance models of the 1970s developed by Branson, Henderson, Kouri and others -- all inspired by Tobin's seminal 1969 general-equilibrium model of monetary policy. According to the portfolio-balance model, a country's residents have a preference, relative to foreigner investors, for bonds denominated in the home currency -- there is a local-currency home bias. Suppose that a country's net exports suddenly fall, widening the current account deficit and resulting in a wealth transfer to foreigners. Because foreigners have a relative preference for bonds denominated in their currency, there will be a transfer effect in the asset-markets: foreign currency will appreciate against home currency. As in the Gourinchas-Rey findings, the home current-account deficit will therefore predict home currency depreciation, and that depreciation will give the home country a capital gain on its gross foreign assets (if they are positive), mitigating the flow wealth loss through the current account deficit. The foreign country,

if it holds positive stocks of domestic-currency bonds, will experience a capital loss measured in local currency.

Economists devoted considerable effort to the microfoundations of the portfolio-balance model, but they moved on to other more tractable issues after the mid-1980s, with the 1985 *Handbook* survey of Branson and Henderson (1985) a high-water mark (and to a large extent a terminus) of that earlier research effort. Perhaps the negative econometric results on the effectiveness of sterilized foreign exchange intervention, along with the difficulty in empirically relating excess foreign-currency returns to observable measures of outside asset stocks, led to a belief that the size of portfolio effects was in any case small and of little policy relevance. I now believe, however, that the increasing leverage in international financial markets and the potentially huge international wealth transfers associated with alternative portfolio allocations make it is imperative to revisit the portfolio model, perhaps synthesizing it with the models of home equity bias that have received more recent theoretical attention. My hunch is that home currency preference is for real, and that it, as well as home equity bias, will turn out to be closely related to the trade costs that help to generate home consumption bias.[7] At the moment, we have no integrative general-equilibrium monetary model of international portfolio choice, although we need one.

Such theory as had evolved by the mid-1980s indeed supported home currency bias, at least for reasonably risk-averse investors, through the following argument. Suppose that price levels are quite predictable -- unlike exchange rates! -- and that there is a home preference for home-produced goods in every country. To be concrete, let's say

[7] Rogoff and I (2000) made the trade-cost argument for home equity bias some years ago.

each country's consumers place an 80% weight on goods produced locally. Suppose the home individual holds 80 per cent of his or her wealth in home-currency bonds and 20 percent in foreign-currency bonds, corresponding to the consumption weights. Then there will be no domestic consumption risk associated with the portfolios. That is, we have constructed a perfect consumption hedge. In fact, a sufficiently risk averse consumer will hold such a hedge portfolio, with weight (1 - 1/R), R being the coefficient of relative risk aversion, so that as $R \Rightarrow \infty$, the weight on the hedge portfolio goes to unity. The balance of wealth is held in a speculative portfolio, with weight 1/R, dependent on relative expected returns. In this setup -- which I again emphasize is based on partial equilibrium reasoning -- there is a wealth transfer effect on the exchange rate.[8]

The empirical size of this effect is unknown, especially at high levels of exposure to currency risk, but there is an obvious link to the question of current account sustainability. Take the U.S. case. To the extent that foreigners become increasingly unwilling to absorb dollar assets, either the dollar must depreciate or the U.S. must start to denominate liabilities in foreign currencies, thereby losing some of the stabilizing potential of dollar exchange-rate movements with respect to current account adjustment. Indeed, as I discuss below, the emerging markets are exactly in this position -- they suffer from the "original sin" of being unable to borrow abroad in domestic currency, as Eichengreen and Hausmann (1999) have called it -- and this makes current account adjustment more difficult. At high levels of net external debt country risk could also become an issue, though this possibility still seems remote for the United States.

[8] For further discussion of this result, see Adler and Dumas (1983), Branson and Henderson (1985), Kouri and de Macedo (1978), and Krugman (1981).

The Gourinchas-Rey finding, as I have noted, leaves open the precise mechanisms generating exchange rate predictability by net exports, and clearly an important goal for research is to investigate countries other then the U.S. and try to clarify the causal mechanism at work. My suspicion is that all the known financial- and goods-market biases will be at work, including the old portfolio-balance effect, driven by home currency bias. Portfolio balance effects are likely to be especially relevant for the emerging markets, but as I discuss now, are also likely to be destabilizing in that context, providing one rationale for the "fear of floating" phenomenon shown by some of these countries.[9]

The Portfolio Balance Adjustment Process

Concerns about "original sin" have centered on its implications for the macroeconomic repercussions of a *given* exchange-rate movement. It is less appreciated, however, that original sin will also affect the nature of foreign-exchange equilibrium, generally complicating current-account adjustment and magnifying exchange-rate volatility. These implications can be derived from the classic portfolio-balance model of exchange-rate determination.

In the industrial-country version of that model, domestic residents hold a fraction of their wealth in foreign-currency bonds whereas foreign residents hold a fraction of their wealth in domestic-currency bonds---there is no original sin. Domestic residents do, however, have a home-currency habitat preference compared to foreign investors. That is,

[9] See Calvo and Reinhart (2002).

domestic investors have a greater marginal propensity to allocate wealth to domestic-currency bonds than do foreign investors.

The best way to see the predicament of developing countries is to contrast their adjustment processes with that of a country like the United States, for which the home-currency transfer effect eases the process of external adjustment.

In the setting of the United States economy, consider the mechanisms of portfolio adjustment following a shock that opens up a home current-account deficit. Because the foreigners whose wealth is growing are less keen on U.S. dollar assets than are the U.S. residents whose wealth is correspondingly shrinking, a wealth transfer to foreigners causes a fall in the relative demand for dollar-denominated assets. The dollar therefore depreciates, restoring general portfolio equilibrium in three distinct ways, the first two of which depend on valuation effects:

1. Foreign investors suffer a capital loss, in foreign-currency terms, on their dollar bond holdings. As a result, their dollar asset holdings, measured in terms of foreign currency, shrink relative to their total wealth. To maintain a given desired portfolio share of dollar assets, they must add to their dollar-denominated bond holdings.

2. American investors enjoy a capital gain on their foreign assets and allocate part of the resulting increase in wealth to dollar-denominated bonds.

3. The last equilibration mechanism is the most subtle and the most dependent on investors' having an accurate long-run view of the exchange rate's trajectory. As the wealth transfer from Americans to foreigners continues, the exchange rate depreciates further. But if the current-account adjustment process is *stable*, by which I mean that the world economy is converging toward a new steady-state wealth distribution, the *expected*

rate of dollar depreciation will decline over time. This trend of decline in expected dollar depreciation raises the desired portfolio shares of dollar securities over time, helping to stabilize the foreign exchange market.

In this transition process to a stable foreign asset position, capital gains and losses on asset positions partially offset the effect on the United States' net foreign debt of the wealth transfer through the current account. These valuation effects reduce the *real value* (in terms of U. S. goods) of the long-run external adjustment. But consider next how the process works in a setting of original sin, with a foreign debt (rather than foreign assets) denominated in foreign currency.

As a concrete example, consider a sharp reduction in foreign demand for an emerging country's (foreign-currency) liabilities.[10] The short-term adjustment to the shock involves a current account surplus -- the country must adjust to the lower stock of claims on it foreigners wish to hold -- and an appreciating currency (partially reversing an initial overshooting depreciation that both generates the required current account surplus and creates a equilibrating expectations). In the original sin setting, the appreciation of the home currency over time *reinforces* rather than offsets the domestic-wealth effect of the increasing stock of net foreign assets. The extent of the real external adjustment that must be made, in terms of domestic output, is therefore greater than otherwise, the opposite of the Gourinchas-Rey effect found for the United States. From the standpoint of the domestic asset markets, the exchange-rate movement's valuation effect increases rather than mutes the excess supply of domestic-currency securities that domestic residents must absorb. The only factor equilibrating the markets is a sharply declining

[10] For a more detailed rendition of the underlying model, see Obstfeld (2004).

expected rate of currency depreciation along the stable path. Because expectations must do all of the work, indeed, more work, as they must counteract as well "perverse" valuation effects, the stable dynamic adjustment path to a new long-run equilibrium (the saddle-path) must be steeper than in the rich-country case, implying significantly higher exchange volatility. Furthermore, market stability in general depends even more fully than usual on rational long-run expectations -- stability truly is a knife-edge affair in this case. Is it any wonder many emerging markets have been leery of uncontrolled floating? Or that for them, international reserves as a source of liquidity are much more important than for rich countries, making their external-balance issues closer to those that were relevant everywhere during the Bretton Woods years.

World Capital Markets and Economic Stability

A key question that I have postponed until now, although one clearly related to the role of exchange rates and other asset prices in external adjustment, is the stabilizing properties of current-account imbalances in general, and of the increasing international asset diversification that we observe among many countries.

Regarding the role of the current account, we might ask whether consumption would have been more volatile in the absence of the opportunity for intertemporal trade. It is difficult to know the counterfactual, but the studies we have do suggest modest gains for the wealthy countries. Looking more broadly, one very striking fact is that many poorer countries have much more volatile current accounts than rich ones. Figure 7 follows Husain, Mody, and Rogoff (2004) in distinguishing among low-income "insular"

countries largely cut off from the private world capital market, emerging markets, and high-income countries.[11] The differences in current-account volatility (defined as the standard deviation of *CA*/*Y*) are striking -- the most volatile cases being several countries in Africa as well as Nicaragua and Laos. It is true that GDP volatility declines with GDP per capita, but in view of the fact that the ratio of consumption to income volatility does as well, it is hard to believe that for the poorest countries, external imbalances play a stabilizing role. Edwards (2004) finds, consistent with this suspicion, that the poorer countries suffer sharp current-account reversals more frequently. Further study of both the cross-country evidence and individual country experiences is needed. Data quality is part of the problem, but surely not all. (These data are for 1991-2000 but 1975-2000 data look similar.)

Direct evidence is slim, and we badly need more. Lane (2001) examines the GNP vs. GDP distinction and finds that GNP is not smoother than GDP for OECD countries, in contrast to the prediction of the simplest risk-sharing models. Figure 8 looks more broadly, comparing the standard deviations of GDP and GNP per capita growth rates (using 1975-2002 data). The figure suggests that a result similar to Lane's still holds true for a larger country sample, although for poorer countries, data are of lower quality, as already noted, and workers' remittances can be very important. What these analyses fail to do is to incorporate the impacts of capital gains and losses on net foreign assets -- which would be essential for evaluating in full the stabilizing (or destabilizing) effects of returns on international investments. In principle, we have data with which to begin examining that question.

[11] Those authors refer to my "insular" economies as "developing," though.

There are also some more indirect empirical approaches. One of the most sophisticated and careful examples is the pooled time-series, cross-section study by Bekaert, Harvey, and Lundblad (2004). They examine two country samples over 1980-2000. The first is a larger sample (95 countries) incorporating emerging markets that opened their equity markets to foreign participation strictly within the sample period, plus high-income countries that, by and large, entered the sample period having already liberalized. Some OECD countries, such as Japan and New Zealand, were relatively late liberalizers and are included along with the emerging markets in Bekaert et al.'s second (40-country) sample of economies that liberalized during the sample period. The authors ask whether, once one controls for other relevant determinants, countries experience a decline in macro volatility (of consumption per capita, of GDP per capita, and of their ratio, C/Y) after financial liberalization (either of the equity market, overall capital flows, or both).

The main pattern they find is quite consistent throughout their paper: significantly negative coefficients on the liberalization indicator for the large sample, much smaller (in absolute value) and statistically insignificant coefficients for the smaller sample.

The smaller sample's implication is that it is hard to detect positive liberalization effects on volatility (though the crises at the end of the '90s appear to have a large influence here). The larger sample could be taken to imply that richer countries have been beneficiaries of liberalization. But that conclusion is quite dependent on the authors' having included all the relevant determinants of volatility that might bias the coefficient on liberalization. The rich countries generally have much lower macro volatility than the poorer countries, so the cross-sectional identification of the liberalization effect might

easily lead us to overestimate its impact. Obvious measures of income are included in the table and are correctly signed and significant, reinforcing the idea that industrial countries have benefited, but one still remains suspicious that "deeper" determinants have led the industrial countries both to liberalize and enjoy relatively stable growth. Bekeart et al. indeed present results that attempt to control for these deep factors, as well as results consistent with the idea that countries benefit most from liberalization when they have low political conflict, high judicial efficiency, and the like. A tentative conclusion is the one familiar from second-best theory: liberalization will work when it does not exacerbate pre-existing distortions in the economy. However, the Bekaert et al. study does not really tell us the *channels* through which liberalization works (or for that matter, can backfire).

Concluding Thoughts

In conclusion, I return to the central question of the definition of external balance, and its bearing on the relevance of the current account. I have suggested that the current account is increasingly outmoded as a measure of the evolution of net external wealth. National portfolios are increasingly leveraged through the trade of claims on the home country for claims on foreigners, trades that need not entail any change in national wealth at the point securities change hands. This remains less true for the developing world, where the current account retains obvious significance (as also do international reserve holdings), and where credit constraints are likely to bind much more quickly.

Even for the industrial countries, however, the current account remains important. True, capital gains and losses on existing portfolios may be of the same magnitude as net exports, but for policy purposes, existing economic knowledge gives us a much better handle on the determinants of the current account than on those of asset prices. In general, the change in net foreign wealth equals the capital gain or loss on the national net foreign portfolio, plus the current account. The first component is large for richer countries, and on present trends, likely to grow further. But the second component is the one that policy can best target -- and together, the net foreign asset position and current account determine the required real exchange rate adjustment we should expect in order to reach external sustainability.

There is some evidence for the U.S. that net exports predict changes in net foreign assets in a manner that aids current account adjustment. We cannot depend on this statistical relationship, even if it is found to hold for more countries. It would be exceedingly rash to take it as a "menu for policy choice," because attempts to exploit it by running ever larger deficits might well lead to a breakdown of whatever statistical regularity has prevailed in the past -- once again, the Goodhart-Lucas principle. This breakdown could come about through a change in foreign portfolio behavior that would erode the United States dollar's singular status as the international *currency par excellence*. The same point applies to active exchange-rate management, where there will be increasing temptations and political pressures in future pushing for policies that benefit national holders of foreign assets and debts. These pressures would put the stability of the floating exchange rate system at risk, and make it all the more urgent that independent central banks be seen to be sovereign over exchange-rate policies and

subject to transparent inflation (or better, price-level) targeting rules. It would be a grave error to posit an "external balance theory of the exchange rate" analogous to the "fiscal theory of the price level," under which the external value of the currency accommodates exogenously given export deficits. Policies based on such a theory would surely destabilize financial markets and lead to destructive policy competition if countries select mutually inconsistent goals.

The sign and size of the current account balance points to the expected long run real exchange rate adjustment, but portfolio positions determine the vulnerability to sharp exchange-rate fluctuations. We know little about the stabilizing properties of international diversification swaps, and even less about the internal incidence of international asset price changes across national debtors and creditors, all the more reason to be wary of visible macro imbalances that could mandate large price swings. Other things equal, one would think this uncertainty would induce countries to wish to hold larger cushioning stocks of net foreign assets, some in liquid form, for precautionary purposes, as we indeed see now rather dramatically in East Asia. Obviously, the reason behind current account movements is also relevant in assessing the policy response.[12] Inflows to the United States that purchased bubble equity are now history, with pain only to the foreign investors (Ventura 2002). Inflows that ultimately finance tax cuts for the rich will not become bygones so quickly.

I do not mean by this to reassert the Lawson Doctrine, which holds that current account deficits are of no policy concern unless driven by government deficits. The

[12] It is sometimes argued that suboptimally high investment or low saving are sufficient reasons to reduce the current account deficit. From the perspective of basic welfare economics, however, the national advantage that would accrue from reducing the deficit depends on *how* it is reduced, and by how much. For

doctrine has been discredited, and rightly so. In our second-best world, almost any foreign borrowing can trigger government budgetary intervention and public-sector liability in some states of the world, so the distinction between purely private and public foreign borrowing is not a sharp one in practice. We saw this most dramatically in various developing-country crises, but the point applies more broadly. However, large and persistent current account deficits driven by government borrowing are likely to be troublesome down the road if not matched by productivity gains or productive investment in tradable sectors.

All the more reason for economists and policymakers to monitor closely the net foreign wealth position and its allocation among various asset and liability classes. We need to be very concerned, even in rich countries, with national "value at risk," as Dornbusch (2002) has called it. We also need to care about the most predictable component of the increase or decrease in net foreign wealth, the current account balance.

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example, if investment distortions lead to over-investment, there is no guarantee that additional taxation of current consumption will raise national welfare.

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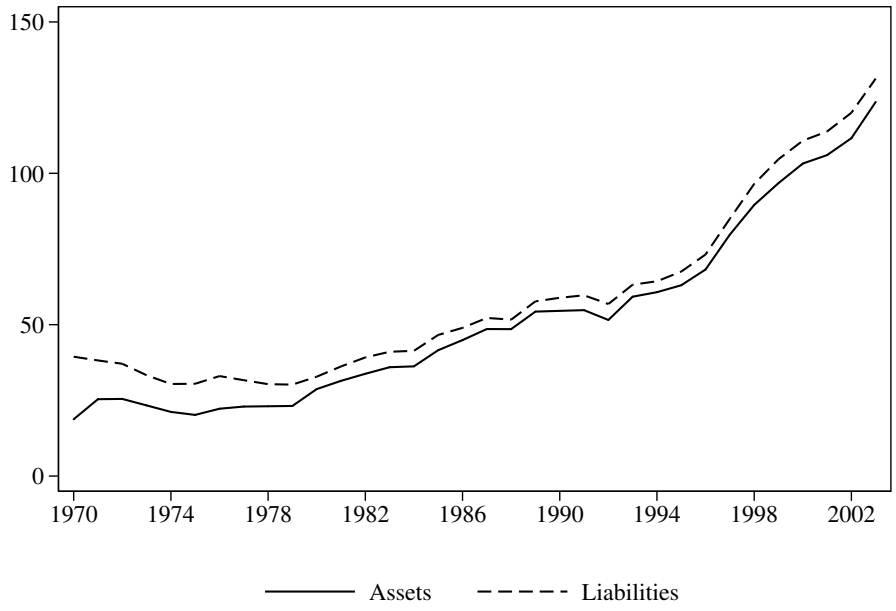
Table 1: Indexes of International Asset Trade

Country	G-L index	Nonreserve G-L index	Asset trade/GDP
Emerging			
Argentina	0.70	0.64	1.15
Bolivia	0.34	0.26	0.84
Brazil	0.45	0.31	0.59
Chile	0.84	0.71	1.14
China, P.R.	0.98	0.51	0.46
Colombia	0.68	0.51	0.58
Czech Republic	0.83	0.55	0.83
Ecuador	0.19	0.14	0.60
Egypt, Arab Rep.	0.85	0.64	0.55
Guatemala	0.77	0.53	0.36
Hungary	0.50	0.33	0.76
India	0.75	0.17	0.27
Indonesia	0.54	0.27	0.53
Korea, Rep.	0.97	0.59	0.47
Malaysia	0.92	0.63	1.03
Mexico	0.38	0.15	0.38
Morocco	0.62	0.17	0.57
Pakistan	0.58	0.25	0.40
Peru	0.49	0.24	0.59
Philippines	0.57	0.38	0.71
Poland	0.58	0.30	0.48
South Africa	0.88	0.85	0.59
Thailand	0.73	0.34	0.64
Uruguay	0.90	0.86	0.93
Simple Average	0.67	0.43	0.64
High Income			
Australia	0.66	0.62	1.02
Austria	0.93	0.92	1.63
Belgium	0.95	0.96	3.35
Canada	0.99	0.99	0.94
Denmark	0.96	0.91	1.95
Finland	0.92	0.90	1.75
France	0.98	0.98	1.68
Germany	0.97	0.98	1.44
Greece	0.64	0.62	0.81
Hong Kong, China	0.77	0.82	5.90
Iceland	0.58	0.54	1.02
Ireland	0.93	0.93	8.49
Italy	0.96	0.95	1.06
Japan	0.71	0.81	0.65
Kuwait	0.23	0.25	1.64
Luxembourg	0.99	0.99	78.39
Netherlands	0.99	0.98	3.79
New Zealand	0.51	0.45	0.84

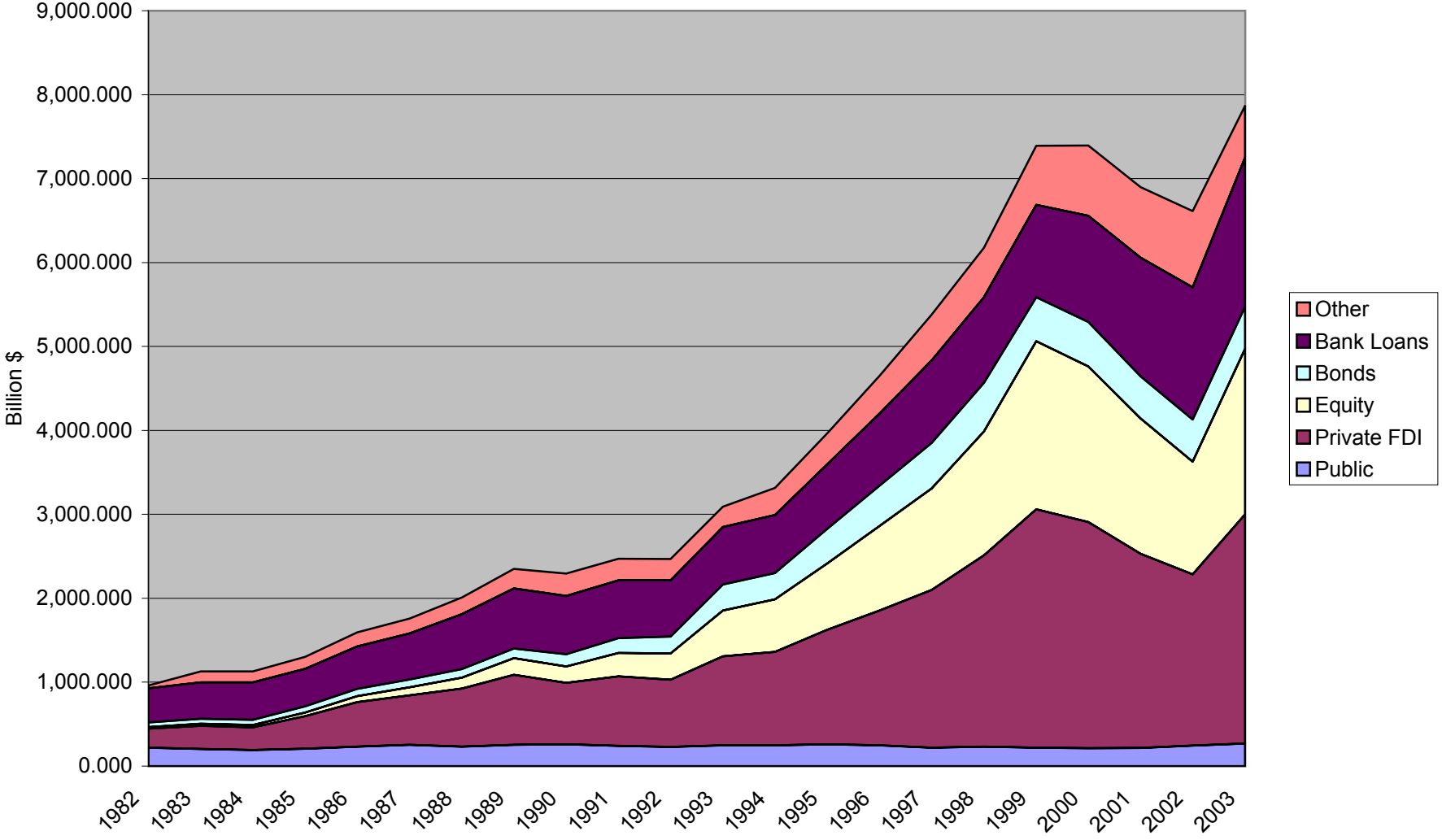
Norway	0.85	0.88	1.50
Portugal	0.85	0.83	1.99
Singapore	0.89	0.98	4.08
Spain	0.84	0.83	1.40
Sweden	0.95	0.93	1.82
Switzerland	0.85	0.87	4.89
United Kingdom	0.99	0.99	3.55
United States	0.85	0.84	0.83
Simple Average	0.84	0.84	5.25
Average without Luxembourg	0.83	0.83	2.32

Figure 1: World Foreign Assets and Liabilities, 1970-2003
(% of World GDP)



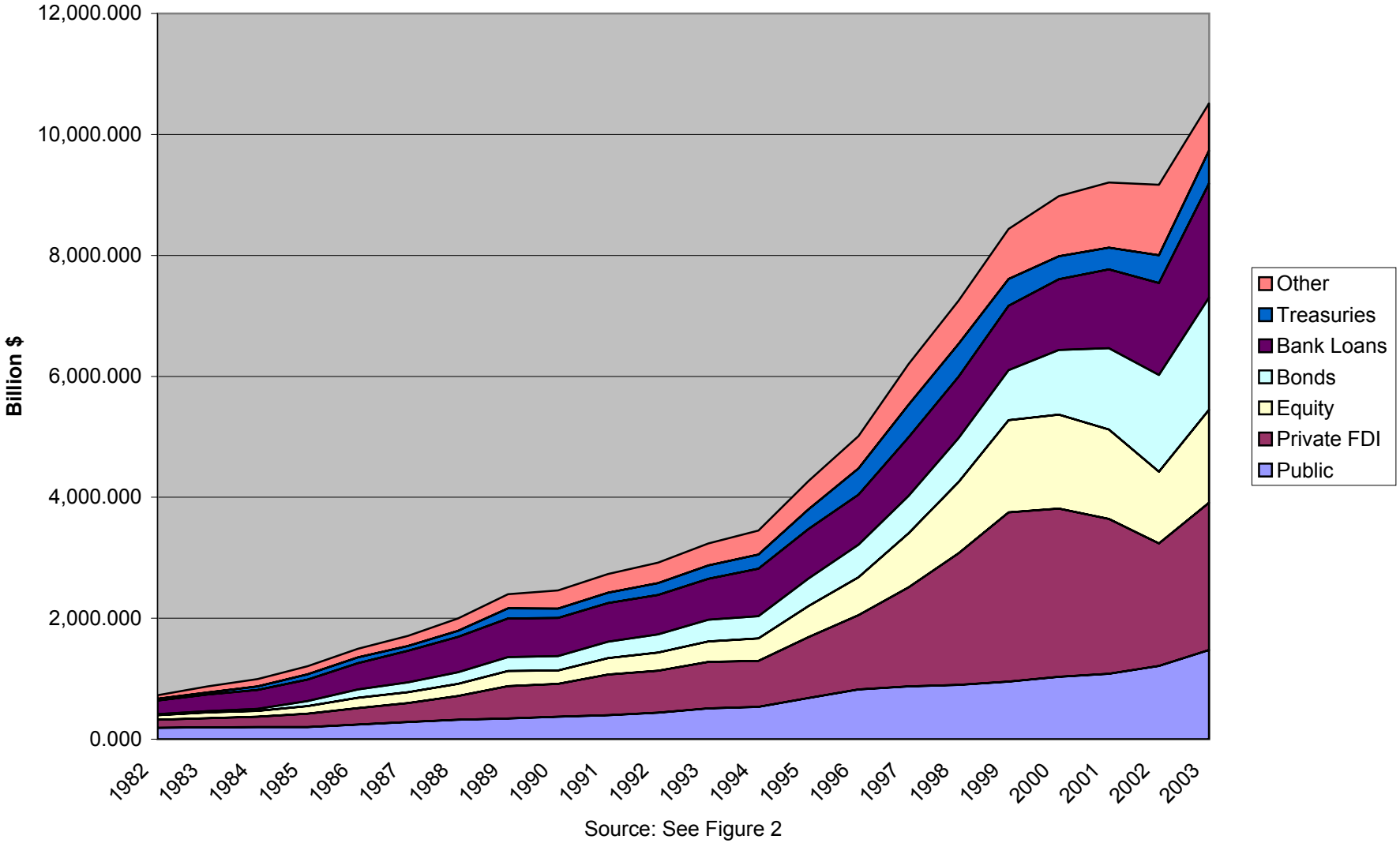
Source: Philip Lane and Gian Maria Milesi–Ferretti, unpublished data

Figure 2: Composition of U.S. Gross Foreign Assets



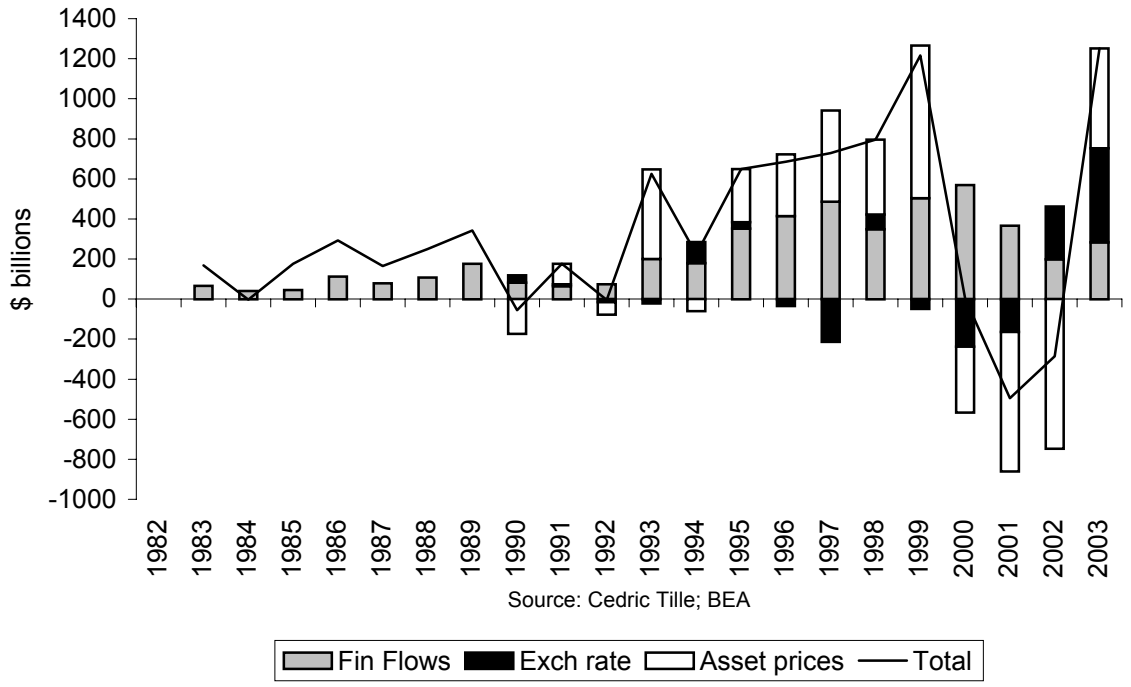
Source: U.S. Bureau of Economic Analysis

Figure 3: Composition of U.S. Gross Foreign Liabilities



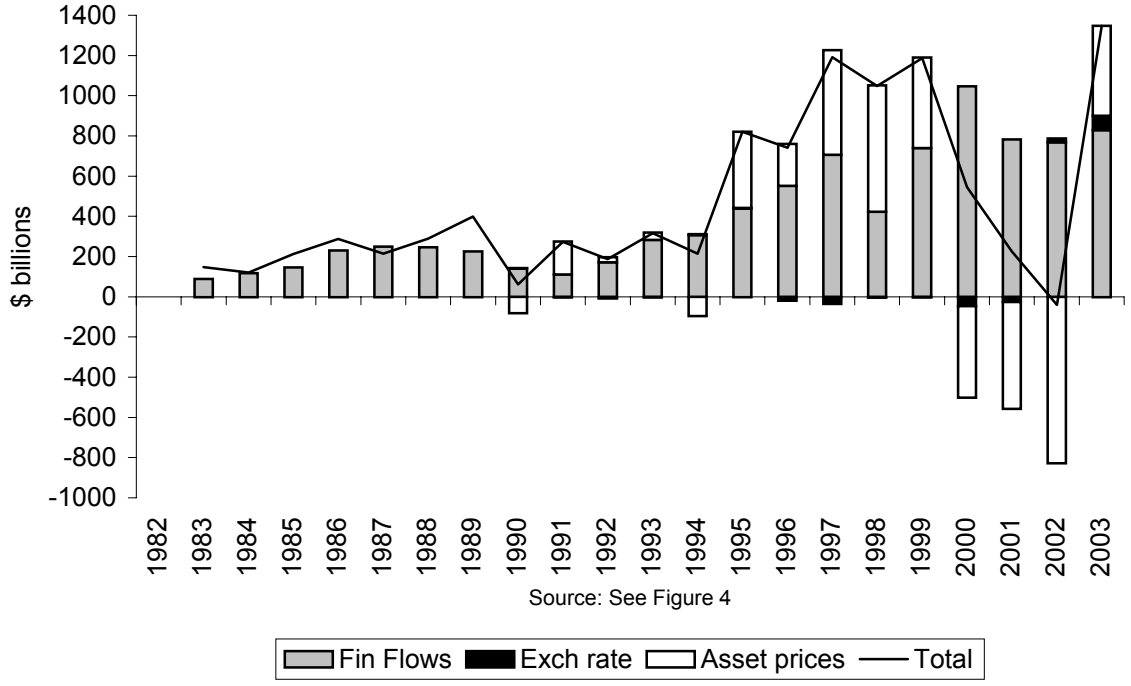
Source: See Figure 2

Figure 4: Changes, Gross Assets



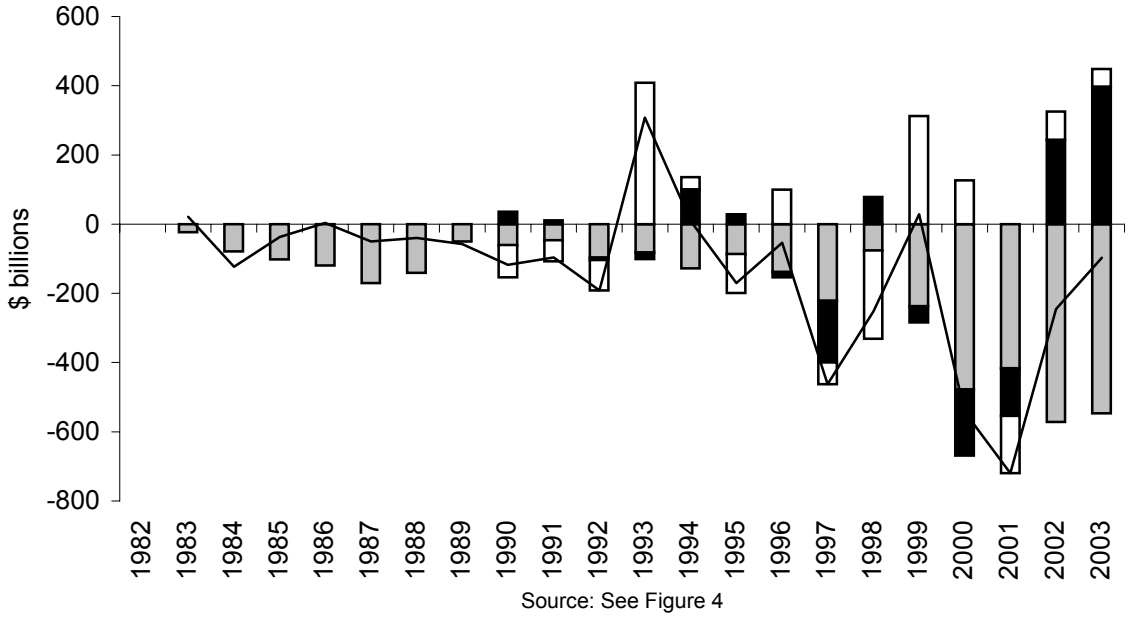
Source: Cedric Tille; BEA

Figure 5: Changes, Gross Liabilities



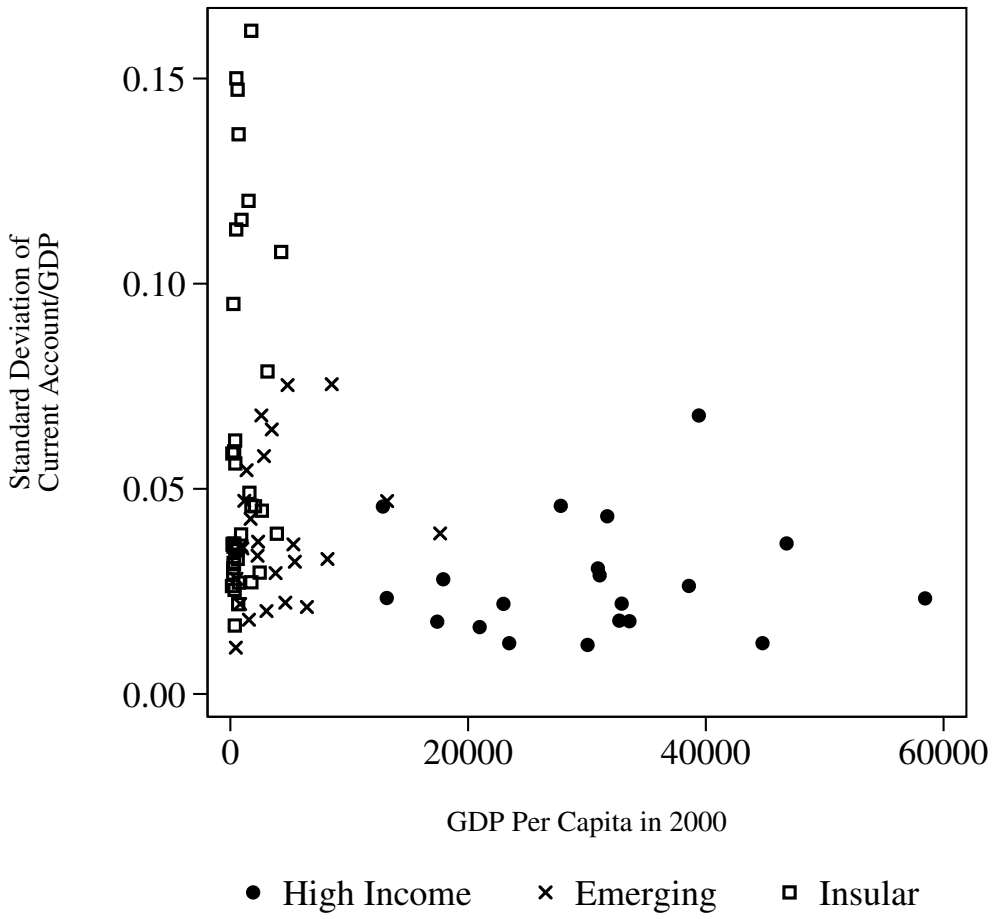
Source: See Figure 4

Figure 6: Changes, Net Foreign Assets



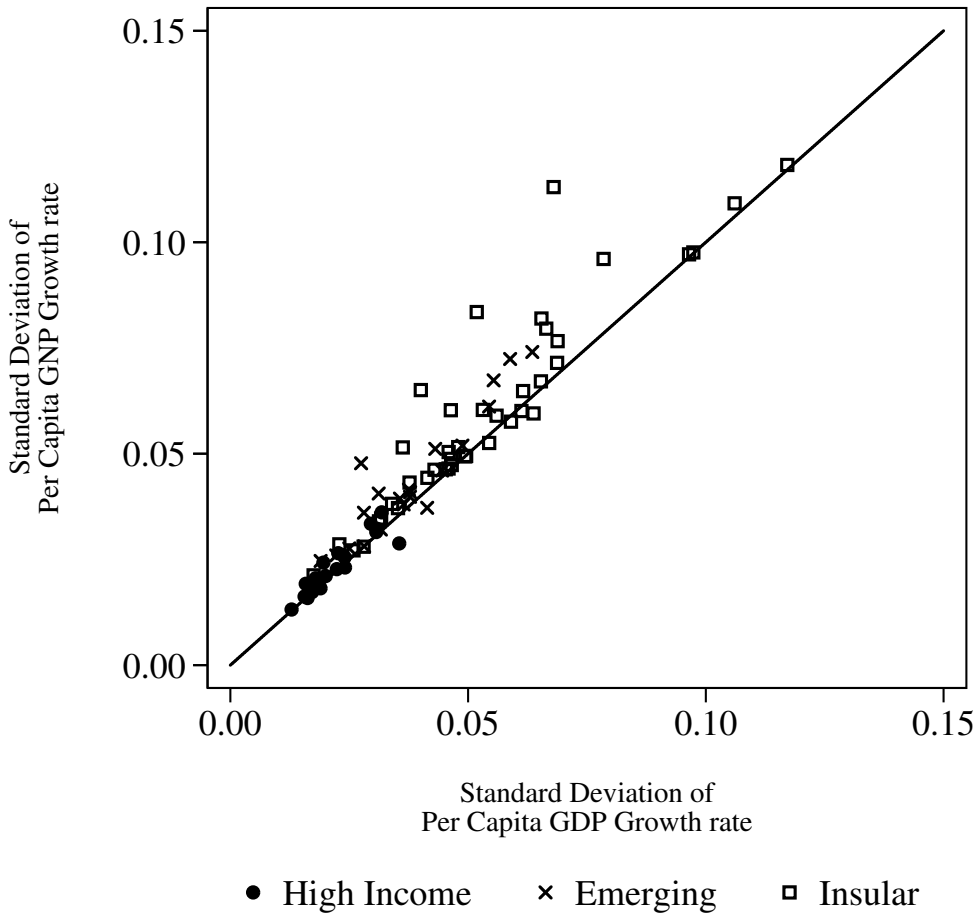
Source: See Figure 4

Figure 7: Current Account Volatility versus Per Capita Output



Source: World Development Indicators, World Bank

Figure 8: Volatility of GNP Growth Compared with GDP Growth



Source: World Development Indicators, World Bank