

## **The Immoderate World Economy**

Keynote Speech by

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It has been a humbling time for macroeconomists. Dramatic events in the world's financial markets, spilling over forcefully to the real economy, ran far ahead of what our neat, coherent models could describe, let alone predict. Just as a new virus strain can evolve if given a favorable environmental niche, and then run rampant through the human population for a while, financial instruments and strategies evolved to exploit privately perceived profit opportunities, with disastrously contagious economic repercussions. While it may be impossible to say anything truly new about the events of the past couple of years, perhaps it will nonetheless be useful for me to bring some familiar themes together.

### **Myths We Lived by through 2007**

Through 2007 many of us economists lived with a set of beliefs that turned out to be largely mythical. Here are some prominent myths; no doubt you in the audience could add to this list:

- Efficient capital markets will smoothly finance and absorb large global imbalances, notably the unprecedented demands on foreign finance by the United States. Former Fed Chairman Alan Greenspan was a leading proponent of this one (see Greenspan, 2005).
- In the event of a fall in home prices, real estate losses will be limited and any wealth effects can be offset or at least contained through central bank interest rate cuts.

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- Central banks are securely independent and firmly in control of inflation and deflation. The fiscal solvency of most major governments is a foregone conclusion.
- A new era of stability in emerging markets may make the International Monetary Fund (IMF) redundant. There is no systemic global threat because emerging markets are secondary players and the rich countries have robust institutions of political and corporate governance.

Although these assertions only recently would have commanded widespread agreement, they don't look so convincing today.

### **Today's Reality**

Reality turned out to be disconcertingly different from what many of us expected:

- Global imbalances can now be seen to have been symptomatic of policy missteps and financial-market distortions that also were central causes of a financial meltdown unprecedented in severity and global scope since the Great Depression. In my view global imbalances may pose further problems down the road.
- Home-price losses served as the fulcrum for the financial crisis. Sharp cuts in policy interest rates failed to offset or contain the ramifying effects of the real estate sector's problems.
- Deflationary pressures appeared and elicited unprecedented expansionary responses from central banks. Longer-term, the prospect of continuing fiscal deficits and huge public debts suggest that inflation may become a problem. Although recent academic literature had focused almost exclusively on the inflation-control function of central banks, the financial-stability, lender of last resort role has been more important in the recent period. As a result, the Federal Reserve has been forced into a quasi-fiscal role that has left it very vulnerable to political attack from both right and left.
- IMF resources have been sharply augmented, and the Fund is lending to or backstopping many countries. The mood in the halls of the IMF has turned from depression to, if not ecstasy (which would be inappropriate under the circumstances), at least purposeful determination. Incidentally, both of my students who applied to the IMF for jobs this year received offers.

Reality as we knew it changed dramatically because several interrelated and ultimately unsustainable economic imbalances persisted far too long before coming to a halt. We will spend many years picking through the wreckage and debating the mechanisms at work.

## **Two Issues**

I would like to focus on two specific issues tonight.

First, what exactly *is* the connection between the much-debated global current account imbalances of the past decade and the U.S. financial collapse? In my view the connection is an intimate one. It is nothing so simple as cause and effect, but a strong case can be made that the imbalances were a primary symptom of forces that led directly to the financial crash.

Second, what lessons of the crisis can we apply to reforming the global financial architecture? A major lesson, I believe, is the need to take a systemic view of global financial stability – a view that treats the global economy much as we would want to treat an integrated domestic economy. This systemic perspective has not yet been universally embraced even in the domestic context, of course, though the intellectual case for doing so is now seen as compelling.

These two issues are closely linked, of course. The growth and adjustment of large external imbalances will typically have systemically important causes, accompaniments, and repercussions. As I argue below, large imbalances will warrant future monitoring for several reasons, not the least of which is their potential interconnection with global financial stability.

## **Global Imbalances**

Figure 1 displays the evolution of major external imbalances over the period from 1999 through 2008; the 2008 figures are April 2008 IMF forecasts.

[Insert Figure 1 here]

Here we see the large but now shrinking U.S. external deficit, the counterpart surpluses in Asia, the Middle East, and Japan, along with the deficit of Central and Eastern Europe, which has become a factor in concerns about global stability today. The global imbalances in Figure 1, which diverged increasingly over the course of the 2000s until the crisis struck, are *net flows*. In Figure 2 we have a picture of *gross assets stocks* based on data put together by Lane and Milesi-Ferretti (2007), and extended through 2007. The data displayed in this second figure are, for each country, the sum of gross external assets and gross external liabilities, divided by GDP.

[Insert Figure 2 here]

For years we have pointed to such position data as evidence of increasing financial integration. From the perspective of today's troubles, we may instead perceive an orgy of leverage, an explosive proliferation of interlinked counterparty risks. For the huge U.S. economy, gross assets and liabilities alike grew to exceed total output, whereas the external asset positions of the euro zone are higher still. But the ratios that characterize the U.K. and Switzerland dwarf even these. Certainly these gross positions outstripped what any plausible model of risk sharing would predict. In many cases, international asset trades, in an environment lacking any centralized clearing mechanism, were creating a vast pyramid of interdependent credit risks.

It is important to acknowledge that the explosion in gross positions could have occurred without any current account imbalances at all – that is, without any change in *net* international asset positions. In that sense, there is little logic in arguing that the net flows in some sense gave rise to the gross flows that set the stage for the crisis.

But I would argue that the same environment of financial globalization that promoted the expansion of gross positions eased the financing of U.S. external net borrowing. That circumstance, in turn, helped keep dollar interest rates lower, the dollar stronger, and U.S. spending higher than they otherwise would have been. Ultimately, the ease with which the American deficit was financed was not in the global interest, because the unprecedented U.S. deficit resulted from the fundamental constellation of expectations and distortions that does lie at the root of the financial crisis.

The seminal locus of dysfunction was the housing market. Low interest rates, excessive liquidity, a panoply of adverse financial incentives, and unrealistic expectations about the future path of home prices combined to generate a massive bubble (see Figure 3). The housing bubble, in turn, fueled high consumption through a number of channels, including by generating collateral for borrowing throughout the financial system. Foreign banks, especially European ones, eagerly invested in triple A-rated but systemically quite risky structured products. In part, they did so to exploit the Basel II regime's low assessment of required capital based on such assets. Some recent theories of global imbalances stress the U.S. as a source of high quality assets that the rest of the world's savers crave. In the event, the quality of some U.S. assets that foreigners rushed to buy has turned out to be questionable.

The behavior of home prices is intimately linked to the behavior of world real interest rates. The rate on ten-year TIPS is shown in Figure 3; other U.S. real interest rate proxies show broadly similar behavior. Measures of long-term real interest rates for

major economies outside the U.S. are well correlated with the U.S. rate over the medium term, although there are differences in precise level and in major turning points. Indeed, it is notable that the housing boom was a *global*, not just a U.S., phenomenon, with many of the countries experiencing rapid real estate appreciation also running large current account deficits during the mid-2000s, just as the U.S. did. Escalating stock prices coincided with rising housing markets and increased wealth and liquidity throughout the world.

[Insert Figure 3 here]

The U.S. real interest rate started to decline early in 2000. The S&P peaked later in 2000 and bottomed out in early 2003 as housing prices continued to rise and indeed accelerated. The year 2004 saw the beginning of a serious uptake in sub-prime, adjustable interest rate issuances in the U.S. At the same time the global imbalances widened sharply; see Figure 1. Long-term real interest fell through the second half of 2005 in the U.S. and then began to rise. Housing continued up through mid-2006. The big question is: How are these events connected and what caused them?

### **World Savings Glut and Reserve Accumulation**

One prominent theory of low global real interest rates that emerged in the mid 2000s was the idea of a world glut of savings starting around the time of the Asian crisis. Bernanke (2005) is the most prominent and lucid exponent. I have never been totally convinced by this theory as a full explanation, although it has been widely accepted and it is even argued in some quarters that a global glut in savings is the ultimate *cause* of the United States' external deficit. In other words, some conclude that because all those foreign savings had to be absorbed in equilibrium, the U.S. was essentially forced to run its deficits.

How convincing is this account? Figure 4 graphs the 10-year TIPS rate against the world gross saving measure reported in the IMF's *World Economic Outlook* database. (In this figure all data are annual.) The negative correlation is compelling at best for the years 2003-05, and in those years the fall in the real interest rate is slight. World saving continues to rise from 2005 levels but the real interest rate rises.

[Insert Figure 4 here]

Determination of national real interest rates in the global economy is the result of many factors affecting global saving and investment – and of course, it is not always possible to infer the exogenous driving factors directly from the equilibrium responses of prices and quantities. I find it striking in Figure 4 that the trend decline in the real

interest rate starts as the high-tech equity market bubble collapses in 2000, and at that time world saving (equal to world investment) heads downward as well. The post-2000 downward interest-rate trend, for the U.S., is surely accentuated by the Federal Reserve's monetary response to a slowing economy, and later, to the 9/11 attacks of 2001.

Under the influence of low real interest rates, commodity prices – notably the price of petroleum – began to soar in 2004. China, pegging its currency to the dollar at an undervalued level, battled large speculative capital inflows through energetic sterilization and other measures, but robust income growth directly raised Chinese saving while pushing world commodity prices even higher. High commodity prices augmented the world supply of savings through a transfer effect, shifting income to countries in the Middle East and elsewhere that in the short run could not raise consumption quickly enough to keep pace with their higher incomes – as also happened in the 1970s. Figure 4 shows the rise in world saving that resulted from these factors; it was accompanied by a sharp widening, in 2004, of global imbalances. As I noted above, 2004 also saw a marked deterioration of mortgage-loan quality in the U.S. and accelerating home prices.

Some argue that a factor complementary to world savings was world accumulation of international reserves – that the demand for liquid dollar assets helped also to push down dollar real interest rates. There are a number of empirical studies indicating significant effects of reserve demand on long-term U.S. Treasury nominal interest rates. Warnock and Warnock (2009) offer a high-end estimate of around 80 basis points, while Krishnamurthy and Vissing-Jorgensen (2008) find a somewhat lower range, but I am skeptical that this type of effect played more than a secondary role. For example, reserve accumulation by emerging markets was also rapid in 2005-2006, but in that period world real interest rates (and U.S. nominal rates) rose.

High saving and official dollar accumulation abroad did not cause the U.S. current account deficit. But I think there is a case to be made that high saving and reserve growth elsewhere dampened the effect of U.S. over-spending on world interest rates. In that sense, foreign surpluses contributed to the events that followed.<sup>1</sup>

### **The Role of Monetary Policy**

I believe that monetary policy, especially in the United States, played a significant role in promoting global imbalances and in setting the stage for the crisis. To

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<sup>1</sup> Econometric studies such as those of Chinn and Ito (2007) and Gruber and Kamin (2007) conclude that the savings glut theory offers at best a partial explanation of the high U.S. external deficit over the 2000s.

illustrate the evolution of Federal Reserve policy, Figure 5 shows the Federal funds rate as well as the rates on five- and ten-year U.S. government bonds.

[Insert Figure 5 here]

The Fed held short-term rates very low in 2003-04 because of concerns about deflation. The Japanese example was very much on the minds of some governors, influenced by academic analysis suggesting that an effective way to fight deflation was to commit to hold policy interest rates low for a long period of time. And indeed, FOMC statements in this period promised to maintain policy accommodation for an extended period. The low interest-rate environment promoted housing appreciation, excesses in the mortgage market, excessive borrowing on home equity, a compression of risk premia, excessive leverage by financial-market actors, and commodity-price inflation.

As noted above, the housing bubble was a global phenomenon. But in many cases outside the U.S. accommodative monetary policy was likewise at work, as were direct spillovers in real estate markets. For example, it is arguable that within the euro zone, ECB policy, while perhaps appropriate for Germany, was too loose for Spain and Ireland, among other member countries. Across the world during the 2000s, there is a strong confluence between housing appreciation and current account deficits (see European Central Bank, 2007, chart 5; Aizenman and Jinjark, 2009). Within the euro zone, which was largely in balance as a unit, a large divergence in current account positions developed around 2004, with Germany moving into massive surplus and Spain and some smaller euro members running bigger deficits.

In the U.S. a tightening cycle began in mid-2004 as an inflation threat seemed to emerge. As Figure 5 shows, the five-year nominal bond rate responded strongly to the rise in the Federal funds rate, the ten-year nominal rate less so. But the ten-year rate had anticipated the policy tightening by quite a few months. Then real long-term rates rose. Eventually, as we all know, adjustable rate mortgages reset and the home bubble popped, making mortgage refinancing problematic. Subprime defaults commenced on a substantial scale in 2006. The initial read by U.S. officials – that subprime losses, while large, would be contained – seemed plausible at the outset, though we all underestimated the amount of money riding on that particular horse. Indeed, financial markets showed few signs of stress until the summer of 2007, and equity markets peaked in October 2007.

## **The Unwinding**

Through the second quarter of 2007:II, foreign demand for U.S. assets and the U.S. demand for foreign assets both boomed. The volumes of gross flows are huge. The

level of foreign asset demand far exceeded the net current account financing needs of the U.S. Superficially, therefore, there was no sign of external financing problems in the gross financial flow data. But this was not to last. Figure 6 shows gross external financial flow data for the U.S., but data released in April 2009 by the Bank for International Settlements show a similar pattern of retrenchment more generally in the world economy.

[Insert Figure 6 here]

For most countries, as for the U.S., gross cross-border financial flows collapsed as a result of the deleveraging process. The picture for the U.S. in Figure 6 (showing seasonally adjusted data) is particularly interesting because of the Fed's special role. The upper line measures foreign private net purchases of U.S. assets, which become zero or negative (indicating foreign net sales of U.S. assets) after the Lehman event of September 2008. The lower line shows U.S. private net sales of foreign assets -- so when these are negative, American residents are net purchasers of foreign assets, and when this line goes above the horizontal axis, Americans are actually net sellers of foreign assets. After Lehman, Americans repatriated substantial assets from abroad. Foreigners stopped buying U.S. assets and repatriated more gradually.

There is a third line in Figure 6 that hugs the horizontal axis until the end of 2007. That line represents U.S. government net sales of foreign assets other than official reserves. Negative values thus are purchases of nonreserve foreign assets by the U.S. authorities. These are essentially nil until the crisis erupts; then they become strongly negative. These numbers, in fact, reflect the swap arrangements that the Fed set up with a number of other central banks starting late in 2007. When those foreign authorities drew on their dollar credit lines, the U.S. authorities received foreign-currency balances that are reflected in the figure. The U.S. did not need those balances, did not pay interest on them, and swapped them back at the initial exchange rate (with a large reverse flow evident in the first quarter of 2009). The foreign authorities lent the dollars to local financial institutions that needed dollar financing of their positions and could not get it more directly from the Fed. Their earnings on those loans were supposed to be passed back to the Fed.

In essence, the collapse of international financial flows was associated with a disappearance of dollar funding for many foreign banks, notably some banks headquartered in Europe. Many of them had invested heavily in dollar-denominated mortgage-backed structured products. The Fed stepped into the breach through the

extension of the swaps. Without that action, financial turbulence, including exchange-rate effects, would have been harsher than they were.

The balance of private and official financial flows still must finance the U.S. current account, which remains in deficit albeit at a reduced level compared to the first part of 2008 and years immediately earlier. As Figure 7 shows, the compressed U.S. deficit, in turn, results from falling levels of exports and imports, with imports falling more. Of course, this picture of shrinking trade volumes has been replicated for countries across the globe, in many cases more dramatically than in the U.S. case. While the U.S. deficit is moving quickly in the direction of sustainability, it is hard to know if the trend will continue in coming quarters as the fiscal stimulus kicks in. There are further questions about the growth of consumption and investment demand abroad and about the medium-term path of the dollar's exchange rate.

[Insert Figure 7 here]

One of the fascinating features of the earlier 2000s is that the U.S. borrowed abroad at an accelerating pace, yet its net external asset position deteriorated by far less than the cumulated sum of current account deficits. Holding a net international portfolio long on equity and short on debt, long on foreign currency and short on dollars, the U.S. benefited from unexpected stock-market appreciation and dollar depreciation. With the coming of the global crisis, much of that has gone into reverse. So much for exorbitant privilege: the underlying risk in the U.S. external portfolio has come home to roost.

[Insert Figure 8 here]

Figure 8 graphs both the net international investment position (NIIP) of the U.S. and the path of net external claims that would be implied by simply cumulating external deficits and ignoring capital gains and losses.<sup>2</sup> Throughout most of the 2000s, the cumulated current account deficit mounted to over 40 percent of GDP while the NIIP did not get much below -15 percent. All of that changed in 2008. In that year, the U.S. external debt increased at a rate far above, not below, the flow deficit. The 2008 current account deficit was slightly over \$500 billion, whereas exchange rate changes and equity-market losses inflicted an additional hit of over \$800 billion on the U.S. NIIP. Taken altogether, the result was an increase in U.S. net liabilities to foreigners of nearly 10 percent of GDP, all in a single year. Given the precarious state of U.S. public finances going forward, questions of future external sustainability remain legitimate.

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<sup>2</sup> These data, taken from the U.S. Commerce Department's Bureau of Economic Analysis, value direct investments on a cost basis rather than at market value.

## Global Responses to Crises Have Been Inadequate

So far I have focused quite heavily on the U.S. and its experience. Of course, the financial crisis has been a global pandemic, made more devastating by the absence of any significant “decoupled” segments of the world economy. The universal reach of the crisis makes it more important than ever to ask ourselves how we got here. What went wrong and what can we do to ensure a safer future?

Even recent history is marked by regular near-death experiences in the realm of global finance. The international community has tried to address the causes in various ways, some more successful than others. But we continue to leave ourselves very vulnerable. Part of the problem is that financial markets continue to evolve and innovate: in part, we are always fighting the last war. But there is another factor at work, too. In an interesting paper, Aizenman (2009) advances a relevant hypothesis about human nature: the longer we go without some sort of disaster, the less we think that precautions are needed. Surviving a near-death experience leads us to believe that our financial system is more resilient than it really is.

The first major crisis in the modern era of global floating currencies was the Bankhaus Herstatt collapse (1974), which was brought on by ill-advised foreign currency exposures. It was this event that inspired the creation of the Basel Committee of international supervisors, which has done much valuable work over the years and has served as an indispensable forum for communication and coordination among national regulators.<sup>3</sup> The less-developed country debt crisis (1982-89) could have wiped out the capital of large money center banks. Catastrophe was avoided through the significant involvement of monetary authorities and the IMF in orchestrating concerted lending operations. More recently we have the Mexican crisis (1994-95) and its spillovers, the Asian crisis (1997-98), and the Long Term Capital (LTCM) and Russian crises (1998). In those cases, we saw potential and actual contagion effects of the kind seen on a large scale in 2008. There have also been notable episodes of equity-market meltdown (for example, the collapse of the high-tech bubble starting in 2000).

We in the industrial countries largely sidestepped the worst potential effects of these events, though citizens of emerging markets suffered greatly. But as of a decade ago, any financial reform effort with a chance of succeeding would have had to originate among the rich countries. The various crises did lead to reform efforts, but reformers lacked the determination warranted by the potential risks. Each crisis leads to

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<sup>3</sup> There is a current debate, however, about the alleged procyclical nature of the Basel capital guidelines, which are held by some to have helped to worsen the financial crisis.

incremental institutional progress, but the perceived urgency of reform tends to peter out while the markets keep evolving. Not understanding the likely source of the next crisis, we make some of the repairs indicated by the last crisis and then largely mark time.

International economists such as those attending this conference are all too familiar with the fundamental mechanisms of financial fragility that the 2007-09 crisis laid bare. We have all analyzed runs on emerging market countries and sudden stop scenarios in which short-term debts cannot be rolled over. It is not surprising to us that in an environment with pervasive short-term finance, in large part through repo markets, there could be similar runs on nonbank financial institutions, for example, the broker-dealers Bear Stearns and Lehman Brothers. Writers such as Gorton and Metrick (2009) argue persuasively that this is exactly what we saw in the crisis. With a bit more imagination — and possibly a lot more knowledge of the large financial players' balance sheets — more economists and policymakers might have seen the potential outlines of the kind of crisis that occurred.

### **A Systemic View of Global Finance**

Future reformers of the international financial architecture will need to view world markets as components of an integrated system. And they will have to view the group of emerging economies as an integral and quantitatively central part of that system.

Emerging markets have been becoming and will continue to become bigger players not only in international trade but also in the international financial markets. In the future, these countries will be significant financial exporters of shocks to the advanced countries, not just importers of shocks. We now have to worry that runs on emerging markets might have substantial knock-on effects even on the larger, richer economies.

Recent financial data are suggestive of growing potential effects. In 2007, private residents of developing and emerging market countries bought nearly \$1.1 trillion in claims on richer countries. In 2008 they bought only \$745 billion in claims. Official reserve acquisitions are not counted in the preceding totals, but for 2007 and for all of 2008 these were, respectively, \$1.2 trillion and \$850 billion. Significant backflows from the private and public sectors of the emerging markets to advanced-country asset markets are a development of the last decade, but they will naturally expand over time. Later in 2008 some countries ran down their official foreign exchange reserves, Russia being a leading example, but only one of several. In some cases reserves were withdrawn directly from private financial institutions in the richer countries.

As we contemplate the increasing likelihood that runs on emerging markets will have repercussions in the advanced financial markets, we also realize that the latter markets are not quite as robust, resilient, or well governed as we had convinced ourselves that they were. In this light, we can see a systemic drawback of emerging-market self-insurance through large international reserve holdings. From the standpoint of an *individual* emerging market, reserves provide liquidity insurance. They have served the countries that hold them very well as protection against internal as well as external drains. But there may be a macro-stability cost of this type of micro-prudence. When countries draw on their reserves in a global crisis, liquidity in some advanced-country financial markets could be impaired. Writers such as Crockett (2000), Brunnermeier et al. (2009), and Morris and Shin (2008) have all stressed the potential fallacy of composition in thinking that measures to enhance an individual institution's (or country's) stability must necessarily enhance the stability of the system.

Most international reserves held by emerging markets are not a source of outside, systemic liquidity. But in the current crisis, the ability of lenders of last resort to create outside liquidity has played a critical role in staving off disaster. Had the U.S. Federal Reserve not stepped in with some very creative and bold actions, the world economy would be in much worse shape today. Except on an ad hoc and short-term basis, however, the Fed cannot act as the lender of last resort (LLR) for the entire world. It has tried to do so in the recent crisis by extending dollar swap lines – in some cases unlimited – to foreign central banks. These facilities essentially gave a few foreign central banks such as the ECB the right to print unlimited quantities of dollars and lend them to non-U.S. financial institutions. The Fed chose subcontractors to exercise its LLR function. Quite rightly, the Fed will not agree to institutionalize this sort of a credit facility permanently. As the crisis goes away the Fed will unwind these swap facilities as has happened in the past. That will leave the world without a systemic crisis lender.

Inadequate as it appears in its current form, the only real candidate to be a global LLR is the IMF. The Group of Twenty's April 2009 decision to boost Fund resources was a step in the right direction. Unlike a central bank, the Fund cannot create unlimited liquidity in any currency, but it does have the capacity to add *somewhat* to outside liquidity. It has also made access to its resources more flexible – a precondition for effectiveness in a crisis. The Fund's growth will be an ongoing process, and past failures to streamline its lending procedures suggest that success is not assured. Complementary measures to enhance the Fund's perceived political legitimacy in the developing world are also long overdue.

Having a bigger, more powerful, more effective lender of last resort raises the specter of moral hazard. Thus, more effective surveillance and regulation of global financial markets becomes even more important. Preliminary noises can be heard. The

memberships of the Basel Committee and of the Financial Stability Forum (now Financial Stability Board) have been expanded to include some prominent emerging markets. But how can these groups cooperate effectively, especially given their large sizes, to address the many externalities of divergent national financial systems and regulatory regimes? Clearly regulators will have to get much better at spotting and war-gaming potential crises, especially those with significant systemic implications. In particular, more attention must be paid to systemically sensitive assets, those subject to the most severe economic disaster risk. One suspects that market participants have put insufficient weight on the probability of such disasters in the past – and may well come to do so again in the future.

### **Concluding Thoughts**

Once again, the late Herbert Stein has been proved right about the finitude of unsustainable trends. How can economists do better in foreseeing future meltdowns? We need to be wary of large anomalies and think about the possible consequences before they unwind. As we know, reversals can happen quite rapidly, and with devastating effects. These anomalies may be overvaluations of currencies, of homes, or of stocks. They could take the form of large borrowing flows, elevated leverage, or big current account deficits. When we see a price trend as extreme as the U.S. housing bubble, accompanied by an unprecedented current account deficit, we need to think harder than we did about the possibility that something dangerous is at work – and perhaps think a bit less hard about how to rationalize the imbalances within a rational, equilibrium model.

Only by recognizing the possibility of multiple market failures in a context of tightly interconnected balance sheets can we imagine the repercussions of collapse. This is the macro-prudential perspective. Implementing it will require constant vigilance as to potential macroeconomic imbalances. We cannot identify these with anything close to perfection, but that is no reason not to try, and not to pursue intellectually the implications of assuming the worst. The resulting analysis can only improve the quality of future economic policy.

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FIGURE 1. GLOBAL IMBALANCES: NET FLOWS

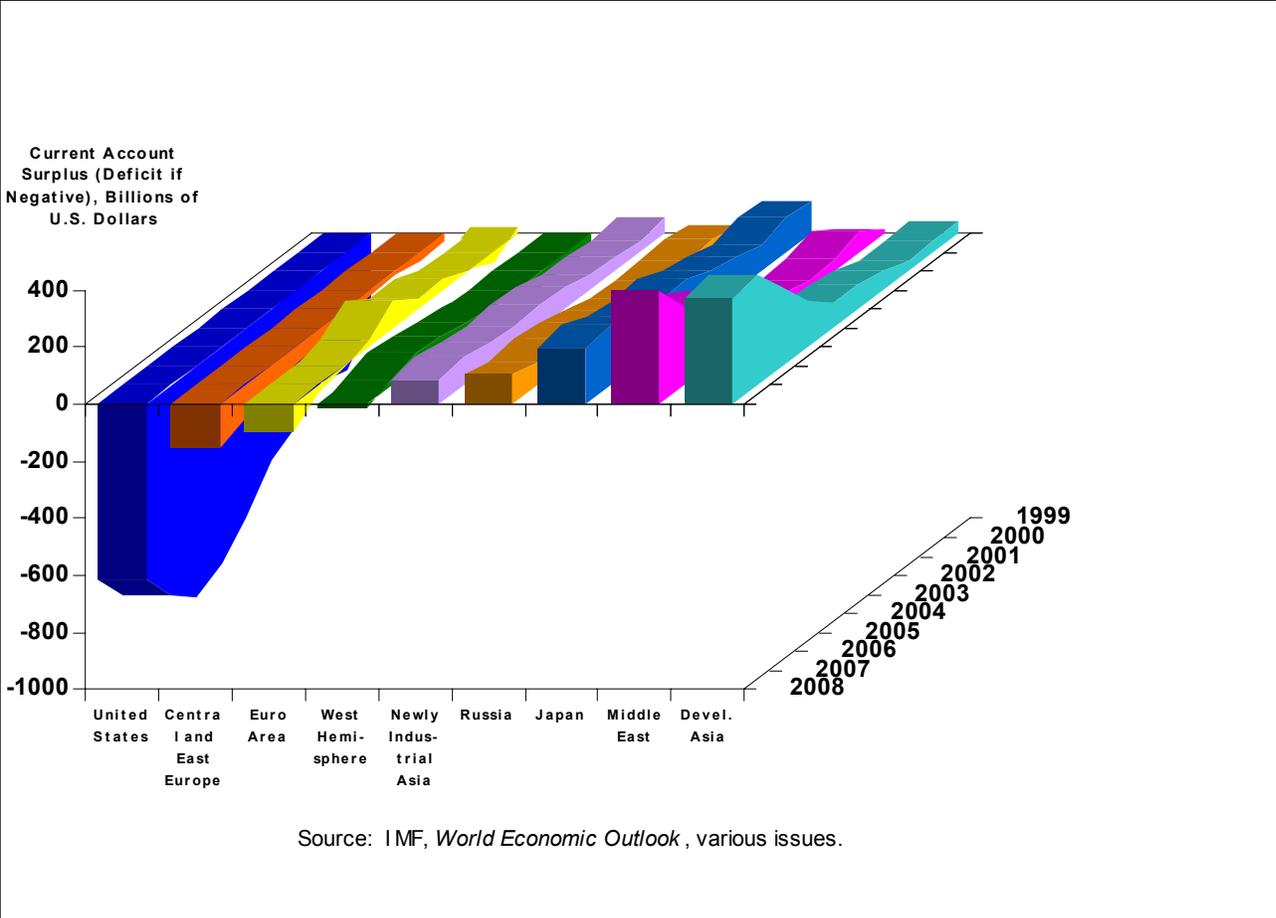


FIGURE 2. GLOBAL IMBALANCES: GROSS STOCKS

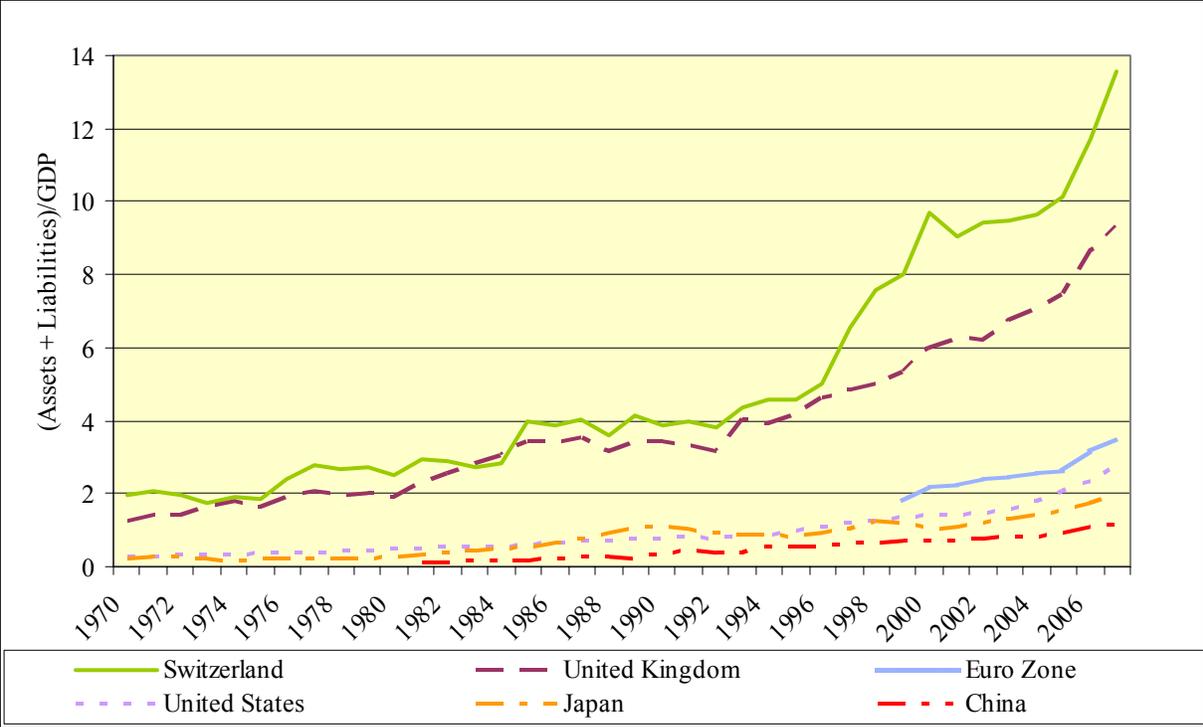


FIGURE 3. BUBBLE AND BUST: U.S. ASSET PRICES AND THE REAL INTEREST RATE

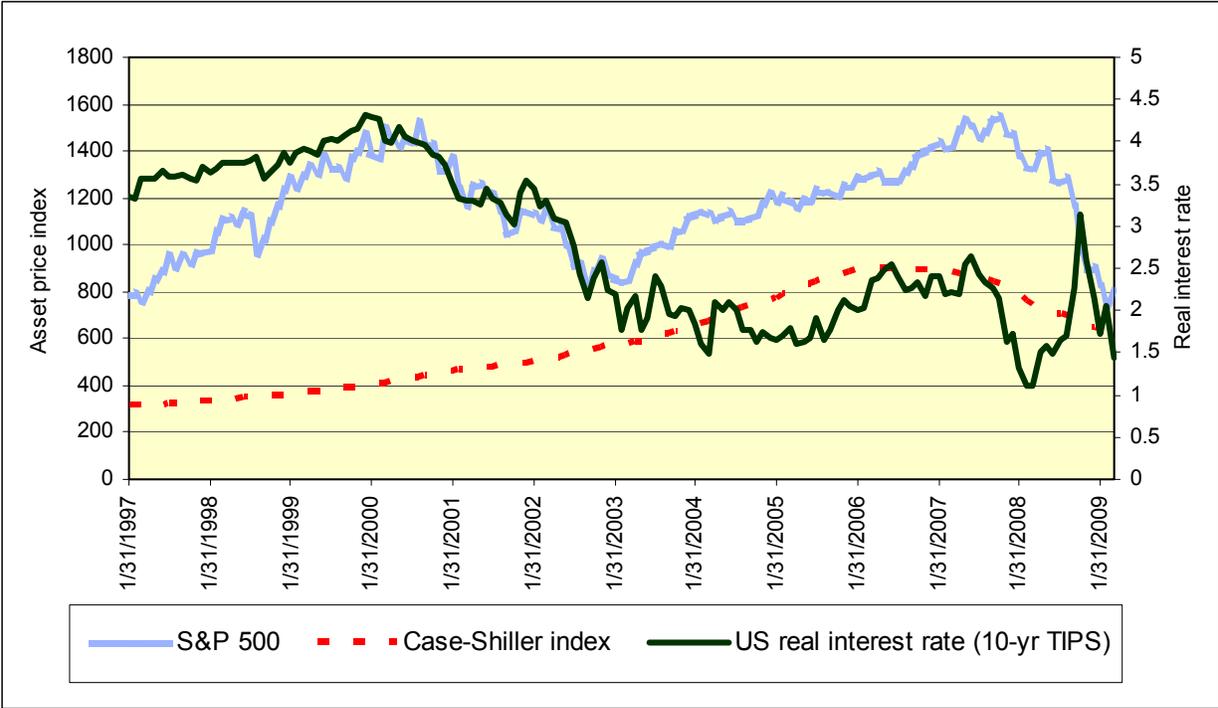


FIGURE 4. WORLD SAVINGS GLUT?

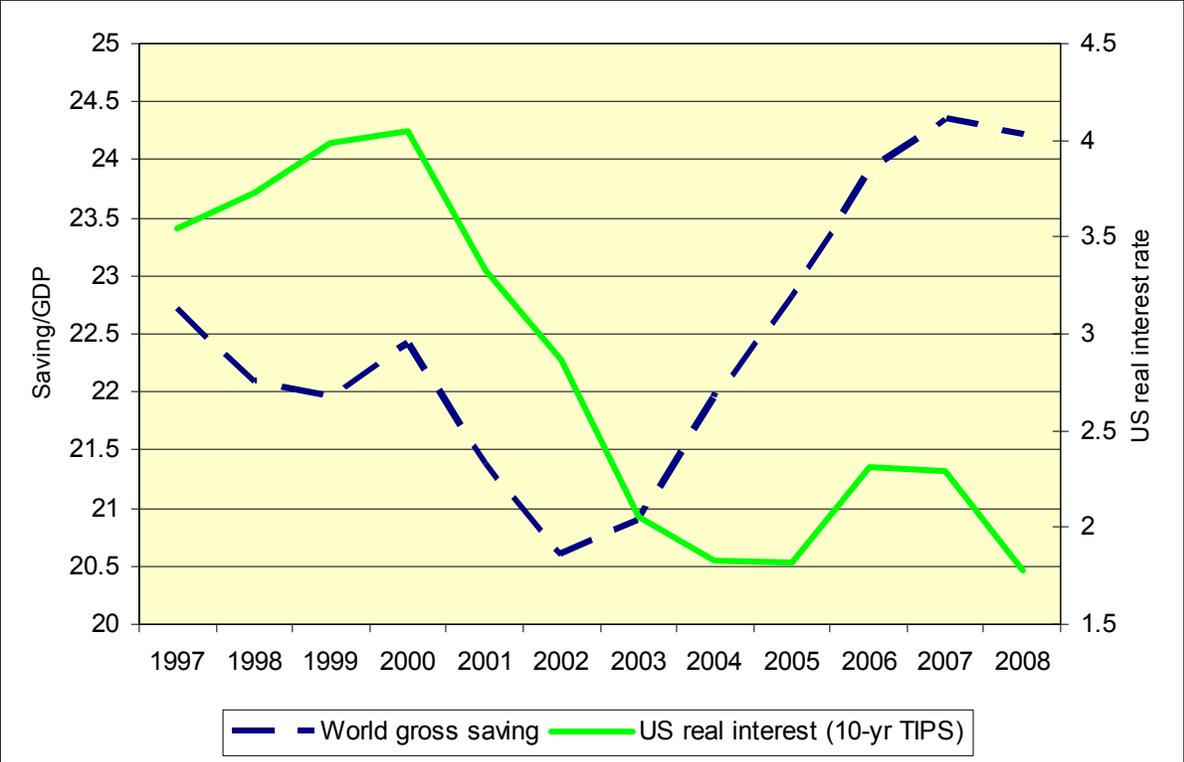


FIGURE 5. TERM STRUCTURE OF U.S. NOMINAL INTEREST RATES

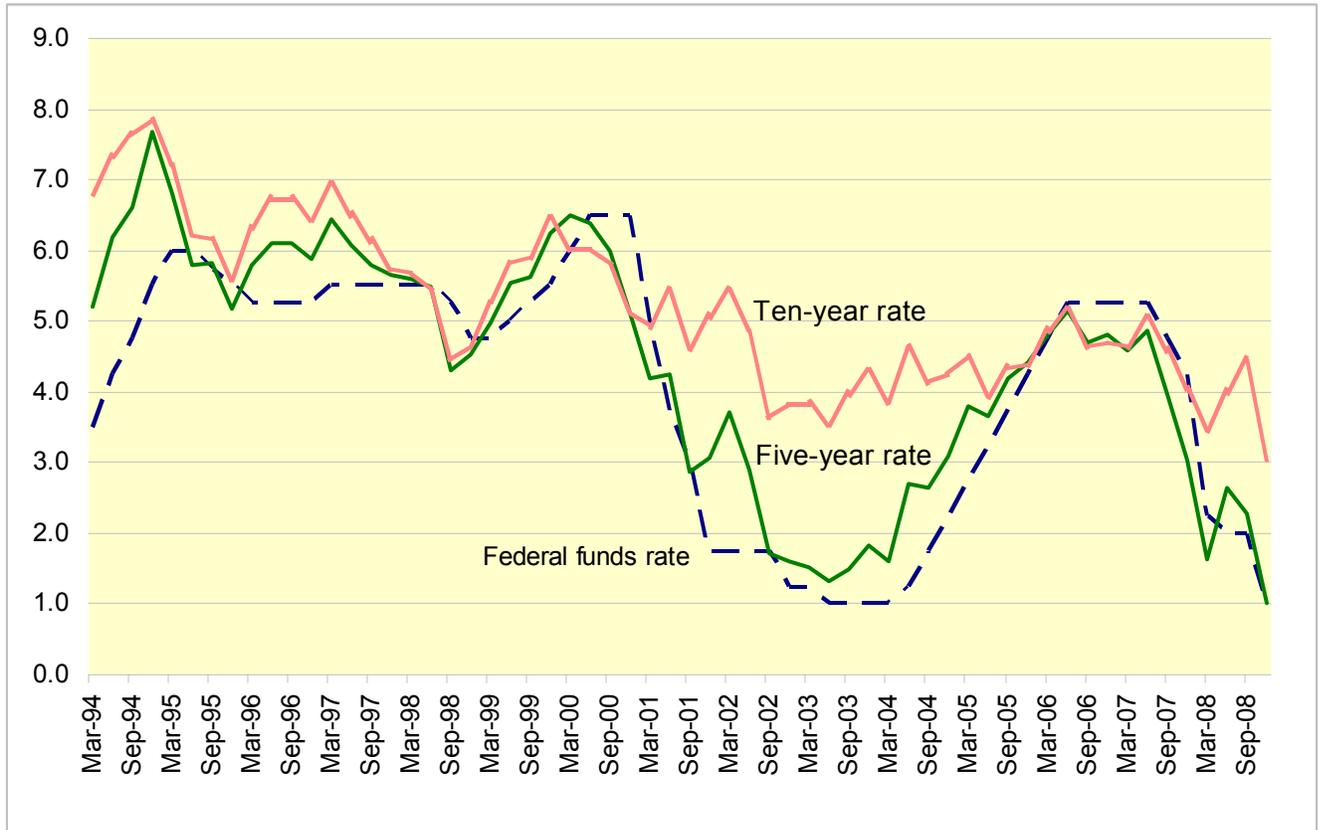


FIGURE 6. THE UNWINDING: UNITED STATES CROSS-BORDER FINANCIAL FLOW DATA

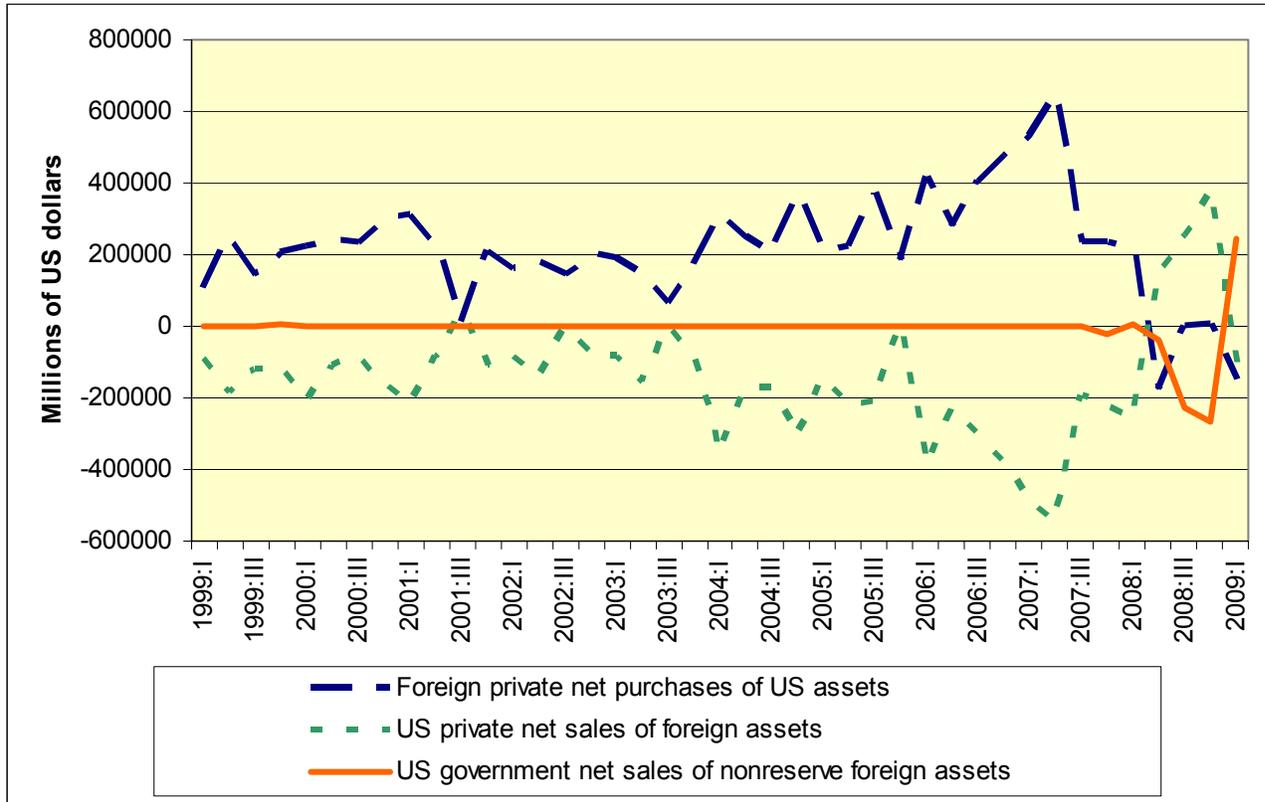


FIGURE 7: SHRINKING UNITED STATES TRADE VOLUMES

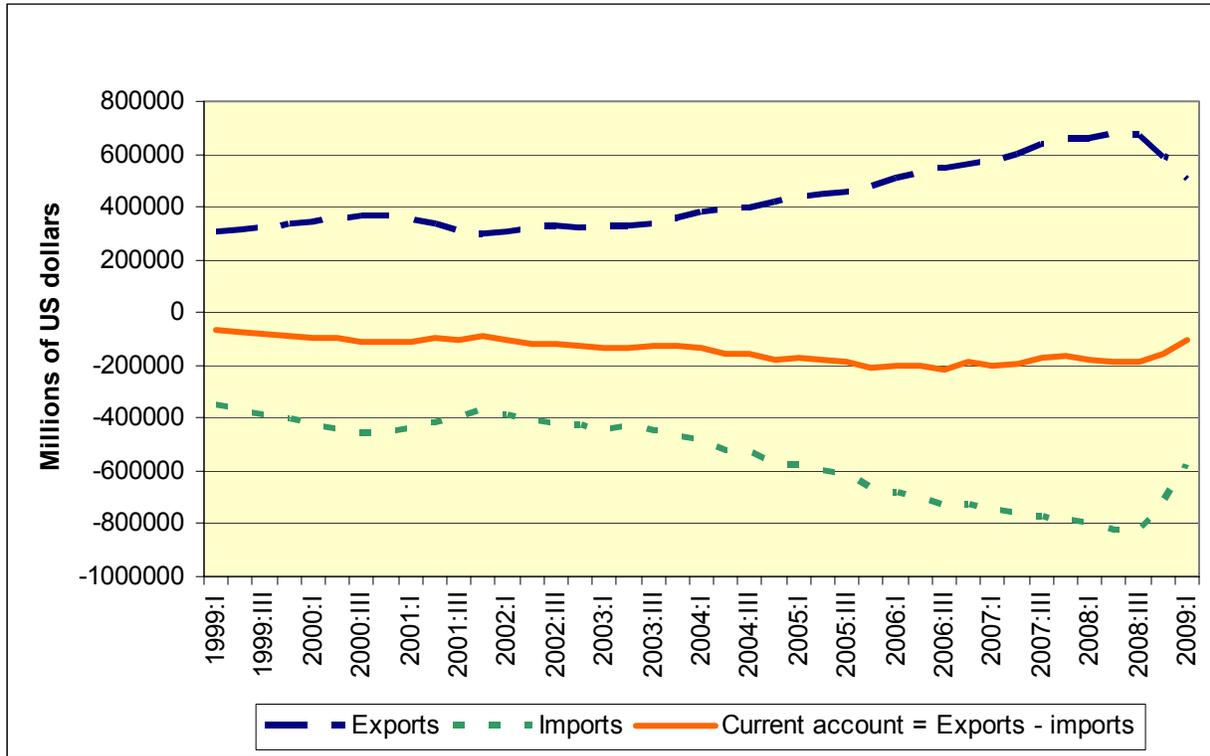


FIGURE 8: THE U.S. NET INTERNATIONAL INVESTMENT POSITION COMPARED WITH CUMULATED DEFICITS

