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MACROECONOMIC CAUSES OF THE CRISIS: KEY LESSONS
Session 2: Did the international monetary system contribute to the crisis?

The global crisis: the role of policies and the international monetary system

by
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1. Introduction: A macro view

If the outbreak of the financial crisis surprised many economists, this was in part because most of them saw the risk of a hard landing for the US economy as originating elsewhere, namely in the unsustainable US current account imbalance, which might have eventually been corrected through a disorderly dollar depreciation. As it turned out, another time bomb, located in the financial system and less visible to most observers, exploded first. But does this imply that the fundamental sources of vulnerability for the world economy had been wrongly identified? Was the time bomb that did explode entirely unconnected to the one that did not? Not only, I think, the answer to both questions is in the negative, but it is worth giving proper consideration to the idea that had the forces that led to global imbalances been removed, the financial turmoil would have had lesser global consequences. A proper counterfactual analysis is beyond the objectives of this short paper, but I believe that the evidence presented here clearly supports such proposition.

Both the trigger of the global financial turmoil that started in the summer of 2007 and its proximate causes were essentially financial in nature, and originated in a specific segment of US financial markets. However, when we look at how the crisis spread rapidly across markets and then progressively affected the real economy, not just in the industrialised world but globally, it is immediately clear that only a much broader set of interrelated factors – macroeconomic as well as financial – could have generated a crisis of these proportions.

In attempting to disentangle these factors, one should avoid the temptation to look for simple reductionist approach, leading to mono-causal explanations. Distorted incentives, inadequate risk management and lax supervision encouraged the financial sector to take increasingly large, poorly understood risk exposures, financed through high leverage and a growing reliance on wholesale short-term funding. However, it is unlikely that all this would have developed to the same extent had the macroeconomic environment not been characterised by low interest rates, rising asset prices and large saving-investment imbalances in the United States and, with opposite sign, in Asia and the oil producing countries. All this was reflected in growing worldwide external imbalances; while the role of other areas of the world economy should not be ignored, their direct contribution to the imbalances is more difficult to assess. These macroeconomic factors created enormous stress for a US and global financial system in which financial innovation and regulatory failures had progressively introduced serious structural flaws. Moreover, the complacency on the part of risk managers and financial supervisors that allowed the resulting vulnerabilities to grow unchecked owed much to the climate of general optimism that those macro conditions supported.

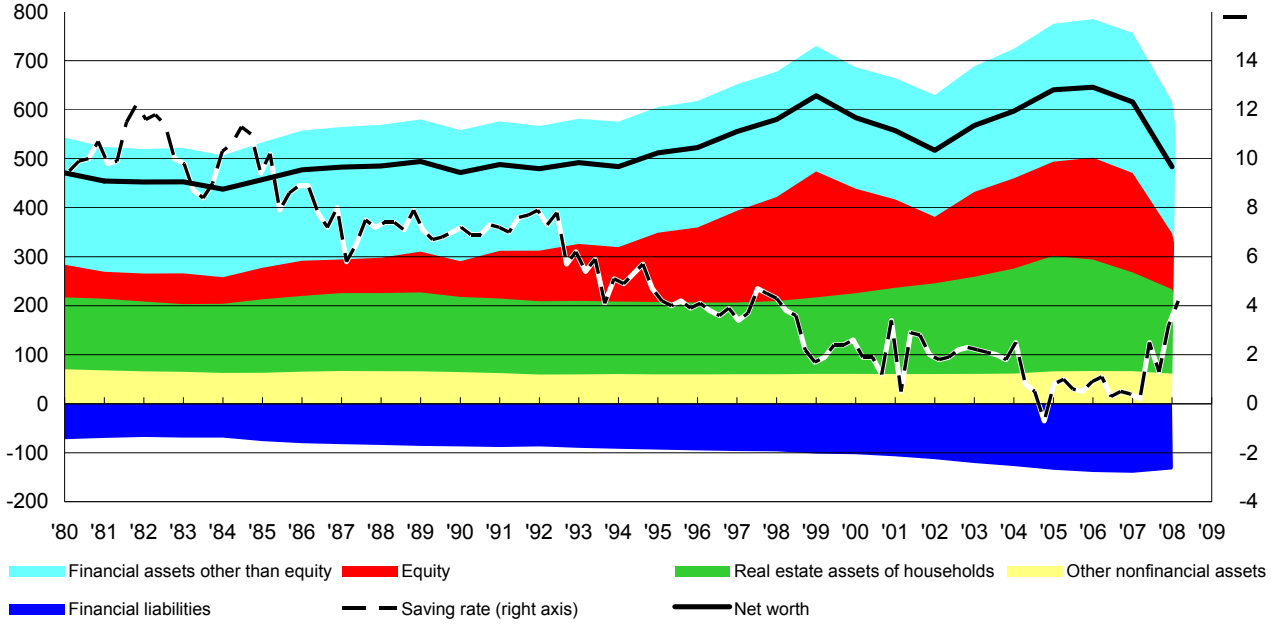
[1] Deputy Director General, Member of the Governing Board, Banca d'Italia. While I retain full responsibility for the theses presented in this paper, it owes much to exchanges and joint work with Pietro Catte, Pietro Cova, Giorgio Gomel and Patrizio Pagano. For a wider and deeper discussion of the topic, see Catte et al. (2009).

Out of this complex interaction, in this paper I will focus primarily on the role of policies and on how they reacted to the various shocks to the global economy over the past 15-20 years: geopolitical shocks such as the end of the Cold War and the emergence of terrorism; technological shocks like the advent of new information and communications technologies; economic shocks such as the integration of China in the world trading system and financial globalisation.

Figure 1

United States: household sector net worth and saving rate

(in percent of disposable income)

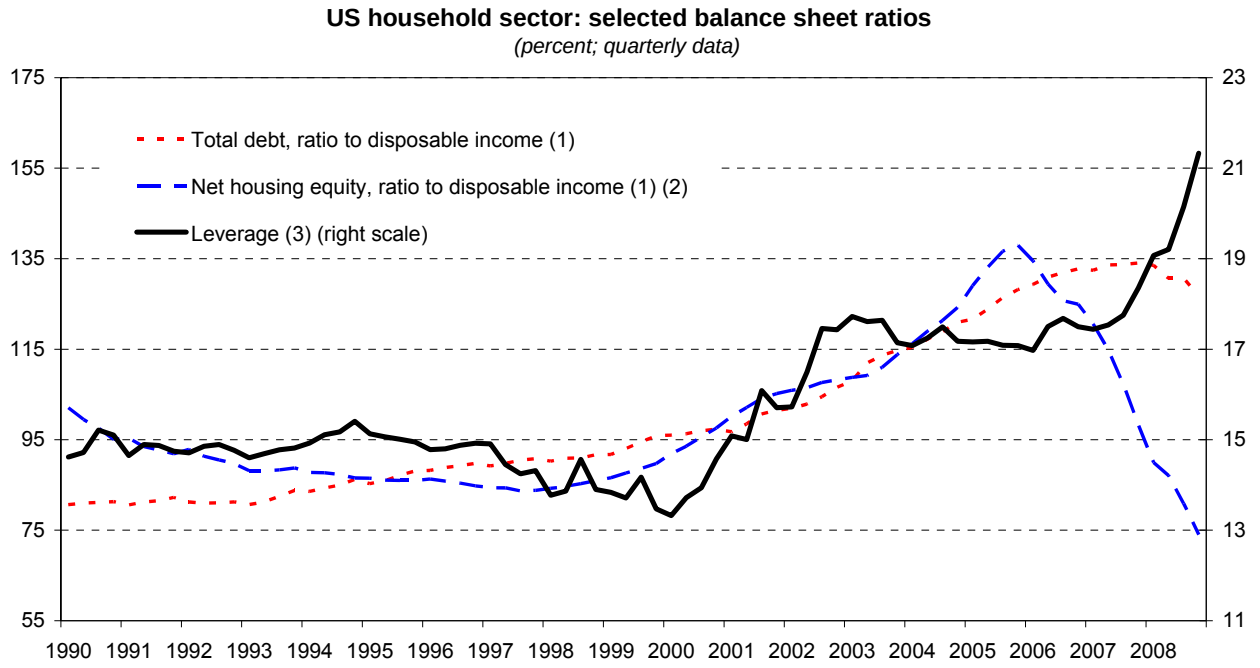


Source : Federal Reserve (Flow of Funds) and Bureau of Economic Analysis.
Note : Other nonfinancial assets include tangible assets owned by non-profit organizations and consumer durables.

Macroeconomic policies and regulatory failures combined and reinforced one another. The results were visible in a number of macro phenomena:

- **The dramatic fall in US households' saving rate**, from around 7 percent in the early 1990s to close to zero in 2005-2007. This decline in the propensity to save closely matches the rise in household sector net worth (Figure 1), pushed up by successive booms in asset prices. In the 1990s, US households "chose" to reap the anticipated and real ("beyond the hype") – but partly illusory – benefits of the productivity acceleration related to the New Economy, and incorporated in overblown equity values, in advance, in the form of current consumption; after 2000, they did the same with the rise in housing wealth, and financed their demand through a large increase in indebtedness (Figure 2).

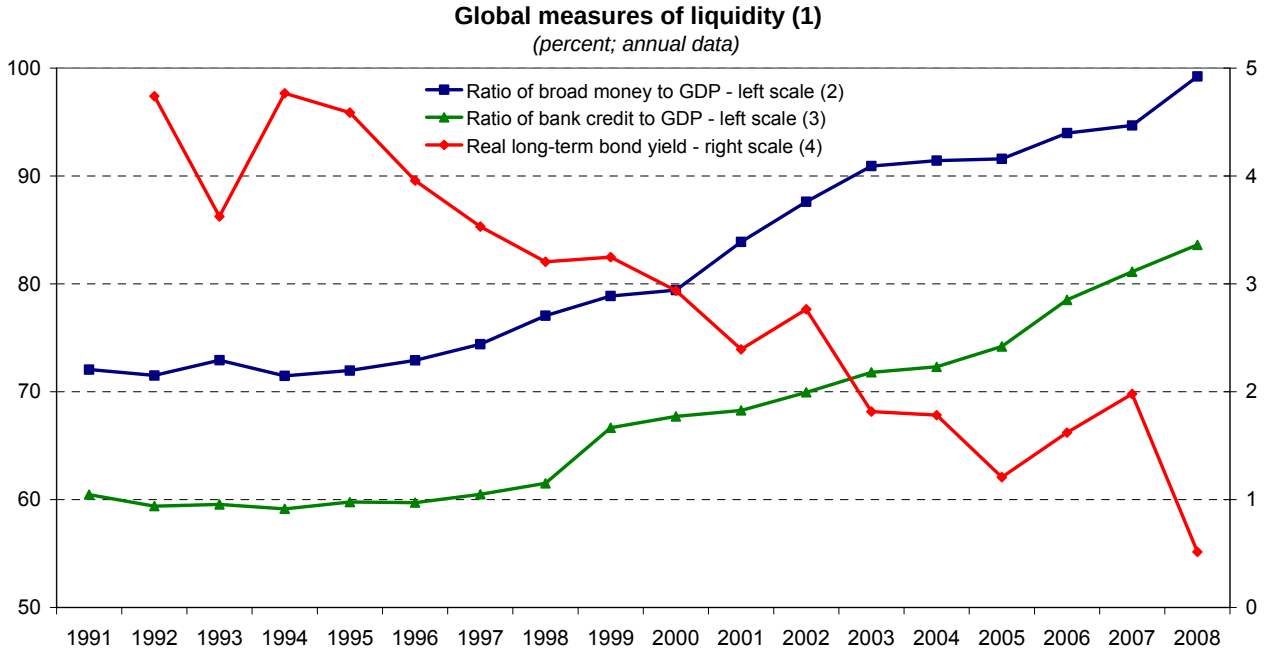
Figure 2



Source : Federal Reserve and Bureau of Economic Analysis.
Notes : (1) disposable income is calculated as a 4-month moving average. (2) Net housing equity is calculated as the difference between real estate wealth and home mortgages. (3) Total debt over total assets.

- **A very large increase in US and global liquidity** (Figure 3). This was largely the consequence of US monetary conditions, which were generally accommodating throughout the 1990s – partly in response to actual or feared shocks to the financial sector (the Asian crisis, LTCM, the millennium bug) – and then were eased dramatically and maintained expansionary for an unusually long period of time following the bursting of the dot.com

Figure 3

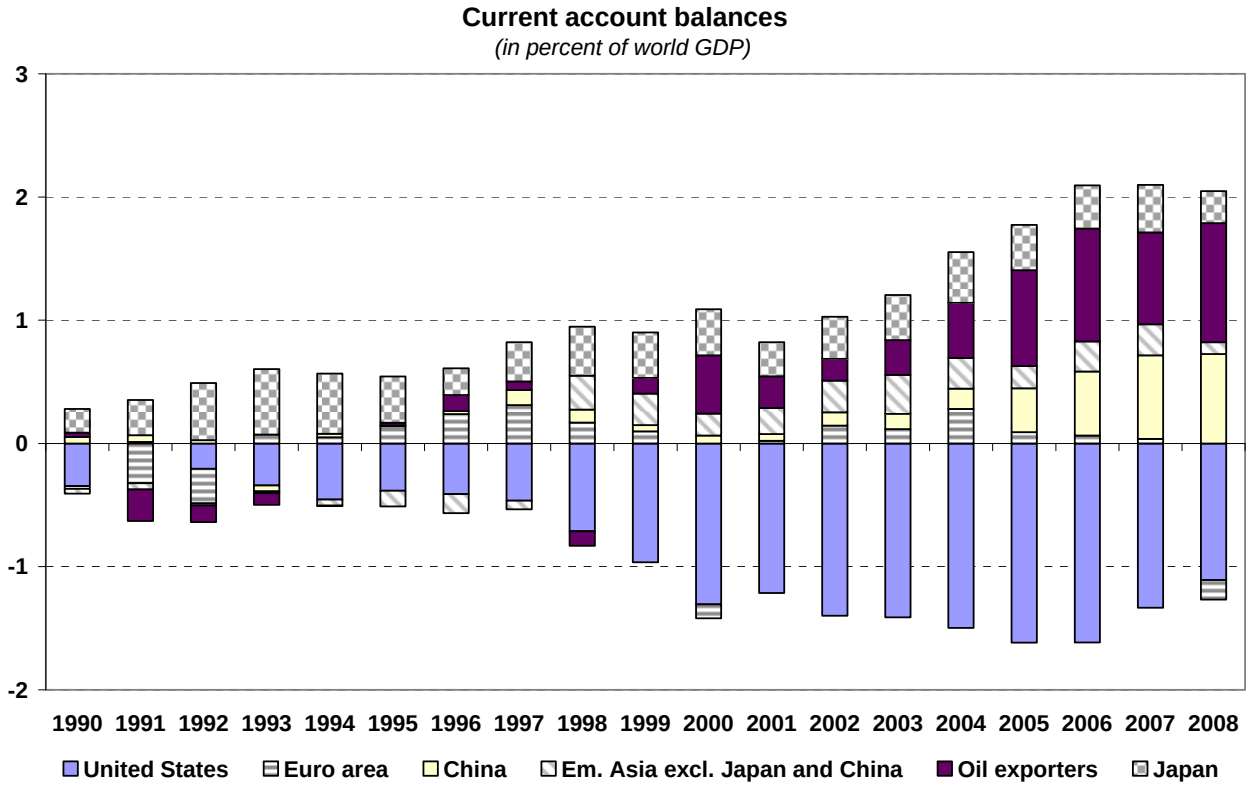


Source : IMF, World Economic Outlook, October 2008.
Notes : (1) Aggregated using GDP weights at PPPs. (2) end of period; weighted average of China, Japan, Euro area, UK and USA. (3) end of period; weighted average of Japan, Euro area, UK, USA and, starting in 1999, China. (4) averages; deflated with CPI inflation; weighetd average of Japan, Euro area, UK and USA.

bubble in the first half of the current decade. It is noteworthy that fiscal conditions also became highly expansionary starting in 2001, dramatically reversing the trend of the second half of the 1990s.

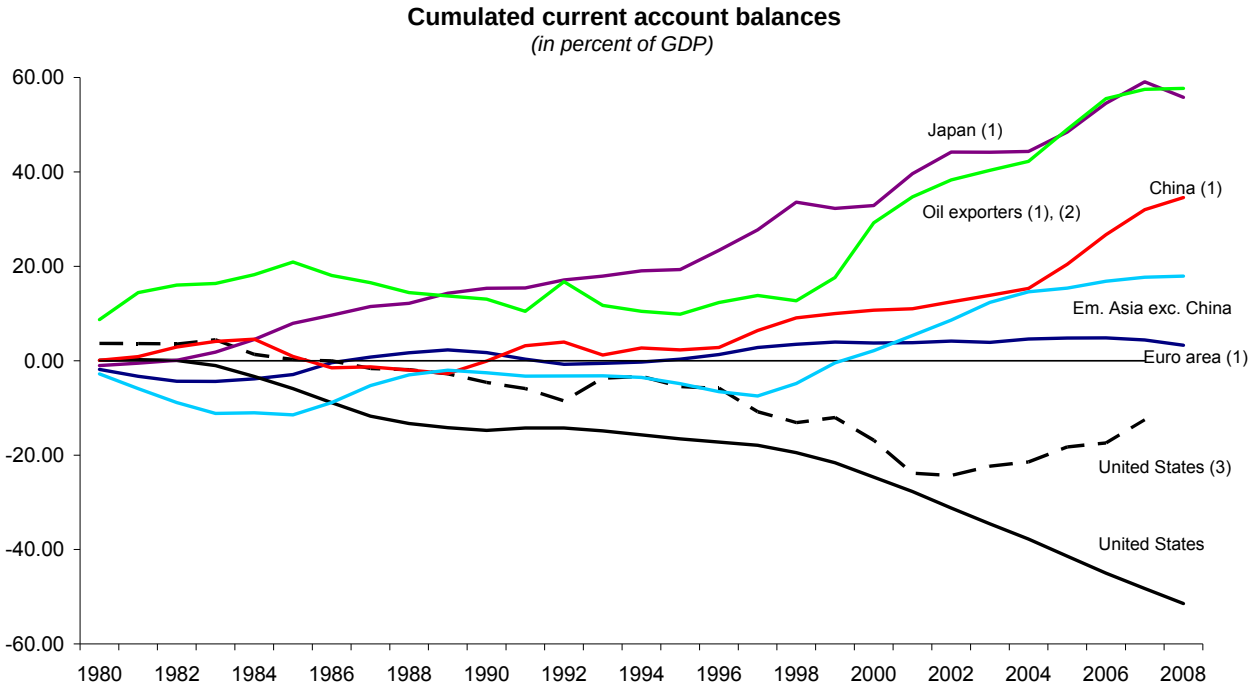
- **The widening of global imbalances**, recognised as unsustainable already in the late 1990s. Starting in 1991, and with a sharp acceleration around 1996, the US current account deficit worsened steadily. Initially its main counterpart was surpluses in Europe and Japan, but after 1997 the surpluses expanded mainly in Asia (in China since 2001-02) and in the oil exporting countries (Figure 4). The US international investment position deteriorated by less than the cumulated deficits would imply, thanks to favourable valuation effects (Figure 5). But these temporary effects masked a clearly unsustainable underlying trend.

Figure 4



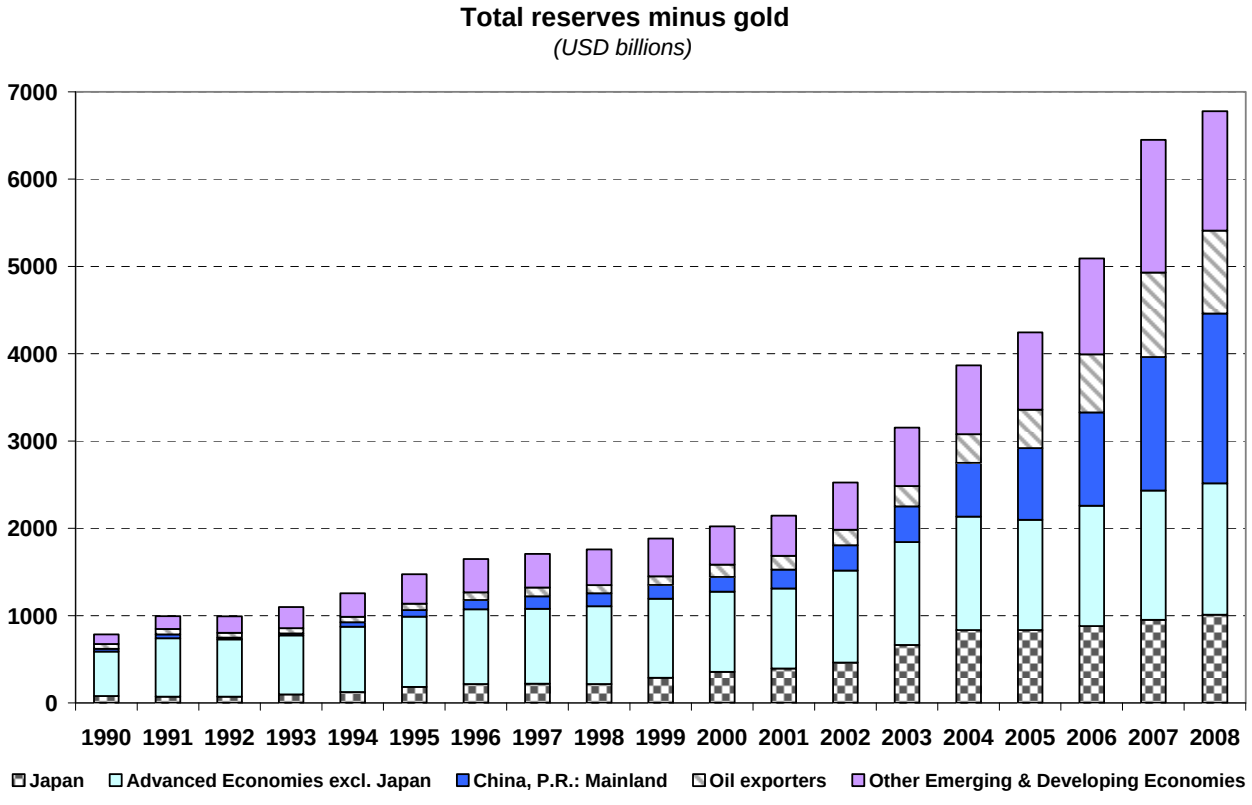
Source : World Economic Outlook, April 2009.

Figure 5



Sources : IMF, World Economic Outlook, April 2009; Bureau of Economic Analysis.
Notes : (1) Calculated as the cumulated current account balances, starting in 1980. (2) Inludes only emerging and developing economies. (3) Actual net foreign asset position (at market values).

Figure 6



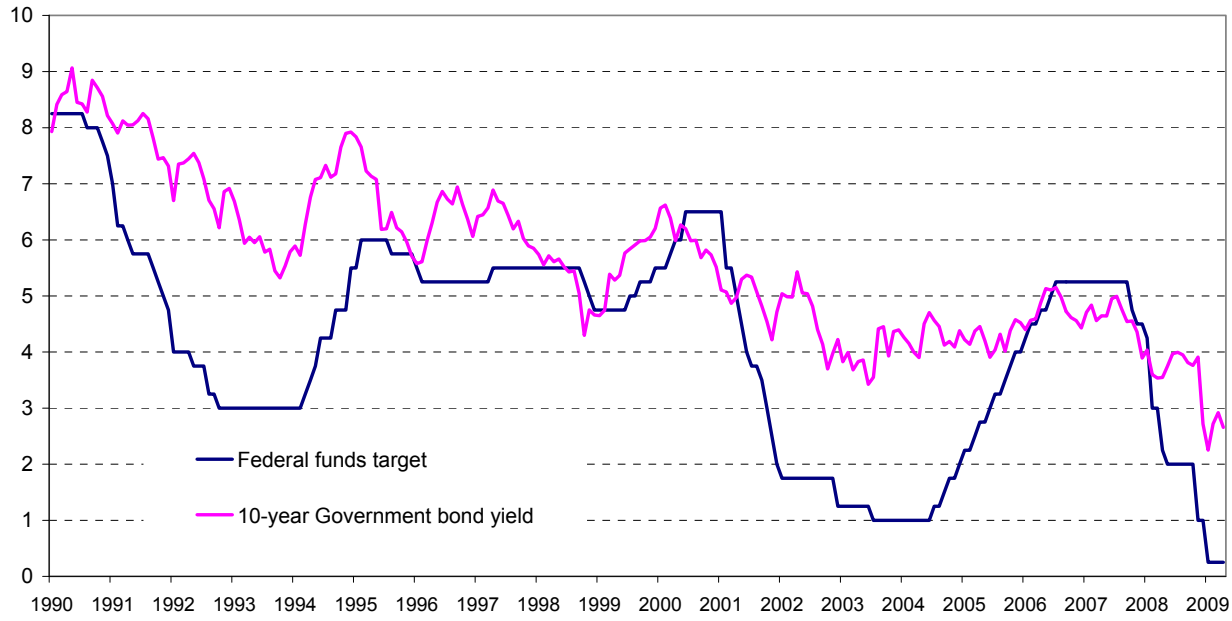
Source : IMF, International Financial Statistics.

- **An enormous increase in official reserves** (Figure 6). Initially driven by a desire to achieve greater resilience against capital outflows in the aftermath of the Asian crisis, after 2002 the reserve accumulation grew far beyond any reasonable reserve needs. It was largely concentrated in emerging Asia and the oil exporting countries, which pegged their currencies to the US dollar or in any case resisted their appreciation.

Figure 7

United States: Fed funds target rate and 10-year Treasury bond yields

(percent; monthly data)

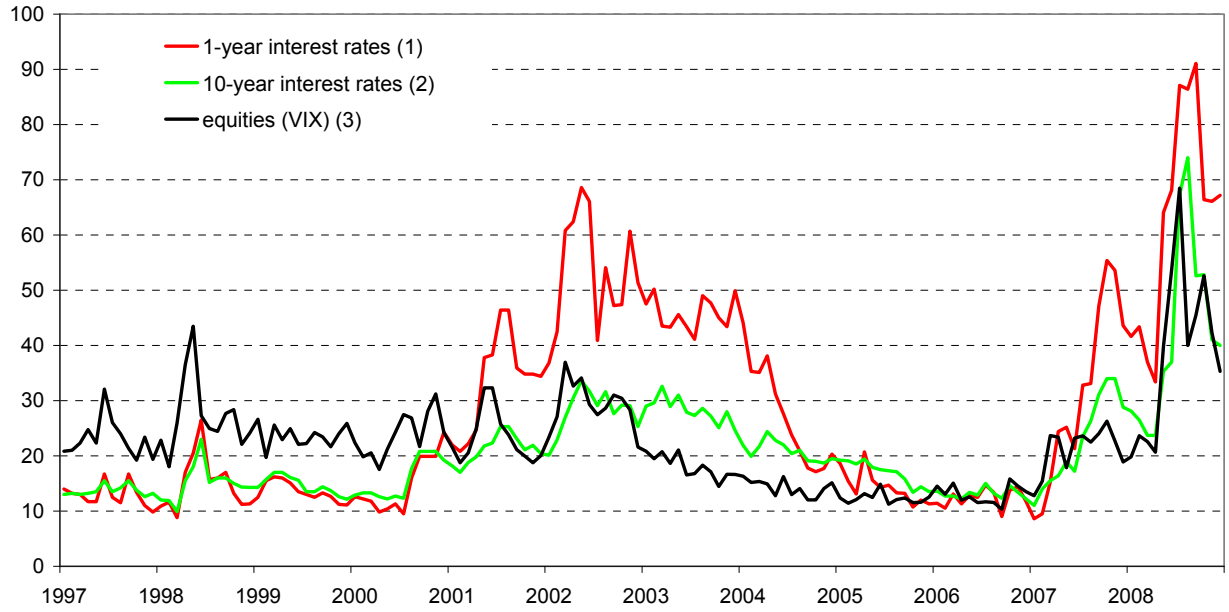


Source : Thomson Reuters Datastream.

- **Very low levels of global long-term interest rates and asset price volatility after 2003**. Long-term interest rates, which had fallen sharply after 2000, remained unusually low even after US policy rates started to be gradually raised in mid-2004 (Figure 7). After the US economy came out of the 2001-2002 recession and the effects of a number of other shocks subsided (Enron-like corporate scandals; September 11 and the start of the global war on terror), credit risk spreads and volatility declined to historically low levels in a broad range of markets (Figures 8 and 9).

Figure 8

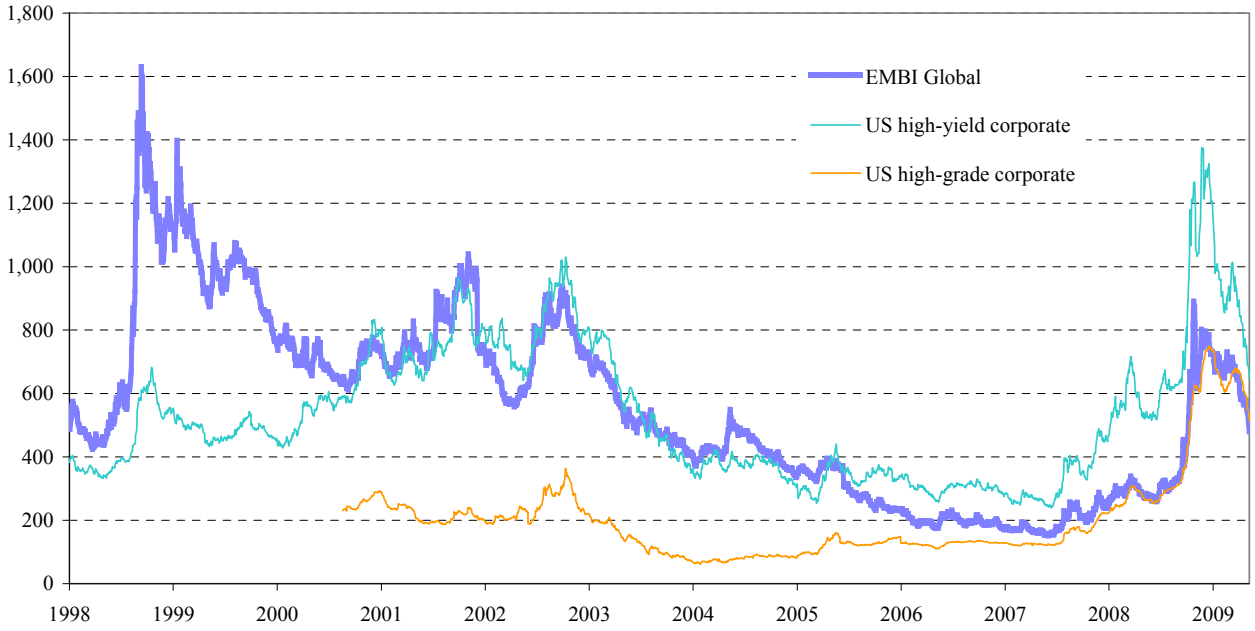
Implied volatility of selected US financial asset prices
(percent; monthly data)



Source : Thomson Reuters Datastream.
Notes : (1) Option-implied volatility on 1 year swap rates. (2) Option-implied volatility on 10 year swap rates. (3) CBOE S&P 500 Volatility Index.

Figure 9

Spreads on corporate and sovereign bonds
(basis points; daily data)

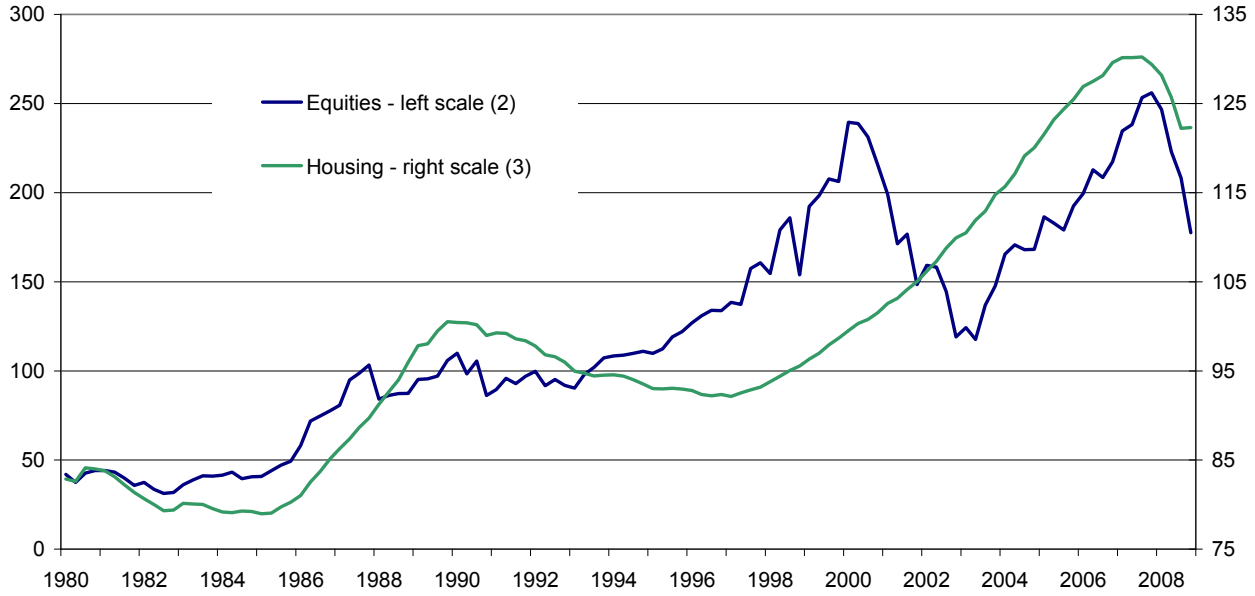


Source : Bloomberg.

- **A sequence of asset price bubbles, in the United States and globally** (Figure 10). The dot.com equity bubble of the late 1990s was essentially driven by overoptimistic expectations, but it was also accommodated by monetary policy. Then, after 2000, the combination of low interest rates, abundant liquidity and investors' search for yield combined to create extremely easy financial conditions, not only in the United States but globally, which supported and financed an unusually synchronised global housing price boom; by 2007, equity markets too were again at or above earlier peak levels.

Figure 10

Global asset prices in real terms (1)
(indices 1990=100; quarterly data)



Sources : Datastream, IMF and OECD.
Notes : (1) Deflated with G7 CPI index. (2) MSCI index. (3) Total OECD.

The combination of these macroeconomic sources of tension interacted with the financial system flaws to build up very significant, although at least partly hidden, financial fragilities, which were then fully revealed by the outbreak of the crisis. A major role was played by shortcomings in the assessment of risk, especially, but not only, on the part of "large and complex financial institutions"; by the difficulty, if not impossibility, of valuing complex new products of structured finance; by the laxity and gaps of financial regulation. The consequences for the financial system and our market economies will certainly be very substantial and long lasting. But the macroeconomic policy framework and the *modus operandi* of the international monetary system that led to the imbalances not only exacerbated the impact of the financial flaws but in fact transformed the severe financial turmoil into a fully fledged global economic crisis.

2. The role of policies

In my view, then, the lack (beyond the declarations and press releases at G7 meetings and the like) of sufficiently decisive policy reactions to the external imbalances that began to expand rapidly from the second half of the 1990s was crucial. Essentially these disequilibria reflected rapid and sustained growth in final demand, especially consumption demand, in the leading economic

region of the planet, financed by over-borrowing, primarily from abroad. Growth, in short, has occurred without savings in the United States and with excess savings in other major economies. If the United States has served as a sort of "consumer of last resort," other large advanced and emerging economies have implicitly or explicitly followed an export-led growth strategy, that is difficult to maintain indefinitely but also difficult to abandon.

The discussion that follows deals chiefly with the inability to respond, in what has come to be called the Bretton Woods II system, to the growing external imbalances. While the surplus economies, in emerging Asia and elsewhere, have not been able to raise domestic demand, a more difficult question concerns the response of the European Union, in particular that of the euro area. For the latter, external positions on the whole have been balanced all throughout its existence (since 1999), and monetary stability has been successfully maintained. Economic growth has been relatively modest, however, and catching up to the US in per capita income has basically halted. My interpretation is that domestic demand has lagged behind not much because of excessive saving but because of limited potential output expansion, the result perhaps of slow and timid structural adjustment. Within the area, the largest economy's exceptional reliance on exports is also a fact.

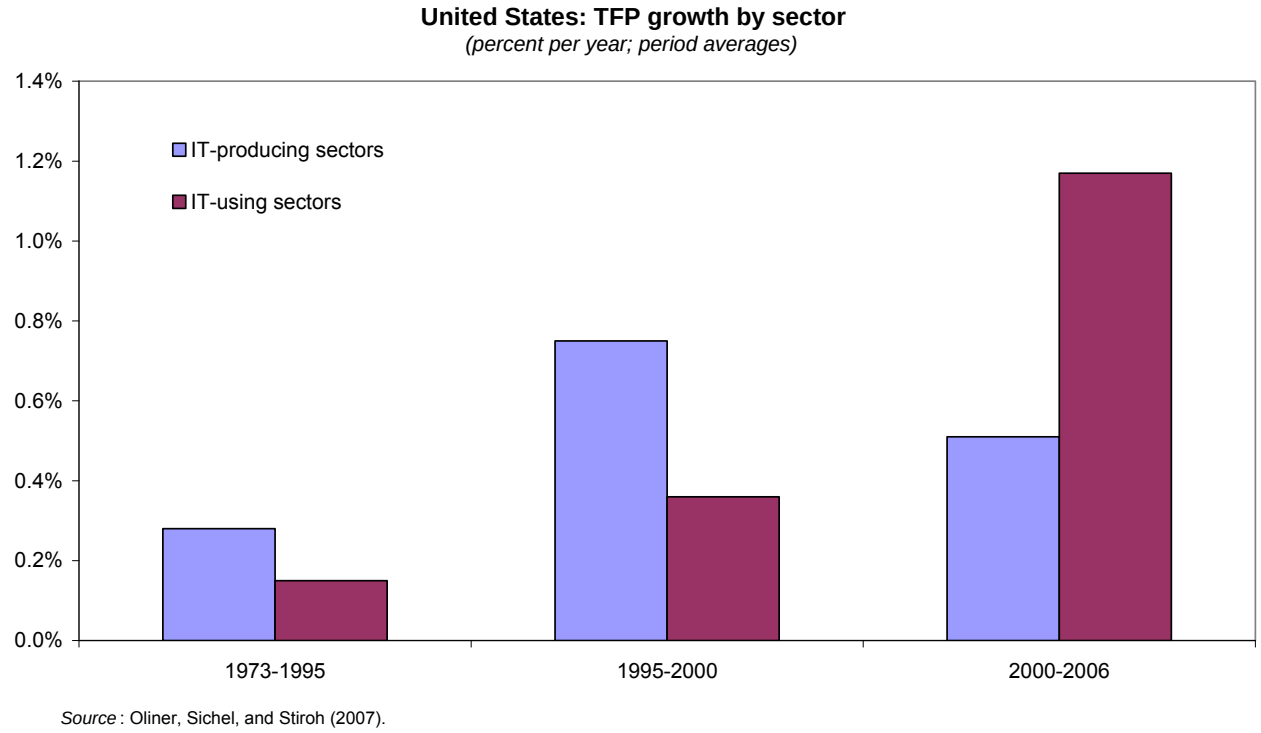
To show that the role of policies has not been negligible, in what follows I argue that (i) monetary policy in the US was overly expansionary for too long, (ii) exchange rates in several emerging market economies have been too rigidly pegged to the US dollar, and (iii) asset price and financial stability have not been considered a responsibility of the central bank or at best have been assigned a secondary role. These are not original observations, as they have been advanced in various occasions since the late 1990s. However, they have not often been considered jointly and have generally played only a limited part in the policy debate. With the benefit of hindsight, I would venture to say that they are now recognized as most relevant factors in the process that has led to the current global crisis (some relevant references are listed at the end of the paper).

To emphasize the role of policies in the onset of the global recession, I believe that it is useful to propose a reconstruction of the sequence of events that have marked the last ten to fifteen years, condensed in the following six statements:

- **Around the mid-1990s, the acceleration of US productivity and the increase in household net worth determined a first upward shift in private sector propensities to invest and to consume.**

As the 1990s began, the Cold War was ending. For the previous half-century, America had strengthened its defences and built global alliances to contain Soviet communism, an enemy that now suddenly ceased to exist. My conjecture is that the peace dividend made possible the sudden diffusion of a substantial backlog of originally defence-related technological innovations (in materials, technologies, general know-how) to the civilian economy. In any case, the revolution in the new information and communication technologies (ICT) definitely reversed the trend of productivity in the United States, which returned to markedly high rates of growth in the second half of the 1990s. A large fraction of the productivity pick-up in the United States was due to the diffusion of ICT, which drove overall output growth both directly – through the boost to total factor productivity in the ICT-producing industry itself – and indirectly, via capital deepening in ICT equipment by other sectors (Figure 11).

Figure 11



Source : Oliner, Sichel, and Stiroh (2007).

Expectations of high future productivity and income gains were most likely a factor underlying the decline in saving rates, which may be rationalized in terms of efficient consumption smoothing: US households were simply taking advantage of borrowing opportunities, fostered by financial deregulation, to consume part of their anticipated future income and wealth gains immediately. However, private agents probably overestimated the effects of productivity gains on permanent income and profits. The transmission of the shock to consumption and investment occurred to a large extent via the rise in equity prices. Reasoning in terms of a standard solved-out consumption function, the observed decline in the saving rate is consistent with the hypothesis that consumers perceived the increase in wealth as permanent. In fact, a back-of-the-envelope calculation shows that the decline in the household sector saving rate (by about 6 percentage points from the end of 1992 to the third quarter of 1999) only slightly exceeds what we obtain if we apply the standard propensity to consume out of wealth incorporated in most macroeconometric models, including the Fed's, to the actual change in household net worth, and compare it to a counterfactual where net worth grew only in line with disposable income.

- **The US monetary policy stance generally accommodated the hype in the "new economy" in the late 1990s; by historical standards it was particularly easy for a prolonged period after the turn of the century.**

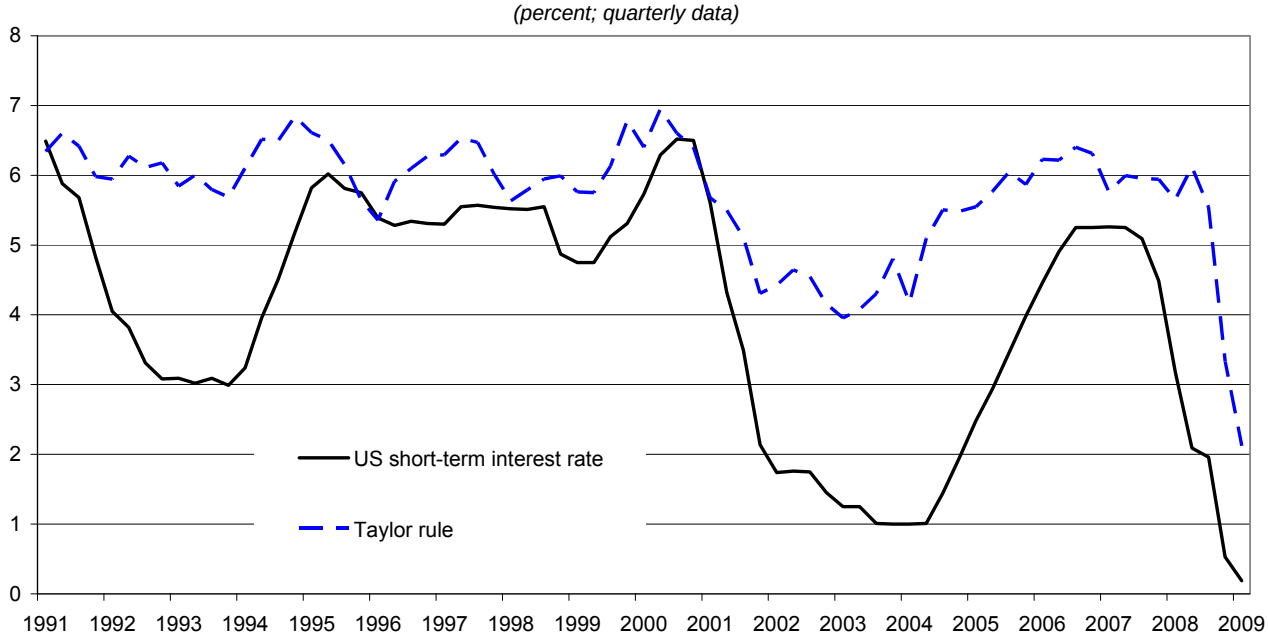
Following the financial crises that hit the economies of South-East Asia and Russia (1997-98) and the collapse of LTCM (autumn 1998), the Federal Reserve's policy remained essentially accommodating; ample liquidity was also provided to counter the risks of the so-called millennium bug. While the ex post fitting of a "Taylor rule" (Figure 12) does not highlight monetary conditions much easier than those that would be implied by a policy responding to output and inflation according to historical standards, it is a fact that they were accommodating what many observers considered to be a bubble in equity prices. In the aftermath of the Asian crisis the output gap reversed but monetary conditions still appeared to be appropriate, as a result of inflation and

inflation expectations being contained by a number of supply (as well as external) factors and the credibility, at the time, of the monetary policy regime. But there was some debate over whether the Fed should have started raising rates before the early months of 1999. The rationale for monetary policy at the time was provided by Alan Greenspan's famous statement at the Federal Reserve Bank of Kansas City Symposium in Jackson Hole in August 1999: "… central banks do not respond to gradually declining asset prices. We do not respond to gradually rising asset prices. We do respond to sharply reduced asset prices, which will create a seizing up of liquidity in the system. But you almost never have the type of 180-dgree version of the seizing up on the up side. If, indeed, such an event occurred, I think that we would respond to it. The actuality is that it almost never occurs, so it appears as though we are asymmetric when, indeed, we are not. The markets are asymmetric; we are not". In the following months stock prices skyrocketed, especially on Nasdaq, the Fed's policy moved to a tighter stance, and monetary tightening ended up bursting, late, the dot-com bubble in 2000-01.

Figure 12

Actual US short-term interest rate and the Taylor rule

(percent; quarterly data)



Source: OECD, Economic Outlook No 85; Federal Reserve Bank of Philadelphia and Federal Reserve Board.
Notes: Taylor rule formula: $r^* = 2.85 + \pi + 0.5 \bullet (\pi - 1.9) + 0.5 \bullet (GAP)$. For the output gap the latest (June 2009) OECD estimates are used. For inflation, one-year ahead expected CPI inflation from Philadelphia Fed's Survey of Professional Forecasters. The short-term rate is the effective Federal funds rate.

The recessionary effects of this were compounded by those of the severe shock of the September 11 terrorist attacks. The Federal Reserve's response was then very rapid and very accommodating. The drastic reduction in interest rates was accompanied by a strongly expansionary budgetary policy, which remained in place also in relation to the military operations in Afghanistan and Iraq. Monetary policy remained expansionary for a protracted period, facilitating a return to sustained growth in household consumption, not countering the trend towards a zero saving rate. It also gave free rein to financial innovation, in conditions of abundant liquidity, especially with the repackaging in 2004-06 of mortgages − in a context of constantly rising house prices − into structured products that opened up new investment possibilities to banks.

The gap relative to historical standards, summarized in the Taylor rule, became very wide and durable. A crucial element motivating this policy was the "deflation scare" of 2002-03, when

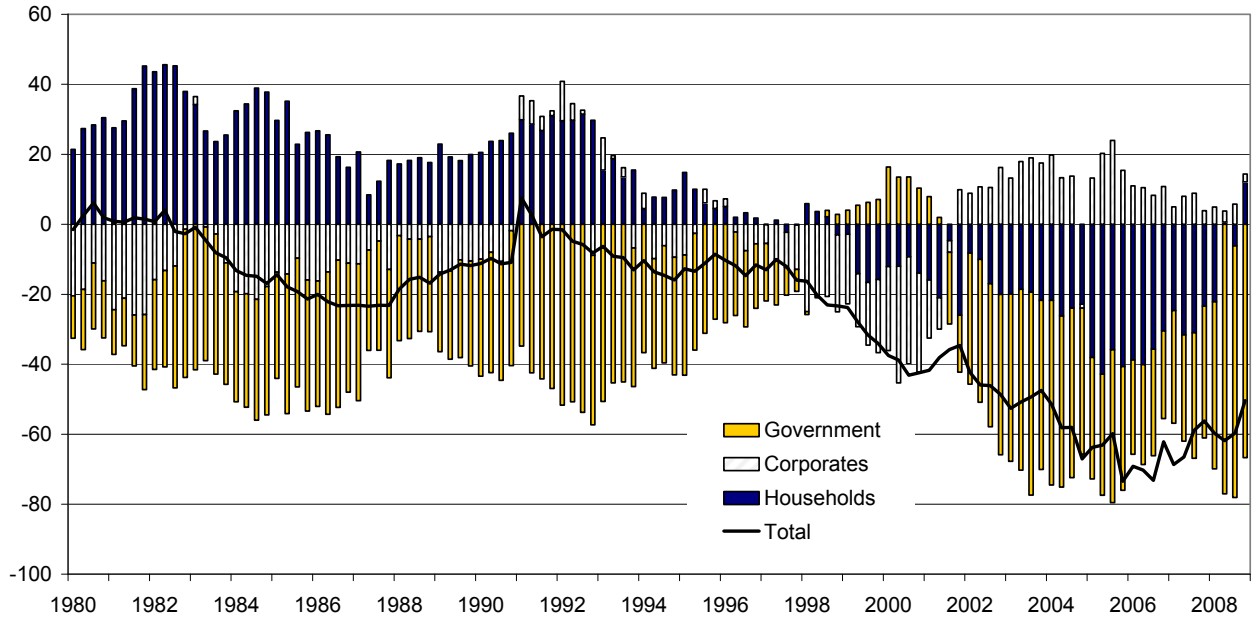
the Fed became highly concerned that monetary policy risked becoming ineffective in a low-inflation environment. With hindsight, it can be argued that in that period, thanks to the credit and housing channel, US monetary policy had become more powerful than before and that, therefore, the federal funds rate was kept too low for too long. This conclusion would apply *a fortiori* to the extent that policy should have reacted to rising equity and house prices and to the associated risks to financial stability, given that these were not adequately being offset by regulatory policies and macro-prudential supervision.

- **As the hype in the "new economy" and the expansionary monetary (and fiscal) stance sustained US domestic demand, they contributed to an unsustainable widening of the external imbalance, compensated by an imbalance of opposite sign that progressively grew in the external positions of major emerging economies.**

The US current account deficit deteriorated from around 2 percent of GDP in mid-1996 − close to its historical average over the previous twenty years − to almost 6 percent in 2006. For a while in the 1990s the expansion of private sector consumption and investment driven by the "new economy" euphoria was partly offset by a tighter budgetary policy, so the effects on domestic balance (overheating) and external balance (current account deficit) were relatively contained (Figure 13). On the other hand, while fiscal policy turned very expansionary after 2000, it largely offset the sharp increase in corporate net saving as the investment boom ended. Households, which had already turned net borrowers in the late 1990s, ran increasingly larger saving deficits as the housing boom got under way.

Figure 13

USA: net lending (-) or borrowing (-) by sector
(in percent of GDP; quarterly data)



Source : Federal Reserve, Flow of Funds Accounts.

The powerful expansion in US final demand and imports supported the increasingly rapid growth of exports and output for the major emerging economies such as China and India, which had previously lagged behind. The growing US current account deficit was accompanied by ever-larger surpluses in emerging economies and in Japan, with a significant build-up of official reserves, in a context of relatively sluggish growth in domestic demand and, in China, saving rates higher even than the exceptional rates of fixed investment (Figure 14). The oil-producing countries also

recorded sharply higher trade surpluses, reflecting the rise in oil prices due to the expansion of global demand.

Figure 14

National saving and investment of selected countries and country groups

(in percent of GDP)

Source: IMF, World economic outlook, April 2009.

The unsustainability of these growing current account imbalances was already an issue in the late 1990s; afterwards, only a succession of positive variations in the value of net external financial assets contained the otherwise explosive deterioration of the US net debtor position.

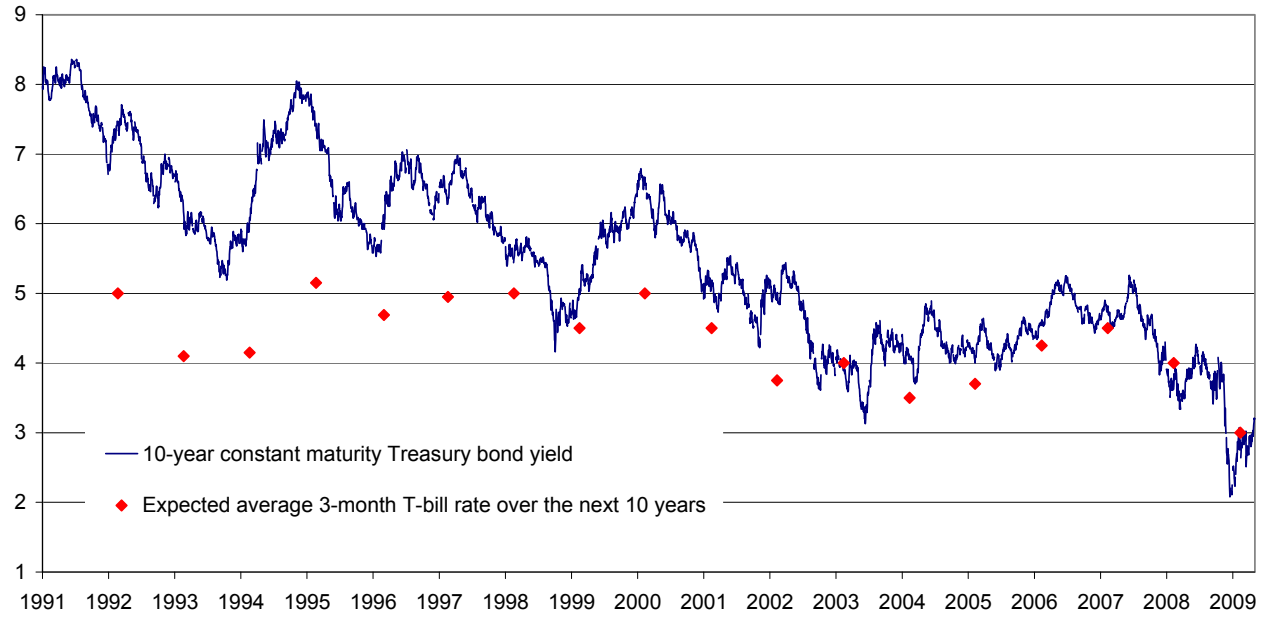
- **A number of countries that pegged their currencies to the US dollar accumulated very substantial official reserves. The investment of these in US Treasury paper contributed to lower long-term interest rates.**

The financing of the growing US current account deficit did not pose particular problems. Up to 2000 private capital flowed to the United States as returns on financial assets were perceived as being higher than in other advanced countries, due also to faster economic growth. As a result, a self-reinforcing effect set in. The capital inflows to the United States boosted asset prices and returns, thus stimulating additional flows of capital. After the bursting of the dot.com bubble, inflows of private capital diminished substantially, but they were replaced by official flows, coming from countries with limited exchange rate flexibility. The less-than-complete substitution led to a depreciation of the US dollar and of the currencies pegged to it.

The accumulation of official reserves accelerated as China and other emerging countries kept pegging their exchange rates to the dollar: of the total increase in foreign exchange reserves between 1998 and 2007 almost 70 percent is to be ascribed to emerging Asian and oil/exporting economies. The large volume of investment in US Treasury securities by foreign official investors contributed to drive their yields lower. The consensus view seems to be that the effect of foreign flows was to lower long-term US rates by slightly less than one percentage point. Much of the fall in yields seems to have reflected a narrowing of term spreads: long rates declined significantly more than the expected future profile of short rates (Figure 15).

Figure 15

Long- term US Treasury bond yields and expected short-term rates
(percent; daily)



Sources: Federal Reserve; Federal Reserve bank of Philadelphia, Survey of Professional Forecasters.

- **Low interest rates triggered a search for yield which, by squeezing risk premiums, tended to make financial conditions even more favourable for a broad range of borrowers. Low perceived risk, abundant liquidity and credit expansion, as well as regulatory failures in some markets, helped feed the house price bubble.**

Ex-ante real interest rates on 10-year US government bonds fell below 2 percent in 2002, and remained there for several years. One of the consequences was an increasing search by investors − including international banks, banks of other countries and financial vehicles they controlled – for investments with higher risk-return profiles. This stimulated the supply of structured financial instruments backed mainly, although not exclusively, by home mortgages granted with loan-to-value ratios even exceeding 100 per cent, based on the false premise that house prices could only increase. In this context, a crucial role was played by financial regulation that was generally lax, and, in some market segments, non-existent.

In this environment, housing finance became cheap and attractive, especially variable rate mortgages, and even more so those with teasers. For 30-year fixed-rate conventional mortgages, rates declined to just above 5 percent in June 2003, with almost 3 percent annual inflation. Housing starts jumped by the end of 2003 and the surge in housing demand spurred housing prices. The increased ability of households to borrow against their home equity was crucial in igniting the spiralling of housing demand and prices.

The global housing price rise started in the late 1990s and gradually accelerated after 2000, despite the turn in the economic cycle, supported by lower interest rates. Between 1996 and 2007 real house prices in the OECD area approximately doubled. Although the extent of the increase differed considerably across countries, and a few, such as Japan and Germany were left out for particular reasons (respectively, the earlier experience of an extremely severe boom-bust cycle and the consequences of the reunification process), the cycle was remarkably synchronised for an asset market that is inherently local. The last part of the house price upswing coincided with a new run-up in equity prices; in advanced countries overall market indexes reached levels close to the 2000 peaks in real terms, and in emerging economies exceeded them by far.

- **Eventually, global supply reached bottlenecks in the form of commodity supply constraints, US monetary policy was gradually tightened, and house prices peaked. At that point, the large risk exposures that had accumulated in the financial system suddenly became apparent, precipitating the turmoil.**

The strong expansion of global demand was accompanied by a rapid increase in the demand for energy and other commodities, particularly in high-growth emerging economies. Over time, this added to inflationary pressures, and monetary policy in the advanced economies was gradually tightened. By late 2006 the rise in US interest rates had induced first a loss of momentum and then a turnaround in house prices. This triggered a domino effect, starting with the structured products based on subprime mortgages.

In the summer of 2007 the world economy entered a period of acute financial turmoil, which, despite central banks' prompt and massive response, gradually turned into a global crisis affecting whole industries and economies. The earlier rise in leverage and the various kinds of pro-cyclicality that characterise the behaviour of financial systems amplified the rush toward de-leveraging and exacerbated the resulting credit crunch.

At the root, however, remain the macroeconomic imbalances that the policies conducted by the systemically important countries had allowed to build up unchecked. The importance of those imbalances, which transformed what could probably have been a manageable episode of financial turmoil into a fully-fledged global economic crisis is evident in the short-lived myth of "decoupling" and the subsequent abrupt plunge in world trade in the last quarter of 2008. The

consequences of the crash in the US housing and credit markets and the ensuing recession inevitably spilled over to the global economy: now that the United States has stopped being the consumer of last resort the whole world suffers a lack of aggregate demand exactly because of the unbalanced consumption patterns. Emerging economies have experienced both a dramatic decline in demand due to falling world trade and a sudden stop in capital inflows due to heightened risk aversion.

In some sense, this constitutes precisely the disorderly adjustment that a number of observers had been fearing since the manifestation of the global imbalances.

3. Interpretations: the "global savings glut", "Bretton Woods II", and the "global asset shortage"

Several explanations for the widening of current account imbalances have been suggested. The main strands of this broad literature put some of the mechanisms mentioned above at the centre of the analysis. Namely: (a) the emergence of excess saving outside the United States (global savings glut); (b) the pegging of exchange rates to the US dollar, in many cases at undervalued levels (Bretton Woods II); (c) the investment of the accumulated reserves mainly in US Treasury securities (global asset shortage).

Overall, these approaches focus only on some aspects of the narrative that I have sketched out. More fundamentally, to my mind, they downplay macroeconomic policies in the core country and their role in the emergence of bubbles in real and financial assets.

The first branch of this literature moves from the reaction of emerging Asian countries to the 1997-98 crisis. The sudden stop in capital flows and the sharp recession forced Asian countries hit by the crisis to reduce their external deficits. Moreover, the crisis induced countries to assign a high priority to the accumulation of large official reserves, as a buffer against possible capital outflows. The rapid improvement of their current account positions was also helped by sharp currency depreciations. In several of these countries the counterpart was a sharp drop in investment. In China, however, which had escaped a currency crisis, there was an exceptional increase in saving after 2002. The formation outside the US of what came to be alternatively termed a "saving glut" and an "investment drought" is seen as consistent with the observation that, approximately in the same years, real long term interest rates at the global level declined to historically low levels and current account imbalances widened dramatically.

Overall, the "excess saving" approach does not explain why emerging countries would channel their additional savings into building up portfolios biased towards a few assets (mainly US Treasury paper). This is made explicit in the "Bretton Woods II" analysis, which emphasises the deliberate maintenance of undervalued exchange rates pegged to the US dollar as part of an export-led growth strategy. This second strand of literature too moves from the behaviour of a number of emerging countries (not only in Asia) in the aftermath of the Asian crisis, but focuses primarily on the excessive build-up of foreign exchange reserves. In addition to the emerging economies' needs to insure against the risk of capital account crises, some other possible explanations of the rapid reserve accumulation have also been mentioned, such as the need to provide investors from advanced economies with some kind of "collateral" against large foreign direct investment or, alternatively, deliberate "mercantilistic" policy strategies aimed at promoting an export-led development model hinging on price competitiveness.

An alternative interpretation of the accumulation of reserve assets by emerging economies is provided by a more recent strand of the literature, which focuses on financial globalization, viewed as an ongoing endogenous process of integration between countries at different stages of financial development. According to this view, the United States commands an unrivalled comparative advantage on a global scale in terms of financial market deepness, liquidity and legal infrastructure, and is positioned at the financial core of a rapidly integrating world, while high-growth

industrialising economies lack the capability to produce the financial assets necessary to safely store wealth and fully reap their growth dividends. Excess demand for high-quality assets in the periphery translates into a global shortage of assets that pushes the core country, the United States, into a structural equilibrium characterised by persistent current account deficits and low long-term real interest rates.

In this story it is not clear, however, what the role of institutional relative to private demand for assets is. Financial repression could explain a demand for investment abroad on the part of private agents, but in practice the role of private capital flows towards the United States diminished sharply after the bursting of the dot.com bubble, and was replaced by official flows. To reconcile the theory with this fact one would have to interpret the official reserve build-up by China and others as being conducted on behalf of private agents.

In all these approaches the roots of the current account imbalances lie outside the United States. The focus is on an increasing role of developing countries in providing financing to the United States, although these analyses differ with respect to the issue of the sustainability of current account imbalances. In the global saving glut story the root lies in specific structural distortions in emerging countries that lead them to "save too much" or to "invest too little". The adjustment of the imbalances thus crucially depends on the correction of such distortions, presumably also via greater exchange rate flexibility in emerging economies. The Bretton Woods II story, on the other hand, focuses more on deliberate policy choices in these countries. Implicitly, it is assumed that those policy choices will be corrected, smoothly, in due time. In the meantime, the US net foreign position would continue to deteriorate, but this is seen as sustainable. Therefore, in both cases, no specific action to correct the imbalances is necessary on the part of advanced countries. Finally, a stark corollary of the global assets shortage story is that, as long as the forces underlying excess saving in the periphery persist and the United States retains its undisputed global financial leadership, (welfare-enhancing) global imbalances should be the norm.

None of these stories, by itself, can account for the build-up of financial fragilities, which were then fully revealed by the outbreak of the crisis. To this end, as I noted earlier, the role of macroeconomic policies appears essential.

4. Policy frameworks

Two central elements of the story I have sketched out are: (a) an overly expansionary US monetary policy, which permitted a long expansion of consumer spending financed by growing indebtedness; (b) the choice by China and other emerging countries to follow an export-led growth strategy supported by pegging currency to the US dollar, resulting in the accumulation of large official reserves.

Both policies were attractive in the short run, but ultimately unsustainable in the long run. This is now clear in retrospect, but even without the benefit of hindsight several signals – the sharp decline in the US household saving rate; the widening global imbalances and the accumulation of huge official reserves; the enduringly low levels of long-term interest rates and risk premiums and implied volatility; the continuous expansion in global credit; the succession of booms in financial and real asset prices – should have alerted policymakers that those policies were feeding a set of disequilibria that could not be sustained indefinitely, but whose correction was nowhere in sight.

The question that should be addressed is not so much why those unsustainable policies were undertaken in the first place – in a world of imperfect knowledge, private agents and policymakers make mistakes all the time – but what allowed them to be maintained for such a long time. To address this question, we need to reconsider the conceptual setups that were used to frame and to assess the results of those two policy choices. In addition, we must look to the international monetary system as a whole, and ask why the incentives incorporated in it did not effectively

induce the correction of the imbalances and promote policies conducive to the orderly functioning of the world economy.

4.1 Monetary policy

It has been argued – in my view, convincingly – that as a result of the success achieved by macro-stabilisation policies and of structural changes in the responsiveness of aggregate supply (also as a result of globalisation), inflation expectations are now much better anchored, and episodes of excess creation of liquidity and credit tend to be reflected primarily in asset price bubbles, rather than in increased consumer price inflation.

The task of monetary policy in this context is not necessarily easier. Because asset price cycles tend to be associated with large changes in indebtedness and add to financial vulnerabilities, they can pose significant risks to financial stability. This brings us to the time-honoured question of whether and how monetary policy should react to asset price misalignments and financial imbalances, or more generally whether central banks must (flexibly) target, with just a single policy instrument, more than just consumer price inflation.

It has been suggested that to take into account the effects of asset price movements in the context of a flexible inflation-targeting framework central banks may need to look further into the future than is usual. This might work in "normal" times. However, since the precision of forecasts can only decline as we move to more distant time horizons, it is debatable whether trade-offs that depend on forecasts of the distant future and are by their very nature rather uncertain can be stable enough to provide reliable guidance for current policy decisions. Furthermore, one may ask whether this may be too general a framework to provide actual guidance to monetary policy. If allowed to develop, asset price bubbles and the financial instability that usually accompanies them can eventually destabilise expectations about future monetary policy and inflation, especially if authorities follow a practice of always intervening to "clean up" after the bubble has burst, easing policy by as much as is required to offset the effects on the economy.

Here the crucial point is that the models we use to interpret economic data and to set policy are particularly lacking in the treatment of asset prices. In this respect:

- We probably do not know enough about the effects of asset price misalignments and related imbalances in equity, real estate and currency markets, as well as in bank credit and government debt. These effects are normally found to be relatively small, and asset price movements to play a relatively limited role in the transmission of monetary policy. Even if "extreme events" materialised in powerful fashion, in econometric estimates they are likely to be dominated over the sample by "normal time" observations and frequently end up being "dummied out".
- Many of the effects associated with asset price imbalances are, anyway, likely to be highly non-linear and complex. The implicit monetary policy reaction function would also then be non-linear and complex, and incorporate the effects of asset prices and financial imbalances. But for the reasons previously advanced, the models we use tend to be essentially linear and we often lack the skills, and the memory, to supplement them with well reasoned analysis and robust evidence.

Summing up, the difficult question of how much restriction would be needed in the face of rising asset prices calls for more study and experimentation. But, as it has been aptly suggested, it hardly calls for "benign neglect".

4.2 The international monetary system

A key element that allowed the US monetary expansion and China's exchange rate pegging to be maintained for so long was the fact that they were mutually reinforcing. In a nutshell, demand from US consumers helped sustain China's (and others countries') export growth. At the same time, an elastic supply of cheap imports from Asia helped keep inflation low in the United States (and also, by the way, in the other advanced countries), encouraging the Fed to maintain an easy monetary stance. And the investment of emerging economies' official reserves in US Treasuries contributed to compress long-term yields both in the United States and globally. All this fed global liquidity and rising asset prices.

The countries that pegged their currencies to the dollar effectively imported US monetary policy regardless of whether it was appropriate for domestic conditions. This fuelled liquidity and credit expansion, also because of difficulties in sterilizing the effects of the accumulation of official reserves, and tended to feed booms in domestic asset prices and investment. But the high growth experienced by these countries effectively rested on the ultimate support coming from US consumers. This became evident most recently: when it was clear that the financial crisis might involve a massive credit crunch and would require a protracted rebalancing on the part of US households, the fall in demand and world trade was highly synchronised in all advanced and emerging economies.

Other surplus countries also had a responsibility in allowing the imbalances to grow. In Japan, long delays in facing up to the structural problems of the financial sector caused a prolonged stagnation of demand. Germany, and other European countries, introduced some structural reforms to the labour market in recent years, but these, in the absence of equally forceful reforms in product markets, have largely translated into stagnating wages and weak domestic demand.

The fact that imbalances that were not sustainable persisted for so long shows that no mechanism – market-based or activated by multilateral surveillance – operated effectively to induce a correction. Two closely connected features of the international monetary system seem to have effectively switched off market-based alarm bells:

- First, by pegging their currencies to the US dollar, surplus countries managed to avoid pressure to adjust.
- Second, the role of the US dollar as the international reserve currency implied that the United States could finance persistent current account deficits without coming under market pressure, as long as the surplus countries were willing to accumulate dollar assets. For the United States, an added benefit of financing deficits in its own currency was that dollar depreciations generated favourable valuation gains on its international investment position.

Although it is clear that the international monetary system has not been performing some of its essential functions, it is by no means clear what could replace it. If the key source of its shortcomings is the dollar standard, it is difficult at this stage to identify a realistic alternative. All those that have been mentioned – a supranational currency like the SDR; a tripolar system based on the dollar, the euro and an Asian currency – face very substantial difficulties. Whatever the final goal, the establishment of an SDR-denominated substitution account for existing stocks of official reserves, as recently suggested, may be worth of further consideration as a means to smooth the transition.

In this context it may be instructive to recall how we got here. The original Bretton Woods system, as designed by its founders, rested on tight capital account controls. The gradual liberalisation of capital movements helped to exacerbate the tensions within the system, but their roots were deeper. While the system had been designed as a regime of "fixed but adjustable" parities, in actual practice the peripheral countries – both those in deficit and those in surplus – resisted parity realignments, making the system much more rigid. Surplus countries (Germany and

Japan) wanted to support export-led growth, while the United Kingdom and France were motivated by a desire to shore up the reputation of their currencies to preserve what was left of their international role. All this could be sustained as long as the pivot country, the United States, was willing to play the n-th country – that is, to accommodate the sum of ex-ante external surpluses and deficits desired by the other n-1 countries – and followed monetary and fiscal policies that were broadly in line with global price stability. This unstable equilibrium became increasingly untenable in the late 1960s and early 1970s, when the United States – then in the midst of the Vietnam war – chose to pursue expansionary policies disregarding their potential inflationary consequences on the global economy.

There are some evident parallels between this story and the weaknesses of the current functioning of the international monetary system. Again today, the ultimate source of weakness may be seen as a combination of (a) overly expansionary policies in the centre country that contributed to a massive widening of its external imbalance, and (b) the refusal of peripheral countries to allow exchange rates to move enough to correct their surplus positions. Another interesting parallel between the two periods is the fact that both the early 1970s and the last few years were characterised by a very pronounced and synchronised commodity price cycle, a clear symptom of global inflationary pressures.

Underlying all this is the fact that the international monetary system that emerged after the demise of Bretton Woods is a non-system, driven by the revealed exchange rate preferences of the individual countries, with a very weak multilateral surveillance, despite recent attempts to strengthen it. This non-system has never satisfactorily addressed the difficulties connected to the "inconsistent triad" of full capital mobility, fixed exchange rates and the autonomy of national monetary policies. The regime of fixed exchange rate pegs was never replaced by one of generalised free floating, even though the degree of capital mobility continued to increase, but instead gave way to a hybrid system, comprising a great variety of exchange rate arrangements. In practice, throughout the last 35 years, the exchange rate policies of a majority of countries have been marked by widespread "fear of floating", leading to large foreign exchange intervention. This fear is not at all surprising: in a world that is increasingly integrated economically and financially, large exchange rate fluctuations driven by capital flows can be highly disruptive both to foreign trade and to domestic macroeconomic stability; this, after all, is part of the reason behind Europe's move to monetary union.

5. Open questions

Whatever the shape of the future system, an urgent task – one to address as soon as the economic situation improves – is correcting existing imbalances.

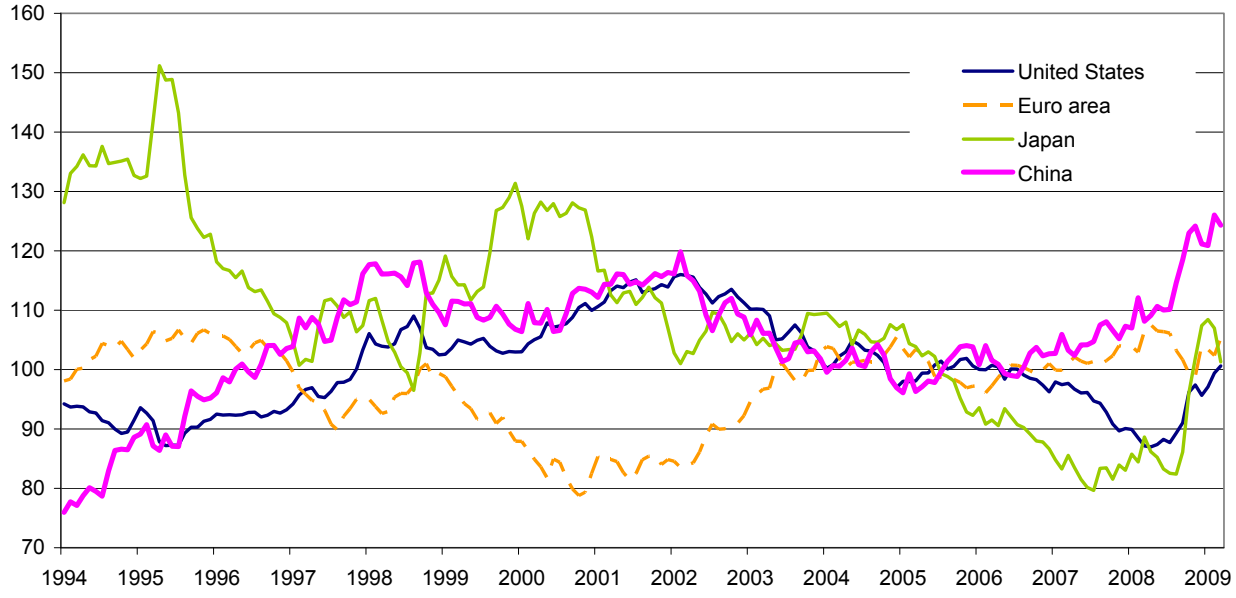
The fundamental macroeconomic imbalances that lay at the root of the financial crisis are not being righted by the consequent global recession. At present, the rise in US private sector saving and the sharp fall in investment, partly offset by a larger public sector deficit, appear to have narrowed the US current account deficit from 5.3% of GDP in 2007 to 2.8% in 2009-2010, as projected by the IMF. However, most of the reduction is due to cyclical, not structural, factors; and the effect of lower oil prices should itself be seen as essentially cyclical.

What happens as the world economy comes out of the recession depends largely on what drives the recovery: if it is an expansion of demand in the surplus countries – including not only emerging Asia, but also Japan and some European countries – some real correction of imbalances is possible; but if the world again relies on US consumers as the primary source of demand growth, then imbalances will widen once more. But this calls for potential output in those countries to grow enough to allow for such higher growth in domestic demand, in order not to jeopardize price stability. And this will clearly be a substantial challenge.

In any case, if we are to achieve a major rebalancing of world demand, exchange rates will probably have to move as well. But do we have, at present, an effective mechanism to engineer an orderly depreciation of the US dollar against the currencies of surplus countries? So far, since the beginning of the financial turmoil exchange rates have not generally been moving in a direction that favours the correction of imbalances. The dollar has appreciated by 13 percent in effective terms since July 2008 (Figure 16), as the turmoil engendered demand for dollar liquidity and large capital flows out of emerging markets have been seeking a safe haven in US Treasury securities. Those flows may well be reversed as investors' flight to safety abates and the financial situation normalises. This could trigger disorderly exchange rate movements.

Figure 16

Real Effective Exchange Rates
(2005 = 100; monthly data)



Source : Bank for International Settlements.
Note : increases signal appreciation.

This scenario poses a very difficult challenge to the countries that have accumulated large quantities of official reserves, predominantly in US dollars. However, continuing to peg their currencies will only postpone the day of reckoning, while increasing the potential capital losses. This dilemma is exacerbated by the fact that no country can act in isolation, as the present and potential effects on trade flows obviously need to be taken into consideration. Indeed, this is a classic case in which collective action, if feasible, would be welfare-improving. It might take the form of a cooperative agreement among surplus countries for some kind of joint "managed currency appreciation" vis-à-vis the dollar. The appreciation and the boost to domestic demand would have to be large enough to ensure a significant correction of imbalances.

But is such collective action feasible? Several practical problems would need to be overcome. Even confining the discussion to Asia, the countries that would have to take part in it differ in many ways: current exchange rate regimes (hard peg, crawling peg, managed floating); degree of capital account liberalisation; stage of financial development; trade specialisation and position in the vertically integrated Asian manufacturing industry. These differences make the determination of how best to achieve the desired result extremely tricky: How large should the appreciation be, and should it be uniform across surplus countries? Is it better to implement it

gradually or through one large initial exchange rate realignment? And after that, should exchange rates be managed or allowed to float, to let the market determine the final size of the adjustment?

These are difficult questions, to which I do not have an answer. Based on Europe's long experience of monetary cooperation – which started in the 1970s precisely in order to address the challenges of global currency instability for a group of closely integrated countries – it is worth recalling that progress in such matters often stems from a fruitful tension between a leadership role taken by one or two countries and an unremitting effort to design arrangements and institutions that are balanced (if not always symmetric) and flexible enough to accommodate the needs of all participants. I don't want to carry the parallel too far, as I am aware of the important differences between Europe and Asia, but I think that large and systemically important countries like China and Japan have a responsibility to exert leadership. At the same time, as the world we live in is truly global, the passage from the current Bretton Woods II non-system to a new international monetary system – more stable, better defined and regulated – must see all the countries affected, especially those of the G-20, as full active participants in its design and ownership.

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