

**Global imbalances,  
saving glut and investment strike**

(Provisional version)

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# Global imbalances, saving glut and investment strike

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*The present state of the global economy is characterised by persistent and increasingly polarised current account imbalances, in a context of historically low long-term interest rates, which stand below the equilibrium levels proxied by potential growth and trend inflation. A comprehensive analysis by Ben Bernanke<sup>1</sup> attributes those two phenomena to one common cause: a global saving glut outside the United States.*

*The approach below is more pessimistic than the global saving glut theory as far as the diagnosis is concerned, as the most striking feature of the present state of the global economy is not so much a saving glut as an investment strike, in spite of low long-term interest rates.*

*This also affects the US economy where corporate investment remains subdued relative to profits, adding to the gradual loss in its tradable productive capacity, possibly to the benefit of large foreign direct investment outflows. So far, such a model could be seen as sustainable. Indeed, in spite of an increasingly large deterioration in the US net international investment position, the balance of income has remained positive owing to a favourable yield spread between assets and liabilities. However, the tipping point, beyond which net investment income turns negative and therefore becomes a levy on domestic resources, seems to be near.*

*This may lead to serious foreign debt sustainability issues and reinforces the “steep exchange rate adjustment” exit scenario with all its potentially harmful side effects. Recently, some optimistic assessments of exchange-rate-led adjustment have focused on valuation effects, through which a large amount of the US net foreign debt could be wiped out by a US dollar depreciation. We suggest that such an exchange rate shock would be likely to trigger an increase in US interest rates, which makes an exchange rate shock not as painless as it seems for the US economy. Besides, such a shock could be potentially more harmful than previous episodes of sharp US dollar adjustment from the perspective of the global economy, as the ratio of foreign-owned assets in the United States to the world GDP has tripled since the mid-1980s.*

*However, as far as the other exit strategies are concerned, the approach below is more optimistic: since economic policies had a significant influence on the run-up to the current situation of low interest rates/global imbalances, reorienting economic policies may successfully address the issues at stake, leading to a gradual policy-driven resolution process which could be less disruptive than a market-led adjustment.*

*The note is organised as follows: section 1 provides a brief summary of the mechanisms and implications of the “saving glut hypothesis”; section 2 discusses the accuracy of the saving glut hypothesis by looking at savings and investment behaviour in various economic regions; section 3 focuses on the saving/investment balance in the corporate sector, particularly in the United States, and the shift to the rent economy hypothesis and finally section 4 outlines various possible adjustment mechanisms of the global imbalances/low interest rates combination.*

<sup>1</sup> “The Global Saving Glut and the US Current Account Deficit”; remarks by Governor Ben S. Bernanke at the Sandridge Lecture, Virginia Association of Economics, Richmond, 10 March 2005.

## I | The global saving glut hypothesis: a comprehensive and attractive explanation, though supplying little policy options in the short run

The low level of long-term interest rates in the global economy – which may be labelled as “abnormal” with respect to crude measures of equilibrium interest rates using trend inflation and potential GDP estimates – is often referred to as a “conundrum”. Among the classical explanations for this situation one may find: 1) greater central banks’ credibility, allowing for better anchored inflation expectations; 2) lower macroeconomic volatility; 3) availability of a wider range of financial products supplying protection against risks.

If these explanations clearly help to account for the decreasing trend in long-term interest rates observed for the last 15 years, they usually fail to explain some other surprising features of the current state of the world economy, including 1) lasting and increasingly polarised current account imbalances, 2) housing prices rising faster than interest rate adjusted affordability measures in a fair number of countries, 3) declining yields spreads on sovereign debt in the emerging countries.

In contrast, the global saving glut hypothesis (GSG) provides a common explanation for all these surprising features. It could be summarised as follows: outside the United States, lending capacities have increased, due to 1) lower investment opportunities in the mature economies and 2) higher desired level of national savings in the developing and emerging economies, the latter phenomenon being attributed to a precautionary

attitude in the wake of the financial crises of the 1980s/1990s in Latin America and Asia. According to the global saving glut theory, the first factor has played only a minor role, as the bulk of the increase in foreign saving directed towards the United States has come from the developing and emerging world.

In the late 1990s, the higher non-US lending capacities met higher demand for funds from the US corporate sector at a time when a shift in the productivity pace in the US warranted higher return on investment on this market. This led to a steep rise in equity prices which in turn fed a significant wealth effect for US households. This may explain part of the decrease in the US households saving rate and deterioration in the US current account. After 2000, the role of “global spender in last resort” shifted from the US business sector to the US general government. Accordingly, the impact of the “global saving glut” on financial markets shifted from the equity to the fixed-income markets, triggering a decrease in long-term interest rates which also impacted the household saving rates through an increase in housing prices. The mechanisms are summarised in the table below.

A “side-effect” of this “saving glut” mechanism is the decrease in the level of financial risk in the emerging world, as shown by the fall in yields spreads on sovereign debt: many countries previously prone to financial crises have built up significant “war chests” by increasing their official reserves in the context of an export-led growth strategy preventing any exchange-rate appreciation.

Yet, the global saving glut analysis does not describe a “brave new world” in which this new organisation of capital flows can be considered as an optimal international allocation of savings, “à la” Folkerts-Landau Dooley Garber.<sup>2</sup> It takes into

The global saving glut mechanisms

Outside the United States	In the United States			
Higher net lending	Higher borrowing from US corporate sector Rising profit expectations	Higher equity prices (second half of 90s)	Positive financial wealth effect	Lower household saving rate and higher current account deficit
	Higher borrowing from the US government sector	Higher bond prices (first half of 2000s)	Wealth effect through higher house prices + MEWs	

<sup>2</sup> See “Living with Bretton Woods II”, M. Dooley, D. Folkerts-Landau, P. Garber, Deutsche Bank Global Markets Research, 20 September 2005.

account that, in a more normal pattern, advanced economies, among which the United States, should display current account surpluses so as to lend funds to emerging and developing countries. Besides, the risks such a “system” may pose for the mature economies are highlighted. As stated, “an allocation of savings which favours housing investment might be conducive to lower potential growth”, as “in the long run, productivity gains are more likely to be driven by non-residential investment, such as purchases of new machines”.

While mentioning the potential long run damages of this “model”, the GSG does not provide policy makers with any options in order to address these global imbalances. The one policy option frequently discussed, *i.e.* a more stringent fiscal policy in the United States, is even discarded as 1) GSG clears US fiscal policy of any major responsibility in the causes of the global imbalances and 2) in this model, higher government savings in the United States would further depress interest rates, fuelling an additional decrease in household savings. The solution therefore lies, according to the GSG, in a structural change in emerging countries’ savings/investment behaviour. This would gradually occur as they acquire the full status of market economies with flexible exchange rates and financial liberalisation.

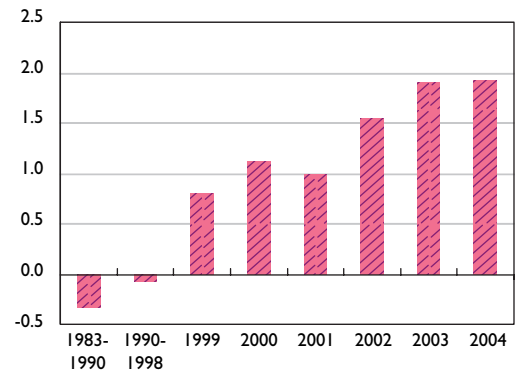
## 2| “Saving glut” or “investment strike”: a geographical perspective

### 2 | I “Global saving glut” or “investment strike” from a global point of view

Previous works on this subject often rely on the presentation of the international flow of funds in PPP terms, in line with the IMF’s approach until the September 2005 WEO. As the emerging Asian countries, and in particular China, account for a much larger share of world GDP in PPP terms than in current US dollar terms, the impact of their saving/investment behaviour on global patterns has consequently been magnified. Using current US dollar data, as we have done in the calculations below, seems more relevant when dealing with international financial markets

Chart 1 Net lending capacity (World excluding the US)

(in% of world GDP)



Sources: IMF WEO, Banque de France calculations

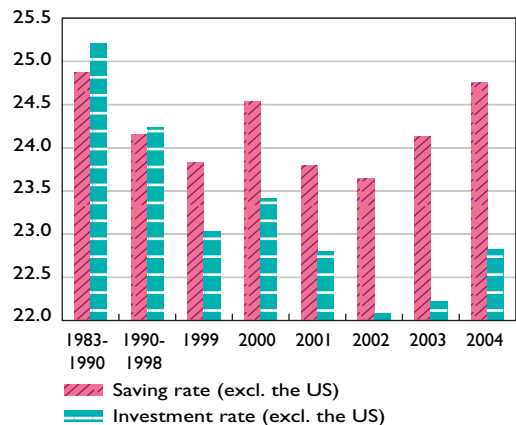
balances, since what matters is the actual amount of available funds.

The starting point of the global saving glut analysis is the emergence of a net lending capacity outside the United States. Indeed, according to the IMF data, the world’s net lending capacity (excluding the United States) has displayed a clearly positive trend since the 1990s (see chart 1).

In itself, such a calculation shows nothing more than the fact that the United States has displayed an increasing net borrowing requirement against the rest of the world. Yet, what may be of interest is the cause of this increase in the net lending capacity of the rest of the world, *i.e.* whether it corresponds to a

Chart 2 World saving and investment rates (excluding the US)

(% of world GDP)



Sources: IMF WEO, Banque de France calculations

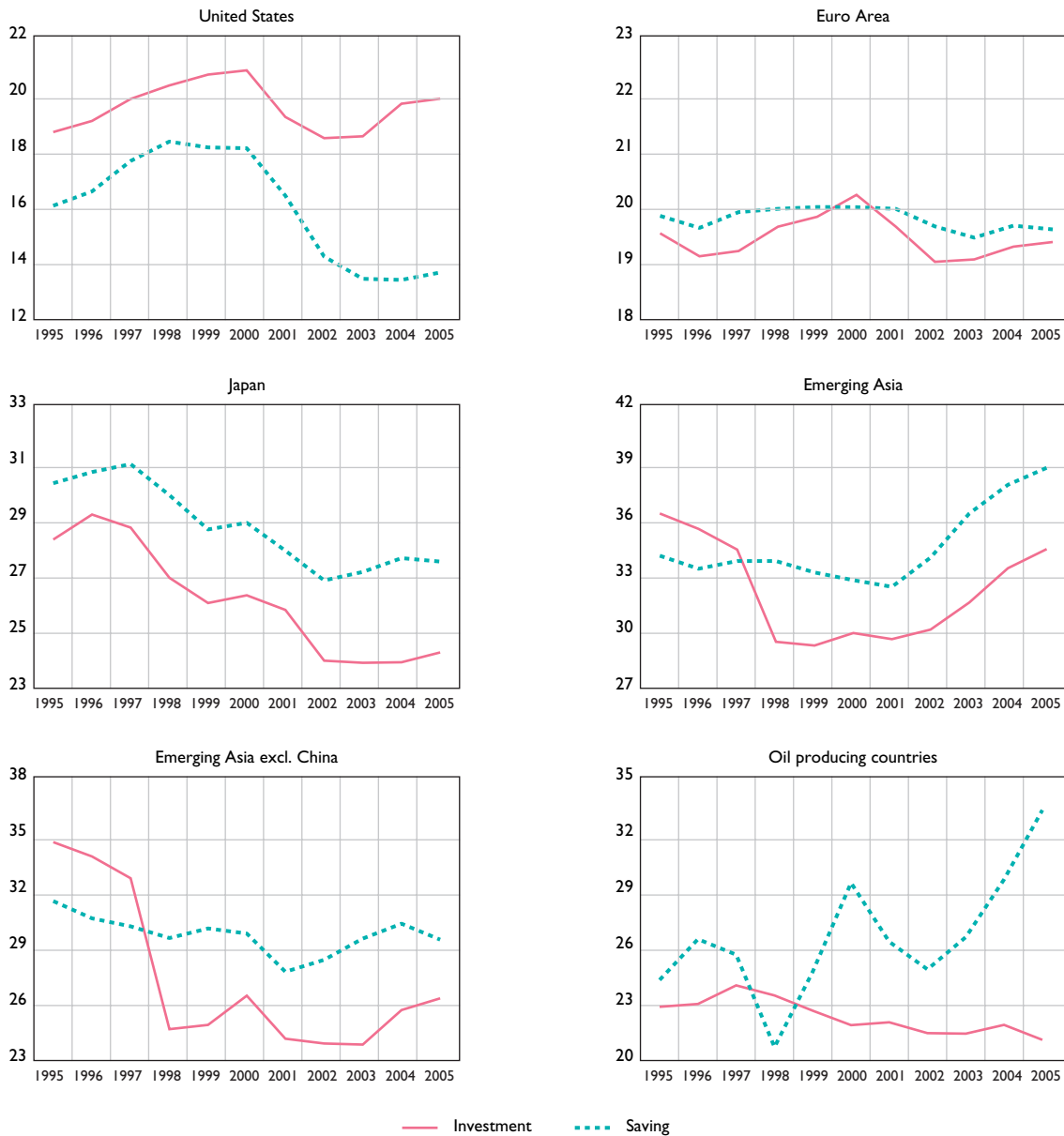
downward trend in investment or an upward trend in saving. Chart 2 provides such a breakdown, showing that global savings (excluding the United States) have indeed increased over the last decade, but the level seen in 2004 is by no means an unprecedented level. Contrary to the GSG assumption, an unprecedented low level of investment outside the US explains the bulk of the increase in global net lending.

## 2 | 2 “Global saving glut” and “investment strike” in the major economic regions

Using the IMF data, we drew up a “savings and investment” balance for 6 major economic regions (the US, the Euro Area, Japan, Emerging Asia excluding

**Chart 3 National saving and investment rates**

(in% of area related GDP)



Sources: IMF WEO, Banque de France calculations

China, Emerging Asia including China, and finally the oil producing countries), over the past 10 years.

The decrease in the global investment rate outside the United States – whose current account deterioration since the cyclical downturn of 2001 stems chiefly from a steep decrease in the national saving rate – cannot entirely be attributed to the mature economies, with all emerging economies maintaining their investment rates and increasing their savings rates, as implied by the GSG.

True, Japan and the Euro area have displayed a clear pattern of “investment strike”, since the mid-1990s in Japan and since 2001 in the Euro area, *but emerging Asia excluding China has also displayed a sharp decrease in the investment rate. In the latter area, even if the investment rate has lately recovered, it still remains in 2005 almost 10 GDP points below the 1995 level.* This area saving rate did not increase in reaction to the financial crises in the second half of the 1990s, as suggested by the GSG. The area saving rate actually remained surprisingly stable, but investment rate decreased, following the prescriptions of most observers of the Asian crisis, who attributed the main cause of the crisis to capital over-accumulation, in a context of insufficient investment discrimination. *Even when China is taken into account (but note that China was not directly affected by the Asian financial crisis), the investment rate has not yet returned to its mid-1990s level (34.4% in 2005 against 36.2% in 1995), even if it now stands at 3 GDP points over the 1980-1995 average.* In emerging Asia including China, net lending capacities have actually remained fairly stable as a share of GDP since the 1997/1998 financial crisis, as savings and investment profiles have been remarkably similar. The picture might change when it will be possible to integrate the recent Chinese national account revisions.

*A clearer case of saving glut can be found in the oil producing countries.* Faced with limited domestic absorption capacities, these countries responded to the recent sharp increase in oil prices by significantly increasing their saving rate.

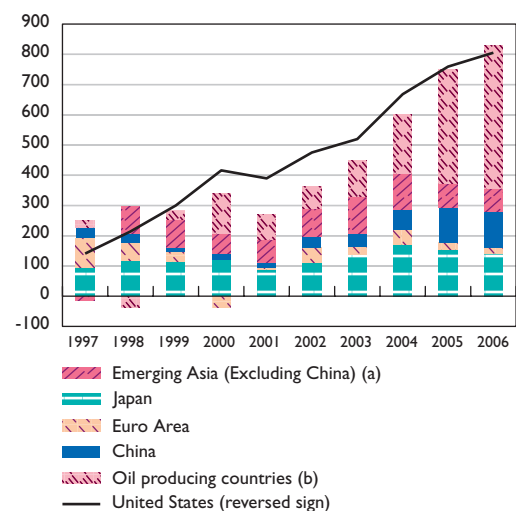
*Note that these findings are similar to those of the IMF in the analytical part of the last WEO<sup>3</sup> except for one significant issue: the saving/investment behaviour of the Euro area.* According to the WEO, Euro area net lending

stood at 2.0% of GDP in 2004. This figure is at odds with the IMF figure for the Euro area current account balance (0.5% of GDP). Even when correcting for the capital account, the difference remains huge. Besides, such a wide discrepancy could not be found for the US (0.5% of GDP) or Japan (0.0% of GDP). We therefore did not use the IMF Euro area aggregate data in the charts above; instead, we preferred to sum individual member countries savings and investment data. By so doing, the saving/investment gap we have computed stands at 0.6% of Euro area GDP, much closer to the current account surplus figure. This discussion is not anecdotal in so far as, expressed in current USD, the gap between the IMF data and ours in terms of net lending capacities stood at USD 130 bns in 2004, roughly one fifth of the US current account deficit. The gap may stem from exchange-rate conversion techniques used at the IMF to compute Euro area aggregates.

This brings us to a central issue: *in terms of global imbalances, what matters, beyond the saving and investment behaviours of individual regions, is their relative size, and hence their respective contribution to the financing of the US current account deficit.* Chart 4 shows the distribution of current account balances across these areas in USD billions.

Chart 4 Current account balances

(in USD billions)



(a) Defined as Hong Kong, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand

Source: IMF WEO

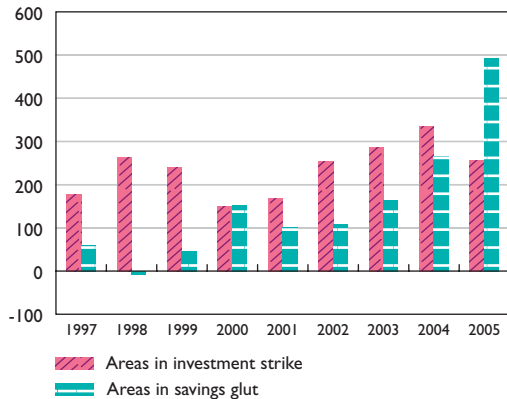
(b) Ten top oil producers (Algeria, Kuwait, Mexico, Nigeria, Norway, Russia, Saudi Arabia, United Arab Emirates, Venezuela)

Source: IMF WEO

<sup>3</sup> See “Global saving and investment: the current state of play”, IMF World Economic Outlook, September 2005.

**Chart 5 Current account surplus by areas with common saving / investment behaviours**

(in USD billions)



Sources: IMF WEO, Banque de France calculations

Observers often focus their attention on the role of China, namely because the bilateral trade surplus with the US accounts for a large share of the US total trade deficit. However, its total current account surplus has been constantly smaller than that of the rest of emerging Asia's or Japan from the financial crisis of 1997/1998 until 2004. China has certainly played a central role in the run-up to global imbalances, however not because of its domestic saving/investment imbalance per se, but rather because of its specific combination of domestic financial under-development, fixed exchange-rate policy and short-term speculative capital inflows. This combination ultimately led to a steep increase in official reserves which in turn contributes to maintaining US interest rates at low level.<sup>4</sup>

More generally, we distributed current account surpluses among "investment strikers" (*i.e.* Japan, the Euro area and emerging Asia excluding China) and "savings gluttons" (*i.e.* oil producers and China). It appears (see chart 5) that, in terms of total current account surpluses, the first group was outpaced by the second group in 2005 only, due to the additional increase in oil prices.

### 3| Investment strike in the corporate sector: from a net borrowing requirement to a net lending capacity

In this context of global investment strike, a widely popular view is that the United States is not only the

"consumer in last resort" but also is the "investor in last resort" as it offers better investment opportunities thanks to its strong productivity growth. This may not be as clear-cut, and we might wonder why US business investment, relative to profits, is far from having fully recovered from the 2001 adjustment, in spite of lower interest rates.

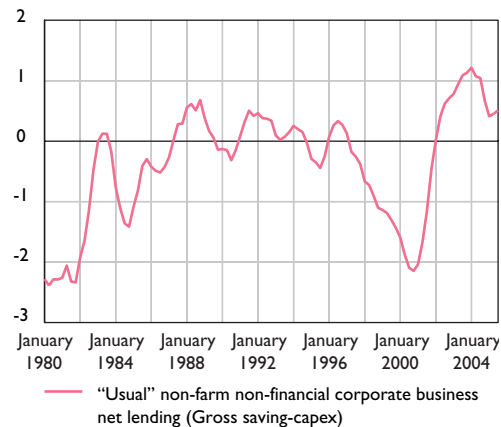
### 3| I In the US, a new combination of subdued domestic investment, low attractiveness to foreign investment and corporate aggressiveness as regard operational extension abroad

Faced with financial imbalances which built up during the bubble years, US firms quickly managed to record high levels of profitability, thanks to an aggressive action on labour costs. Nevertheless, business investment has not yet picked up as rapidly as profits. Consequently, the US non-financial corporate sector has recently displayed an unprecedented net lending capacity (chart 6), contrary to textbook wisdom (see appendix for more details on calculations and figures).

True, a large share of this increase in net lending can probably be viewed as an offset to the significant deterioration in the firms' financial situation during the bubble years. Yet, in a context of historically low borrowing costs and, conversely, high opportunity

**Chart 6 Non-farm non-financial corporate business net lending / borrowing**

(in current GDP points - 4 quarters moving average)

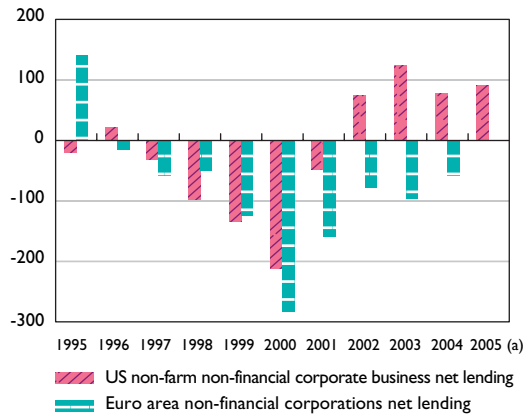


Sources: Flow of funds, Banque de France calculations

<sup>4</sup> See "US long-term yields and forex intervention by foreign central banks", L. Frey and G. Moëc, Banque de France Monthly Digest No. 137, May 2005.

Chart 7 Non-financial corporate net lending

(in USD billions – conversion with the 2004 exchange-rate)



(a) 2005 data is the average of Q1, Q2 and Q3

Sources: Federal Reserve System, Eurosystem

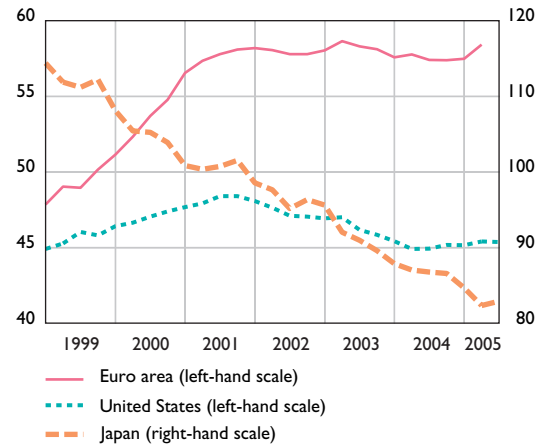
costs of saving, such a willingness of US firms to achieve a position of net lending capacity remains somewhat surprising. Furthermore, it appears that in 2000, both Euro area and US non-financial firms displayed a similar net borrowing position. In 2004 (latest comparable year), US firms posted a significantly positive net lending position, whereas firms in the Euro area remained in the (usual) borrowing requirement position (chart 7). What then made the US firms more willing than their European counterparts to display such an investment restraint (relative to profits)?

This specific American firms' appetite for large positive net lending cannot be more easily explained by a particularly high debt burden. Chart 8 provides a harmonised comparison of non-financial corporate debt in the United States, Japan and the Euro area. In spite of the "new economy" bubble in the late 1990s, US firms did not increase their leverage as much as firms in the Euro area. In 2005, according to preliminary data, US non-financial corporate debt was 15 GDP points below the level recorded in the Euro area.

This low level of capital expenditures relative to profits has been commonly acknowledged by the Federal Reserve officials. In his report to the Congress in July 2005, Alan Greenspan mentions it while referring to another kind of possible explanation, *i.e.* the cautious attitude of business. "Although corporate capital investment in the major industrial countries rose

Chart 8 Non-financial corporate debt

(in% of GDP)



Sources: ECB, Bank of Japan, Federal Reserve System

in recent years, it apparently failed to match increases in corporate cash flow. In the United States, for example, capital expenditures were below the very substantial level of corporate cash flow in 2003, the first shortfall since the severe recession of 1975. That development was likely a result of the business caution that was apparent in the wake of the stock market decline and the corporate scandals early this decade."<sup>5</sup>

However, what is striking when looking at flow of funds data for the US non-financial corporate sector is that US firms have been cautious at home, while being rather aggressive on the foreign markets and unattractive to foreign investors. Indeed, it appears that a large part of these unusual financing capacities were used to fund direct investment abroad.

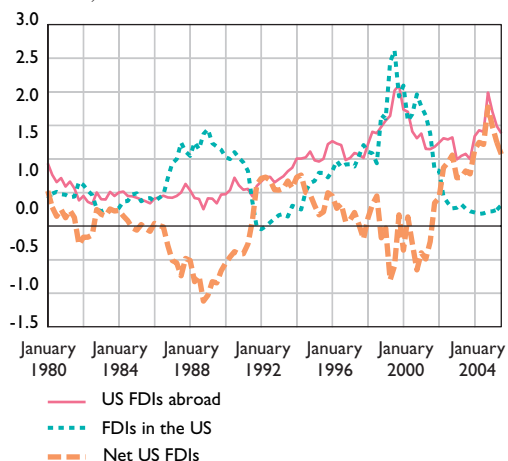
The net FDIs profile changed sharply at the time of the bubble burst (chart 9). This first chiefly stemmed from a sharp drop in the FDIs inflows, from a peak in 2000 at 2.5% of GDP to less than 0.5% of GDP from 2002 onward. This was eventually relayed by a recovery in US FDIs outflows, from 1.0% of GDP at the end of 2002 to 2.0% of GDP in 2004, twice the long-term average and close to the record level observed at the peak of the cycle, in 2000. Such a shift is puzzling if one assumes that profitability in the United States, based on a faster productivity pace, is significantly higher than in the rest of the advanced economies. Indeed, we may consider FDIs inflows in the non-financial corporate sector as an indicator of domestic attractiveness and FDIs outflows as an

<sup>5</sup> Testimony of Chairman Alan Greenspan "Federal Reserve Board's semiannual Monetary Policy Report to the Congress", before the committee on Financial Services, U.S. House of Representatives, July 20, 2005.



**Chart 9 Net US foreign direct investments (FDIs)**

(in % of current GDP – 4 quarters moving average – non-farm non-financial corporate sector)



Sources: Flow of funds, Banque de France calculations

indicator of domestic firms' willingness to expand their operational activities abroad. Thus, net FDIs may be a powerful indicator, at the aggregate level, of the global appraisal of corporations, both domestic and foreign, of the expected relative long-term operational profitability of a particular location.

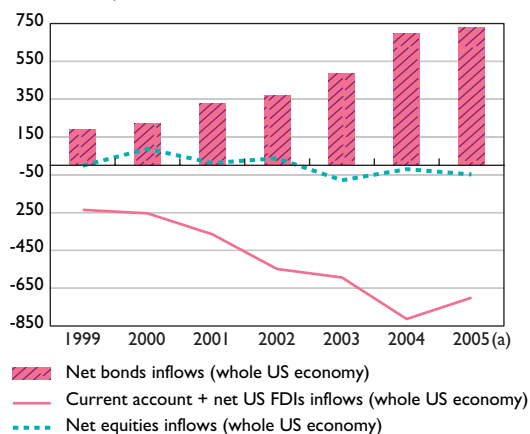
The fact that net US equities outflows have been positive since 2003 reinforces our assumption that domestic and foreign investors are looking for higher corporate profitability outside the United States. Overall, on a balance of payment basis, net US FDIs outflows<sup>6</sup> are not offset by net equity inflows but are being financed on fixed income markets (chart 10).

At the non-financial corporate level, a "corrected" measure of net lending, designed to take these phenomena into account, *i.e.* internal funds less capital expenditure, minus net FDIs, is currently negative in the United States (chart 11). In the first two quarters of 2005, this "corrected" net lending ratio stood very close to the historically low levels observed in the last years of the 1990s "bubble".

It is worth trying to establish whether the massive movement of foreign development by US firms is a substitute for domestic investment or merely complements it. If the second proposition is true, then the particular feature of the US non-financial corporate sector net lending can be seen as healthy, as firms

**Chart 10 US borrowing requirement on fixed income markets**

(in USD billions)

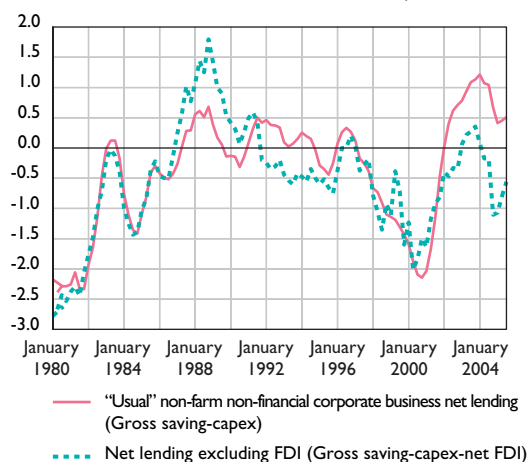


(a) 2005 data is the sum of Q1, Q2 and Q3 annualised  
Source: BEA

would prove to be profitable enough to increase their capital base both at home and overseas. Conversely, if the first proposition is true, while it may lead to an equivalent global capacity production at firms' level, it makes a difference at the aggregate level on the US territory, and the United States would be faced with a diminishing domestic productive base which may, among other painful consequences, raise the issue of the sustainability of serving the foreign debt.

**Chart 11 Non-farm non-financial corporate business net lending / borrowing**

(in % of current GDP – 4 quarters moving average)



Sources: Flow of funds, Banque de France calculations

<sup>6</sup> Note that net FDIs inflows, in BoP data, are positive in 2005 for the whole US economy, because outflows decreased sharply in the third quarter, due to temporary fiscal exemptions leading to a drop in reinvested earnings of US foreign affiliates. Remember that chart 9 only concerns the non-financial corporate sector, using flow of funds data, so that the figures cannot be fully compared.

To provide a preliminary assessment of this issue, chart 12 plots 1) the “classic” investment ratio of the US non-financial corporate sector, 2) a “corrected” investment ratio, adding *net* FDIs outflows to Gross Fixed Capital Formation (GFCF) and 3) the output gap calculated by the OECD. This calculation may raise two issues: first, the “economic legitimacy” of the GFCF/FDI identity and second, the use of *net* FDIs.

First, in national accounting, FDIs are considered as a form of financial saving (“net financial acquisitions” in US flow of funds data). Yet, at an individual firm level, a FDI operation might be similar to a gross fixed capital formation operation in terms of total productive capacity. Second, we use net FDIs because inflows have to be taken into account, as a share of these inflows is likely to have a positive impact on domestic investment (e.g a foreign company building a plant in the United States), offsetting some of the substitution effect of FDIs outflows on domestic investment.

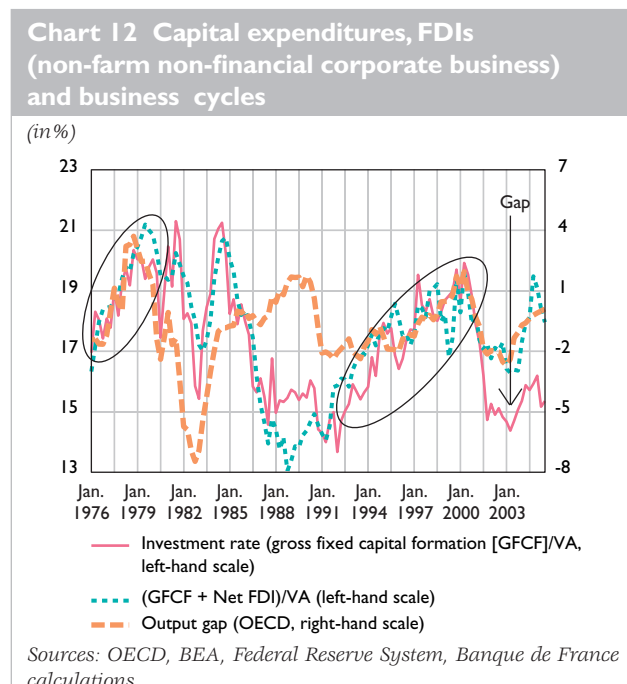
It appears that, for the first half of 2005, the “corrected” measure displays a pattern that is fairly in line with a typical recovery period, whereas the “classic” investment rate is clearly below the usual level in times of closing output gaps, which suggests

the “substitution” theory might well explain the current orientation of corporate investment in the United States.

A more in-depth analysis of the impact this specific feature of corporate investment has on global capacity production would require distinguishing between brownfield and greenfield FDIs. Whereas the consequence is the same for the US domestic productive base, *i.e.* a decrease, it does make a difference at the scale of the global production capacities. Indeed, greenfield FDIs would accrue global capacity production while brownfield FDIs involve existing production assets. Nevertheless, American statistics on FDIs do not allow us to make a difference between greenfield and brownfield FDIs.

Besides, these calculations are naturally much cruder than the more refined indicators used in the literature on domestic/foreign investment substitutability. Two contradictory papers are usually cited on this issue. The first, by Martin Feldstein<sup>7</sup>, using panel data analysis for OECD countries, finds a strong substitution effect, as “each dollar of cross-border flow of foreign direct investment reduces domestic investment by approximately one dollar”. The second, by Desai, Foley and Hines<sup>8</sup>, finds a positive relationship between FDIs and domestic investment in a sample of US multinational companies, using the BEA Survey of US direct investment abroad. In the latter case, which concludes that there is a complementary relationship, it is worth noting that the survey covers (in annual data) 21 years up to 2003, so that a recent shift in the relationship may not be taken into account. Besides, the scope of our calculations, which covers the whole non-financial corporate sector, differs from their more limited sample.

In any case, we may discuss the “low domestic attractiveness / high foreign aggressiveness of the US non-financial corporate sector” and subdued investment story in light of the gradual shrinkage of the US tradable sector. Obviously, we are oversimplistic when we identify the non-tradable sectors with manufacturing, as an increasingly large share of services can actually be traded internationally. However, a striking feature of the current US cycle is the shift in output composition from manufacturing to services and the housing sectors (see charts 13a and 13b).



<sup>7</sup> “The effects of outbound foreign investment on the domestic capital stock”, NBER working paper No. 4668, March 1994.

<sup>8</sup> “Foreign direct investment and the domestic capital stock”, NBER working paper No. 11075, January 2005.

Against that background, a comparison between the recoveries following the 1991 and 2001 recessions is very instructive. After the 1991 recession, real value added recovered rapidly in all sectors and growth was evenly distributed across the economy. Indeed, the real value added of all sectors was above its peak level as soon as one year after the trough. Conversely, while there was no contraction in terms of real value added in the private services sector in 2001, it took three years after the trough for the manufacturing real value added to return to its peak level. Furthermore, the “traditional” manufacturing sector, defined as manufacturing excluding computer and electronic products, has not recovered yet from the 2001 recession.

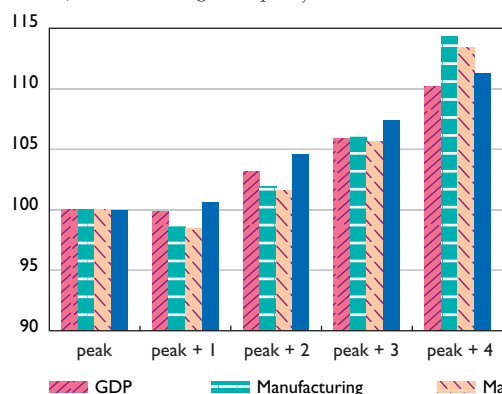
The shrinkage of manufacturing in terms of employment is even more striking and seems to follow a structural

rather than cyclical pattern. During the 1991 recession, the drop in employment was far more pronounced in the manufacturing sector than in the other sectors, and there was no recovery thereafter in this sector, but rather a stabilisation. During the 2001 recession, the decline in employment was even more focused on the manufacturing sector, was sharper and lasted longer.

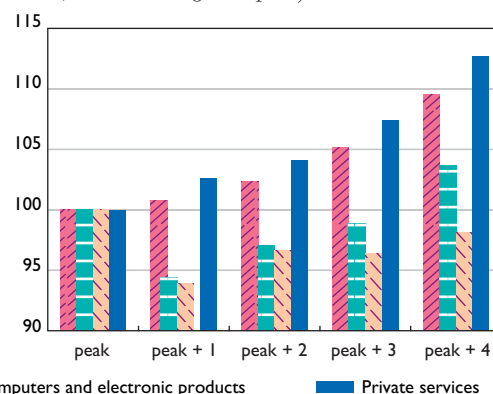
It may be noted that, as opposed to the developments in real value added, the computer and electronic products sector did not act as a buffer for the manufacturing sector as a whole. This sub-sector indeed accounted for 20% of the net job destructions that occurred in 2002 and 2003. This development can be linked to the solid productivity gains in the ICT sector. While this sector has undoubtedly contributed strongly to the overall US economic dynamism, it has not contributed to boosting employment.

**Chart 13a US value added by sector evolution after 1991 and 2001 recessions (real growth)**

(1990 – 1994, 100 = 1990 cyclical peak)



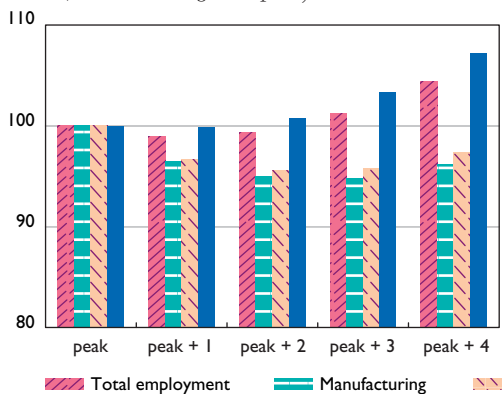
(2000 – 2004, 100 = 2000 cyclical peak)



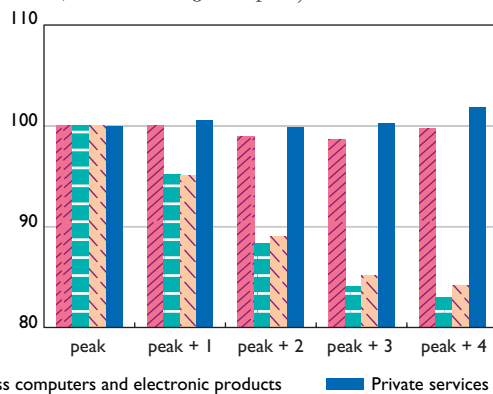
Source: BEA

**Chart 13b US employment by sector evolution after 1991 and 2001 recessions**

(1990 – 1994, 100 = 1990 cyclical peak)



(2000 – 2004, 100 = 2000 cyclical peak)



Source: BLS

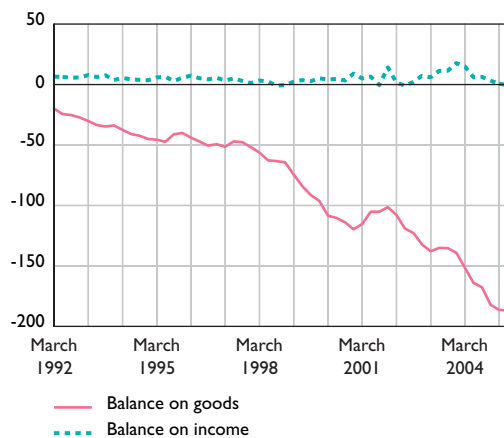
### 3|2 Is this sustainable?

A benign interpretation of the US domestic/foreign investment substitution would see the United States shifting from a production to a rent economy model, servicing its external debt with the income from its foreign investment. Such an interpretation focuses on the US income balance paradox. Indeed, although the US net international investment position has turned negative at the end of the 1980s and has sharply deteriorated since the mid-1990s, net international investment receipts have remained positive (see chart 14) because the rate of return on US liabilities has been lower than that on US assets. This is largely due to the fact that the average rate of return on US outward FDIs is particularly high (circa 7% if assets are priced at market value, circa 10% if they are priced at current cost), whereas the US growth in liabilities over the last few years has chiefly consisted in very low yielding fixed-income products. Gourinchas and Rey have recently proposed a striking expression, labelling the United States as the “world venture capitalist”<sup>9</sup>.

As long as the US corporate investment abroad remains sufficiently profitable, such a FDIs/domestic investment substitution model may be sustainable since the deterioration in the net international investment position does not lead to a levy on

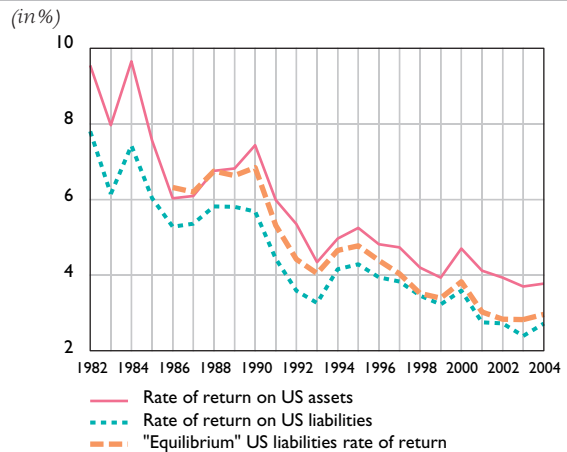
Chart 14 US current account

(in USD billions)



Source: BEA

Chart 15 US assets and liabilities rates of return



Sources: BEA, Banque de France calculations

US resources. Besides, it can be argued that the positive impact on US growth, stemming from an efficient international organisation of production, namely through an increase in the purchasing power of US consumers, may contribute to stabilising the net foreign debt to GDP ratio.

However, the US income balance paradox may shortly be resolved. As the outstanding amount of US assets held by foreigners largely exceeds the outstanding amount of foreign assets held by US residents<sup>10</sup>, the US balance of income may turn negative even if the US domestic yields are relatively low. Indeed, the rate of return on US liabilities increased in 2004 (see chart 15), since US government and private yields stopped decreasing while the rate of return on FDIs<sup>11</sup> in the United States increased. We have calculated an “equilibrium rate” which computes the rate of return of US liabilities beyond which the balance of income turns negative, taking into account the respective size of total US assets and liabilities. Since the end of the 1990s, this equilibrium rate has been very close to the actual rate. Overall, the US balance on income has turned slightly negative in the second quarter of 2005, following the (relatively small on average over the whole yield curve) increase in US domestic interest rates.

Our calculations, suggesting we are close to the “tipping point” for the US income balance, yield the same conclusions as a recent paper by Higgins,

<sup>9</sup> See “From world banker to world venture capitalist”. NBER working paper No 11563, August 2005.

<sup>10</sup> At the end of 2004, foreigners owned 12.5 USD trillion worth of assets in the US, 2.5 USD trillion more than the value of US-owned assets abroad.

<sup>11</sup> According to a CBO study, “Why does US investment abroad earn higher returns than foreign investment in the United States” (November 2005), the US subsidiaries abroad having been generally in business longer than foreign-owned subsidiaries in the US is part of the explanation of their greater profitability. Nevertheless, this impact is due to be transitory.

Klitgaard and Tille<sup>12</sup>, Note that, along the same lines as in their paper, we define rates of returns as the ratio of income streams to the assets value, neglecting the impact of capital gains/losses on asset values. This is primarily explained by the fact that valuation effects are not recorded in the current account figures, but we address the issue of valuation effects in the last section of this paper, as the observers' attention has recently been drawn on these issues in relation to an exchange-rate-led adjustment of global imbalances.

In terms of stocks, a solution for the United States, in case no trade rebalancing occurs, would be to draw on existing assets to finance the current account deficit. According to official data, as the US net investment position is negative, this would not be a lasting solution. This view has recently been challenged with the "dark matter" hypothesis<sup>13</sup>, which suggests that the US stock of assets overseas is actually far larger than officially acknowledged, considering that US foreign capital valuation does not take into account the transfer of particular know how, management skills or technological standards. Without discussing these assumptions as such, one may wonder if such a financing of the current account, *i.e.* selling assets to keep the deficit rolling is a) healthy and b) feasible, as the value of US foreign assets would undoubtedly shrink if their US owners decided to sell them, thus severing the link to better know how, management skills or technological standards.

## 4| Exit strategies: the sharp exchange rate adjustment, the Asian conversion and the multi-faceted policy-led approach

### 4| I The sharp exchange rate adjustment

A significant downward adjustment of the US dollar should be a natural outcome of the US situation, if no policy measures are taken. Indeed, the United States will have to face its inter-temporal budget constraint and yield current surpluses to service the increasing external debt.

With a productive structure shifting away from the tradable to the non-tradable sector, the exchange rate adjustment might have to be particularly strong. Indeed, it is likely that the "income channel" (*i.e.* improved balance of income thanks to the lower US dollar) may have a somewhat stronger impact on the current account than the "trade channel" (*i.e.* improved competitiveness owing to the lower US dollar), as the recent responsiveness of US trade patterns to exchange rate movements has been particularly weak. This may help to understand why US policy-makers insist on an appreciation of emerging Asian currencies: the trade channel impact would be subdued, as the bilateral relationship is deeply unbalanced (US exports to this region are particularly low), but the income channel could be stronger, as this region is absorbing a large share of US FDIs.

Two scenarios help to provide an assessment of the impact of an exchange rate shock on the balance of income. In a first one (see table 1 in box page 13), the exchange rate shock would have no effect on the relative rates of return of US assets and liabilities. We therefore simply apply the initial rate of return on the value of US gross assets in the rest of the world increased by the change in the US dollar exchange rate (assuming all US owned foreign assets are denominated in foreign currencies). The US current account deficit would in this case be reduced by some 10% (in reality, the impact would be smaller, as a share of US-owned assets abroad is denominated in dollars) (USD 75 billions) owing to the income channel, to which the usual trade competitiveness impact would add.

However, we consider that it would be unrealistic to suppose that a significant decline in the US dollar value would bear no effect on the rates of return. In response to such a decline in their portfolio value, computed in their domestic currency, international investors would demand an increase in the rate of return that the United States has to pay to the rest of the world. Furthermore, such a rate of return adjustment would be consistent with the monetary policy reaction triggered by the increase in imported inflation induced by the US dollar depreciation. The second scenario (see table 2 in box page 13) simulates such a combination of lower US dollar exchange rate/ higher US interest rates. To gauge the likely impact of a 20% decline in the US dollar effective exchange rate on

<sup>12</sup> "The income implications of rising US international liabilities", New York Fed "current issues in economics and finance", December 2005.

<sup>13</sup> "US and global imbalances: can dark matter prevent a big bang?" R. Hausmann and F. Sturzenegger, Kennedy School of Government, November 2005.

## Box

### Simulations of an exchange rate shock on the US balance of income

**Table 1**

Scenario 1: 20% decrease in the US dollar effective exchange rate, no impact on relative rates of return  
(amounts in USD billions, rates in %)

	Initial situation (2004)	20% decline in US dollar exchange rate	Change
Stock of US owned assets abroad (1)	9,972	11,967	1,995
Income inflows (2)	376.5	451.8	+75.3
Rate of return (2)/(1)	3.8	3.8	0
Stock of foreign owned assets in the US (1)	12,515	12,515	0
Income outflows (2)	340.2	340.2	0
Rate of return (2)/(1)	2.7	2.7	0
Balance of income	+36.3	+111.6	+75.3

Sources: BEA. Banque de France calculation

**Table 2**

Scenario 2: 20% decrease in the US dollar effective exchange rate, impact on relative rates of return calibrated so as to ensure constant income in their domestic currency to foreign investors  
(amounts in USD billions, rates in %)

	Initial situation (2004)	20% decline in US dollar exchange rate	Change
Stock of US owned assets abroad (1)	9,972	11,967	1,995
Income inflows (2)	376.5	451.8	+75.3
Rate of return (2)/(1)	3.8	3.8	0
Stock of foreign owned assets in the US (1)	12,515	12,515	0
Income outflows (2)	340.2	425.5	+85.3
Rate of return (2)/(1)	2.7	3.4	+0.7
Balance of income	+36.3	+26.3	-10.0

Sources: BEA. Banque de France calculations

The IIP figures are computed with FDIs at market value

the average rate of return of foreign-owned assets in the US, we calibrate the shock so as to maintain the level of income earned by foreign investors in their own currency, assuming that in this case they would accept to maintain the same allocation of their savings on US assets. An increase in the average rate of return on foreign-owned assets by 70 basis points would solve the equation. In scenario 2, the positive impact of the exchange rate shock on income inflows would be more than offset by the increase in outflows, resulting in a deterioration (USD 10 billions) in the US income balance.

The interest of such calculations is twofold: first, it highlights the fact that the exit strategies focused on the valuation impact of exchange rate adjustment may be based on an over-optimistic assessment of the power of such a channel to solve the US inter-temporal budget constraint, if one takes into account the likely impact on relative rates of return. Second, it suggests that the idea that the “exchange rate adjustment scenario” is painless for the United States – who would enjoy the positive impact of higher competitiveness combined with an increase in the (US dollar value) income from investment abroad – is illusory to a

large extent. US investors at home would probably be faced with an increase in their financing costs. True, the US dollar depreciation in 2003 and 2004 did not trigger such a big increase in US average interest rates. However, if a continuing US dollar depreciation becomes an anticipated feature on the global financial market, some impact is likely to be felt.

Indeed, another key question is the speed at which this adjustment would occur. According to the work of Blanchard, Giavazzi and Sa<sup>14</sup>, the pace of depreciation could be relatively slow, following the dynamics of the increase in US net external debt. Yet, such an orderly adjustment does not exactly match the usual behaviour of foreign exchange markets, whose attitude is often binary, *i.e.* discarding long-term rebalancing effects in their day-to-day assessment of the market conditions, before suddenly sticking to the most orthodox reading of macroeconomic principles.

True, the international financial system has already proved resilient to steep changes in the US dollar value, for instance in the mid-1980s, at a time when international co-operation triggered a swift decline in the US dollar exchange rate contributing to an improvement in the US current account. The international financial system is much better equipped today to deal with sharp adjustment of portfolio values, because of the development of hedging and diversification techniques. However, the adverse impact on the global economy of an abrupt exchange rate adjustment may be especially strong as international investors are exceedingly long on

US dollar-denominated assets. Hence, the “usual” impact of a major exchange rate shock on long-term interest rates could be magnified by negative wealth effects.

To provide a numerical assessment of the potential negative wealth effects brought about by a US dollar adjustment, we have computed the ratio of the stock of US assets owned by foreigners (at market value) to world GDP (in current US dollars).

Around the mid-1980s, at the time of the Plaza and Louvre agreements, foreign-owned assets in the United States accounted for roughly 10% of world GDP. By 2004, the ratio has reached more than 30%. (see chart 16)

## 4 | 2 The Asian conversion

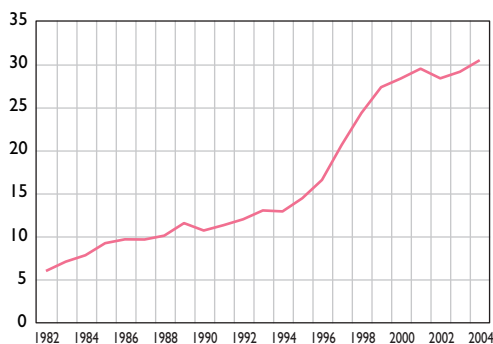
In the saving glut model, the key to any exit strategy is a conversion of emerging Asian countries to a developing path more favourable to domestic absorption, whether it stems from higher investment or higher consumption, or a combination of both. Yet, the reasons why these countries would convert to such a model are unclear. In the aftermaths of the financial crisis of 1997/1998, these countries engaged in a strategy focused on an intensive rather than extensive development model, after a period in which capital over-accumulation led to a decrease in rates of return which explains to a large extent why foreign investors fled the area.

As Governor Fischer put it during the Banque de France International Symposium<sup>15</sup>, one must generally remain cautious when proposing solutions for other economies and, regarding Asia, “*investment rates in these economies were very high [before 1997], and there was considerable evidence that investment was not productive at the margin. It is quite likely that the current investment situation is the more desirable one*”.

Here, as we saw in section 2, we naturally have to distinguish between the Chinese issues and the questions pertaining to the rest of emerging Asia, as the savings/investment behaviour has been fairly different in those two sub-groups. In China, there is certainly a case for a change in the household savings behaviour, which is unlikely to be amendable in the short run,

**Chart 16 Foreign-owned assets in the US/world GDP**

(in % of world GDP)



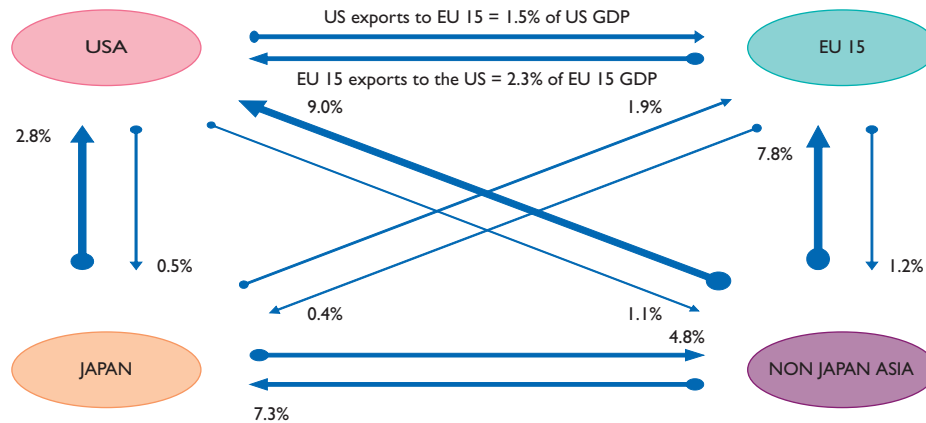
Sources: BEA, IMF, Banque de France calculations

<sup>14</sup> See: “The US current account and the dollar”, MIT Working Paper 05-02, May 2005.

<sup>15</sup> See Banque de France monthly Bulletin, January 2006.

Chart 17 Trade relationships between the 4 main areas of the world economy in 2004

(trade in goods – current USD)



as its roots seem to be chiefly structural (under-developed pension and health insurance schemes).

Finally, even if emerging Asia engaged in a domestic demand enhancing policy, its impact on global imbalances should not be overstated, as the traction effect of this area remains low. This area still is highly dependent on extra-regional cyclical developments, whereas its own impact on the other regions' business conditions is rather limited, except for Japan (see chart 17).

### 4 | 3 The multi-faceted, policy-led approach

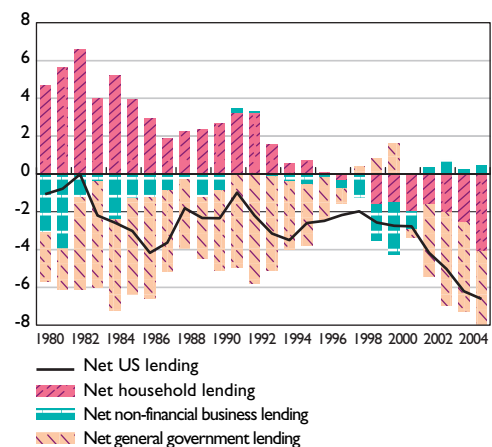
The GSG hypothesis describes a situation in which economic policy, and namely the US economic policy, does not play a major role in the building up of imbalances. However, we believe that economic policy did play a central role in the present conundrum.

We have seen earlier that fiscal policy would probably have been less stimulative had interest rates not reached such low levels, and consequently would have weighed on the US current account to a lesser degree. Yet, in a speech delivered on 20 April 2005, "US current account deficit: causes and consequences", Vice-chairman R. Ferguson concluded that the budget deficit's impact on the current account was almost null. The GSG stands on the same ground.

However, the model used to come to this conclusion<sup>16</sup> is based on the assumption that American households behave strongly as Ricardian agents. As a consequence, budget deficit shocks only have a very low and short-lived impact. The model asserts that a restrictive budgetary policy (a tax increase for instance) would have a positive impact on households' consumption after three quarters and a weak positive impact on the trade balance. It is more likely that it would dampen the household consumption in a more persistent way, and that the positive impact on the trade balance would be stronger thanks to a fall in import demand under the hypothesis of a Keynesian behavior of American

Chart 18 US Net lending by sector

(in % of nominal GDP)



Sources: Federal Reserve System, BEA, Banque de France calculations

<sup>16</sup> "Expansionary fiscal shocks and the trade deficit", International finance discussion paper 2005-825, Federal Reserve Board, January 2005, Christopher J. Erceg, Luca Guerrieri, Christopher Gust.



households, along the lines of the pattern observed in the recent period. As shown by chart 18, which plots US net lending by sector, household net lending has been changing in line with general government net lending over the last four years.

Besides, a more subdued domestic absorption in the United States might trigger a change in the economic strategy of Emerging Asia. Indeed, so far, Emerging Asian countries have not been encouraged to engage in a development model based on domestic demand, as long as the US could absorb a growing share of Asian output thanks to stimulative economic policies.

Furthermore, the GSG hypothesis does not take into account the possible role of monetary policy in the widening of US current account deficit and in its subsequent reduction. Yet, monetary policy did play a role in depressing long-term rates and consequently in the deepening of the current deficit. Indeed, it had a downward impact on long term interest yields during the period of deflation scare, in the first half of 2003, when market participants believed in the possible implementation of a “plan B” by the Federal Reserve, consisting mainly in the purchase of large amounts of ten-year Treasury notes. A previous paper by Bernanke, with Reinhart and Sack<sup>17</sup>, found evidence testifying for this phenomenon and estimated that “the

*perceived possibility of Treasury purchases had an impact of the order of 50 basis points or more*” on Treasury yields. To conclude on monetary policy’s contribution to the resolution of global imbalances, it may be worth noting that conventional international models, such as NIGEM, suggests that, without an increase in interest rates, an exchange rate depreciation results in only a very small current account improvement.

Meanwhile, the Euro area and Japan should engage in structural reforms in order to boost potential growth. This may take time and, in steady states, may not reduce imbalances as both imports and exports would increase; but it would contribute more to world demand and should reduce the recourse to stimulating demand policies.

Some may argue that such a scenario creates a disproportionate burden on US economic policy. However, it should be kept in mind that the United States is currently the only major economic region for which addressing the national saving issue does not bring about a conflict of policy objectives. Besides, a simultaneous depreciation of the dollar, namely against the currencies that so far have not (or little) adjusted to the US dollar would result in the adjustment cost being shared with the rest of the world.

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<sup>17</sup> “Monetary policy alternatives at the zero bound : an empirical assessment”, B. Bernanke, V. Reinhart, B. Sack, *Finance and Economic Discussion Series 2004-48*, Federal Reserve Board

# APPENDIX

## Description of the data used in the corporate net lending calculations

We chose to use data on the corporate non-financial non-farm sector for the net lending calculations in the US non-financial business sector since:

- this is the closest sector to the euro area non-financial corporate sector;
- this is the most statistically detailed business sector (the non-financial business sector does not include FDIs data for instance).

Nevertheless, for the investment rate calculation, the value added relates to the whole non-financial corporate sector, since it comes from the national accounts and not from the Flow of funds, while the gross fixed capital formation relates to the non-farm non-financial corporate sector.

For all the sectors and areas mentioned, we computed the net lending/ borrowing as the gross saving minus the gross investment.

- for the US corporate non-financial non-farm sector, total internal funds + IVA were used as a measure of gross saving and capital expenditures as a measure of gross investment. It is also equivalent to computing the net financial investment (net acquisition of financial assets minus net increase in liabilities). Nevertheless, the discrepancy between the two sides is significant. Therefore, we chose to focus on the saving/capex side.
- there is no discrepancy in the euro area investment and savings accounts at a similar level of detail. Therefore, it is totally equivalent to compute net lending as the net financial investment or as the gross saving minus capex (indeed, it is the gross saving

plus the net capital transfers minus the gross fixed capital formation, the changes in inventories and the acquisition of non-produced non-financial assets).

We did not compute a net lending for the US financial sector since the aggregated sector does not exist in the Flow of funds. It does not seem very relevant to rebuild one, since when going into the detailed sub-sectors, discrepancies are rather large.

A foreign direct investment is defined as a purchase by a single foreign (resp. US) investor that results in ownership of 10 percent or more of the US (resp. foreign) firm's outstanding equity, or an equivalent ownership interest of an unincorporated business enterprise. Otherwise, it is considered as a portfolio investment. Provisions of loans to US (resp. foreign) affiliates are also included in the FDIs.

The underlying sources for the FDIs data are published in the Survey of Current Business (BEA).

- in the net lending and investment rate calculations, FDIs relate to the non-farm non-financial corporate business sector. Funding corporations, among other institutions, are therefore excluded.
- in the rates of return calculations, FDIs stem from the US position. They consequently relate to the whole economy. There are three methods of valuation: the historical cost (based on book value), the current cost (based on current cost of plant and equipment, land and inventories) and the market value (based on current stock market prices). To compute the rates of return, we used the market value, so that FDIs are not too much undervalued.