

Corporates are driving the global saving glut

- Investors have been buffeted by **four market puzzles**: Why are bond yields so low? Why don't equities rally? Why are credit spreads so tight? Why hasn't the dollar collapsed?
- A **global saving glut helps explain all of these puzzles**. The real driver of this saving glut in recent years has been **the corporate sector**. Between 2000 and 2004, the switch from corporate dis-saving to net saving across the G6 economies amounted to over **\$1 trillion**.
- Increased saving by **emerging economies** has played an important role, but over the past four years the increase in **G6 corporate saving** has been about **five times greater**.
- The rise in corporate saving has been **truly global**, spanning the three major regions — North America, Europe, and Japan — and both financial and nonfinancial corporates. Relative to the past, **the financial sector** has played an unprecedented role in boosting corporate saving, as it benefited from record low funding rates, and the impact this had on interest sensitive sectors.
- A **turn in corporate saving is taking place in North America**; Japan and the UK are topping out. But the Euro area is lagging behind.
- **Real bond yields** over the past 3 years fell to **half of their long-term means**. Focusing on the 10-year UST, the global saving glut, **together with easy monetary policy, explain the lion's share (1.3%) of the drop in real yields**.
- The fall in **inflation volatility** accounts for only **20bp** of the drop in real yields. Emerging economy saving, through **central bank reserve accumulation**, has accounted for a **35bp drop** in real US bond yields from the long-term mean. Increased government borrowing by itself pushed up real yields by 40bp.
- Even so, today's 4% 10-year UST yield remains **60bp expensive**.
- High corporate saving depressed economic growth, inducing massive monetary and fiscal easing. But, by **deleveraging** their balance sheets, corporates have **massively tightened credit spreads**. **Corporates are starting to leverage up again. This should force spreads wider over the next 1-2 years**.
- Low economic growth and deleveraging have combined to depress equity valuations, but **releveraging will limit the damage from slowing profit growth to global equity prices**.
- The significant rise in **emerging economy savings** for a large part **reflects FX intervention**. Strong growth will soon induce emerging economy central banks, especially in Asia, to let their currencies appreciate against the dollar, thus eventually reducing their net national saving.



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Four puzzles in asset valuations

Active investors have had a hard time figuring out markets and making good investment returns over the past two years. Markets have consistently moved against traditional valuation methods with bond yields in particular remaining extremely low. But **bond valuations** have not been the only puzzle: **equities** have been surprisingly soft; **credit spreads** have tightened more than many had expected; and the **dollar** has resisted the gravitational pull of its record wide external imbalance.

In this study, we present a single explanation for these four puzzles: a global savings glut, coming from both corporates and emerging economies, that has supported the dollar and has favored bonds and credit over equities. Ben Bernanke, when he was a governor at the US Federal Reserve, launched the idea a few months ago that a savings glut emanating from emerging economies had supported US asset prices. We agree, but extend the hypothesis by highlighting that the rise in corporate savings in industrialised countries has been of much greater importance and magnitude than the rise in savings in emerging economies (Table 1, Chart 1). Admittedly, as Bernanke argued, increased savings by emerging economies has helped to support the dollar and fixed income assets. But the rise in saving by corporates helps to explain the strong relative performance of credit and fixed income against equities.

In the following, we explain how a rise in saving rates affects economic growth and interest rates, where the rise in savings has come from, and what we can expect in the coming years. We analyse the impact this has had and will still have on bonds, equities, credit, and currencies.

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One explanation for four puzzles in bonds, equities, credit, and the dollar

Table 1: Summary table of changes in saving

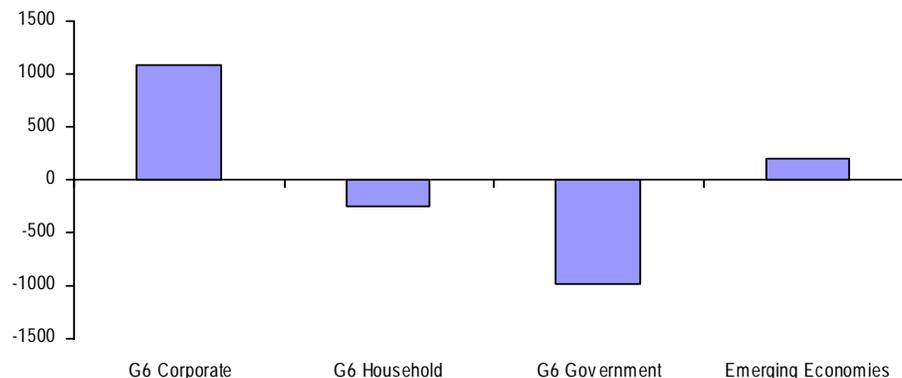
\$ billions, changes in financial positions (gross saving minus gross investment)

	Change from 1996 - 2000	Change from 2000 - 2004
G6 economies	-371	-137
Corporate	-730	1091
Household	-323	-246
Government	681	-982
Emerging economies	217	208
Asia	126	107
Latin America	-9	64
Middle East	59	43

The change in net saving for the G6 economies does not equal the change in net saving for the emerging economies (with the sign reversed) for three reasons: first, the G6 economy data are calculated from the national accounts while the emerging economy data are calculated from the balance of payments; second, within the global balance of payments data there is a large statistical discrepancy (that is, the current account positions of all countries do not add to zero); and third, the G6 economies do not comprise everything other than emerging economies.

Chart 1: Changes in sectoral financial balances from 2000-2004

\$ billions, + = increase in financial balance, - = decrease in financial balance



Source: JPMorgan

A greater desire to save than to invest

Ex post, global saving and global investment are equal, by definition. The part of income that is not consumed is defined as saving, and the part of output that is not consumed is defined as investment. Given that income and output are the same, and recognizing that changes in inventories are part of investment, it is clear that actual saving and actual investment are equal.

But, saving and investment decisions are made by millions of different participants in the global economy (households, corporates, and governments). There is no reason why ex ante plans to save should equal ex ante plans to invest. There are two equilibrating forces that ensure that ex ante plans and ex post outcomes are brought into line: **a change in real income growth** and **a change in real interest rates**. If some participants in the global economy increase their plans to save, this sets in motion a decline in real income growth (one person's spending is another person's output) and a decline in real interest rates (as more funds are available for investment). The decline in real income growth leads to lower government saving via the automatic stabilisers and usually prompts an easing of policy (a further decline in government saving and lower policy interest rates). The decline in real interest rates, partly driven by policy and partly driven by increased funds, then generates offsetting changes elsewhere — lower savings by other participants and/or higher investment.

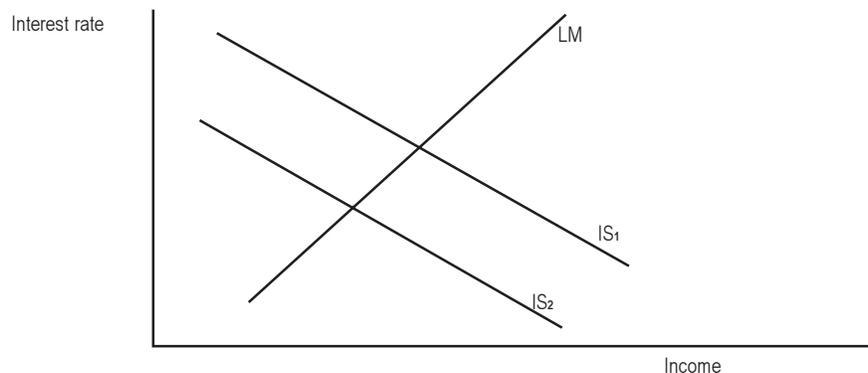
The paradox of thrift: a higher savings rate depresses incomes and interest rates

In standard macro-economic **ISLM** textbook analysis, a rise in the saving rate shows up as a fall in the IS line that delineates equilibria in interest rates and income levels. In Chart 2, a higher saving rate leads to a lower equilibrium level of both income and the interest rate.

Corporates are the real driver of the global saving glut

Over the past few years, there has been a dramatic increase in the **corporate sector's** desire to save (corresponding to a decline in its desire to invest). This is very evident in the G6 economies; in the period from 2000 to 2004, corporate saving in the G6 economies increased by \$1091 billion (2.7% of global GDP, see Table 1). It is not possible to know exactly what has happened in emerging economies on a sectoral basis, but it seems likely that the rise in national saving in Asia and Latin America in recent years reflects in part higher corporate saving. This increase in the desire to save by corporates across the world led to a sharp slowdown in real income growth: in the eleven quarters from the middle of 2000 to the spring of 2003, global GDP growth averaged only 1.5%.

Chart 2: Standard ISLM view of the economy



Fiscal easing to offset the impact of higher saving rates ..

Weaker income growth then triggered other changes. **Government saving** in the G6 economies declined partly due to the automatic stabilisers and partly due to a discretionary fiscal easing in the US and the UK. Altogether, the decline in government saving in the G6 economies in the 2000 to 2004 period amounted to \$982 billion (2.4% of global GDP). Meanwhile, in emerging economies government saving actually increased; since 2000, budget deficits have fallen sharply in both Emerging Asia and Latin America.

... and central banks cut rates

Weaker real income growth also led to a sharp decline in policy rates, and this was common across G6 economies and emerging markets: from November 2000 (the peak in global policy rates) to April 2004 (the trough in global policy rates) the global policy rate fell by 420bp. This comprised declines of 340bp, 200bp, and 546bp in the G6 economies, Emerging Asia, and Latin America respectively. This policy easing reinforced the downward trend in real interest rates generated by weaker real income growth and increased corporate saving. And **households in the G6 economies** responded to lower real interest rates by **reducing their saving**: household saving declined by \$246 billion (0.6% of global GDP) between 2000 and 2004. It is less clear what has happened to household saving rates in emerging economies: most likely they have drifted up in recent years, despite low interest rates.

Corporates tried to heal after the excesses of the 1990s

The shift in the corporate sector's desire to save was in **response to earlier excesses**; to equity market bubbles in the G6 economies and to excessive capital inflows in the emerging economies prior to the various crises. The healing process involved the restoration of profitability and the restructuring of balance sheets.

The bigger the party, the worse the hangover, and the longer it takes to get healthy again

Judging by developments in the US and Japan, where it is possible to create long run estimates of the corporate sector's financial balance, **the recent level of saving by corporates is unprecedented**. In the US, for example, the corporate sector's financial surplus has averaged 1.7% of GDP since the beginning of 2002, compared with an average financial deficit of 1.2% in the prior 40 years (Chart 3). Meanwhile, in Japan, the corporate sector's financial surplus has averaged 6.2% of GDP since the beginning of 2002, compared with an average financial deficit of 1.7% in the prior 22 years (Chart 4). (Note that these measures of the corporate sector's financial position cover the domestic cash flow of financial and non-financial corporates and earnings from foreign subsidiaries).

It is important to stress that the present situation is in some sense **unnatural**. A more normal situation would be for the global corporate sector—in both the G6 and emerging economies—to be borrowing, and for households in the G6 economies to be saving more, ahead of the deterioration in demographics. When the global economy shifts in this direction, real income growth and real interest rates are both

Table 2: Changes in sectoral financial balances in the G6 economies

% of GDP, + = increase in financial balance, - = decline in financial balance

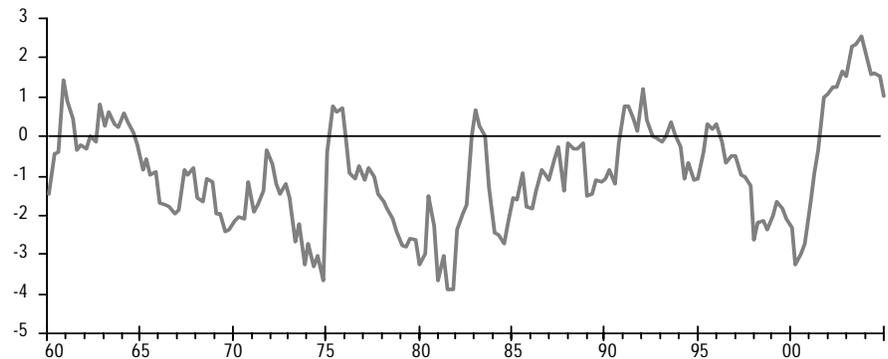
	1996 - 2000						2000 - 2004					
	US	Euro area	Japan	UK	Canada	Australia	US	Euro area	Japan	UK	Canada	Australia
Government balance	+3.8	+4.4	-2.4	+8.0	+5.7	+3.1	-5.9	-2.8	+1.4	-7.2	-1.6	+0.2
Current account	-2.7	-1.8	+1.1	-1.6	+2.2	-0.1	-1.5	+1.3	+1.1	+0.3	-0.1	-2.3
Private sector	-6.5	-6.2	+3.5	-9.6	-3.5	-3.2	+4.4	+4.1	-0.3	+7.5	+1.5	-2.5
Household saving	-1.5	-2.2	+1.4	-3.3	-1.6	-3.2	-1.6	+0.3	-0.8	-0.7	-4.2	-3.7
Corporate saving	-5.0	-4.0	+2.1	-6.3	-1.9	0.0	+6.0	+3.8	+0.5	+8.2	+5.7	+1.2

The financial balance for each sector is the difference between gross saving and gross investment. The corporate financial balance is a residual calculated from the identity: the change in the corporate financial balance equals the change in the current account balance minus the change in the government balance minus the change in the household financial balance. The government balance data for 2000 have not been adjusted to exclude the impact of sales of mobile telephone licences, worth 2.4% of GDP in the UK, 1.1% of GDP in the Euro area, and 0.2% of GDP in Australia. Source: National sources for household gross savings and OECD Economic Outlook for current account and budget positions.

US corporate saving rates reached a record high in 2003-04

Chart 3: US corporate sector financial position

% of GDP, total corporate sector gross saving minus gross investment



Source: JPMorgan

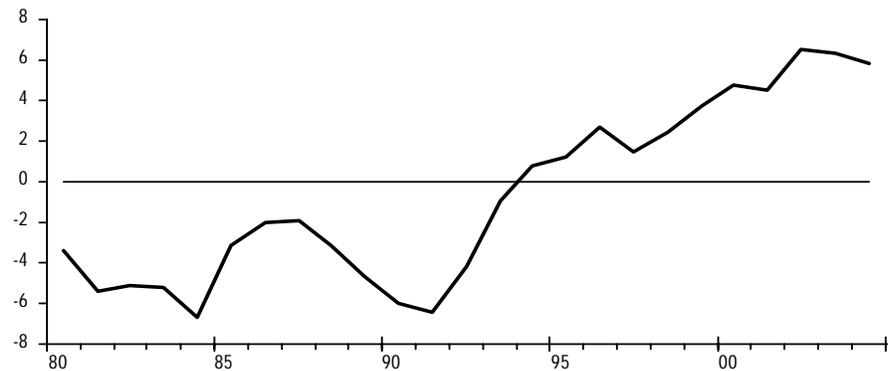
likely to rise. This makes it clear that a normalisation of the interest rate environment, and a normalisation of asset valuations in general, depends on a normalisation of the saving environment.

Japanese corporates led the way to higher saving

One of the most striking macroeconomic developments in Japan in the past decade has been the enormous shift in the corporate sector's propensity to save (Chart 5). After borrowing a significant amount during the bubble economy of the late 1980s

Chart 4: Japan corporate sector financial position

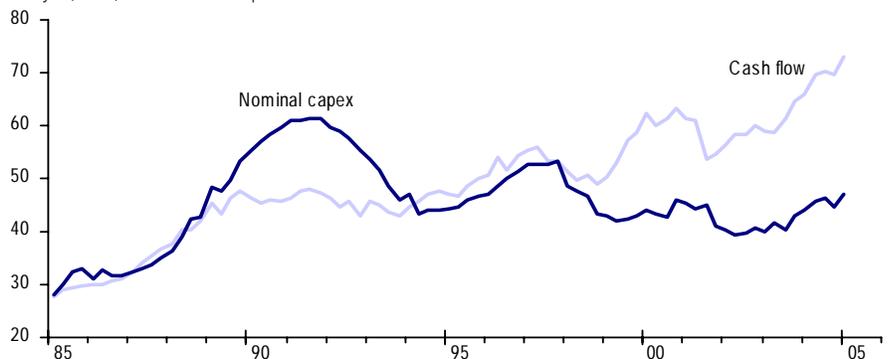
% of GDP, total corporate sector gross savings minus gross investment



Source: JPMorgan

Chart 5: Japanese corporate cash flow and capital spending

trillion yen, saar, non-financial corporates



Source: JPMorgan

and early 1990s, Japanese corporates turned their attention to balance sheet repair from 1994 and have been savers ever since. There have been two consequences of this shift in corporate saving behaviour: first, a lacklustre demand environment, as corporates cut back on capital spending and hiring; and second, low real interest rates, encouraged by the maintenance of a very low policy rate.

Japanese corporate saving rate has barely come down, so far ...

The impact of the increase in corporate saving is evident in both the financial flow of funds data and in the evolution of capital spending and hiring. Since 1994, corporate cash flow has been running at a much higher level than nominal capital spending. And, since 1994 the growth rate of private sector spending on machinery and equipment has averaged 3.2%, which compares with an average growth rate of 8.4% in the decade before the bubble burst. Similarly, since 1994, employment growth in Japan has been stagnant, compared with an average growth rate of 1.4% in the decade before the bubble burst.

Of course, over the past decade, the headwinds from higher corporate saving have been mitigated by **lower public saving**—since 1994 the government budget deficit has averaged 6% of GDP—and lower household saving, in part due to lower interest rates. But, the net effect has nevertheless been a weak economy: since 1994, GDP growth has averaged 1.3%, compared with an average of 4.1% in the decade before the bubble burst.

... but balance sheet repair process should be over by now

The purpose of this increased corporate saving was to repay debt. From the beginning of 1998 to the end of 2003, corporate debt in Japan fell at a real annualised pace of 3% a quarter (Chart 6). This comprised a decline in nominal debt of 4% a quarter and deflation of just over 1% a quarter. In fact, measured as a share of GDP, Japanese corporate sector debt is now back towards where it was in the mid 1980s. This looks like a pretty complete process of balance sheet repair. Given the dramatic decline in leverage on Japanese corporate balance sheets, it is reasonable to expect corporates to now start utilizing their free cash flow for increased capital spending and hiring.

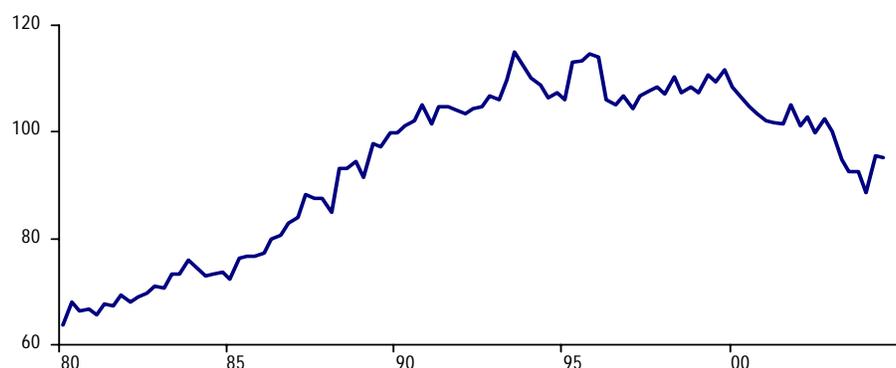
US companies appear to be following Japan's 1990's example

US corporates followed in Japanese footsteps

After the surge in capital spending and borrowing in the late 1990s, US corporates followed in the footsteps created by their Japanese counterparts almost a decade earlier. From 2000 to 2004, the US corporate sector saving rate rose dramatically. As in Japan, there were two consequences of this shift in corporate saving behaviour:

Chart 6: Outstanding corporate debt in Japan

% of GDP



Source: JPMorgan

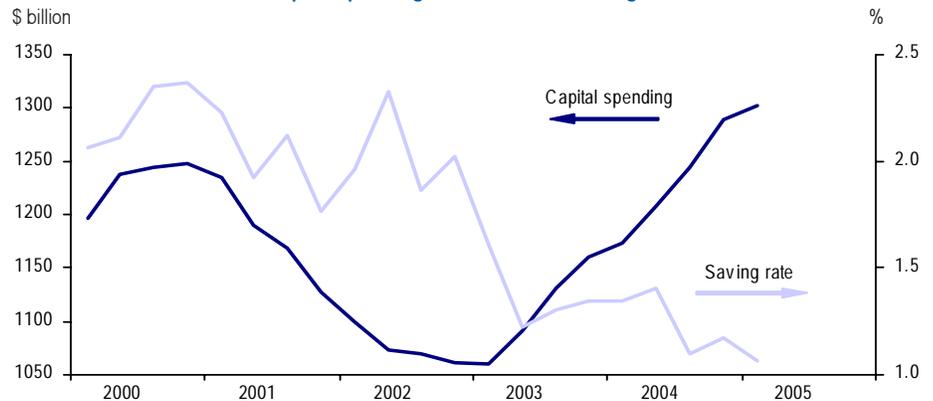
first, the cutbacks in corporate spending and hiring generated significant headwinds for growth (for the eleven quarters from mid 2000 to early 2003, US GDP gains averaged 1.2%); and second, real interest rates fell to a very low level, encouraged by Fed policy.

The household sector in the US is very sensitive to interest rates and not surprisingly the **household saving rate has declined in recent years**, which mitigated some of the headwind from the rise in corporate saving. However, there were significant lags between the decline in interest rates and the response from households (Chart 7). What mainly acted as an offset to the corporate headwind was fiscal policy. According to the OECD, the cyclically adjusted budget position moved by 5.5% of GDP between 2000 and 2004. This **fiscal easing**—dominated by tax cuts—was not motivated only by the need to manage demand; tax cuts were one of the pre-election commitments made by the incoming Bush administration. But, de facto, it was one of the most perfectly timed pieces of fiscal activism ever seen (Chart 8).

US government dis-saving matched corporate saving one for one

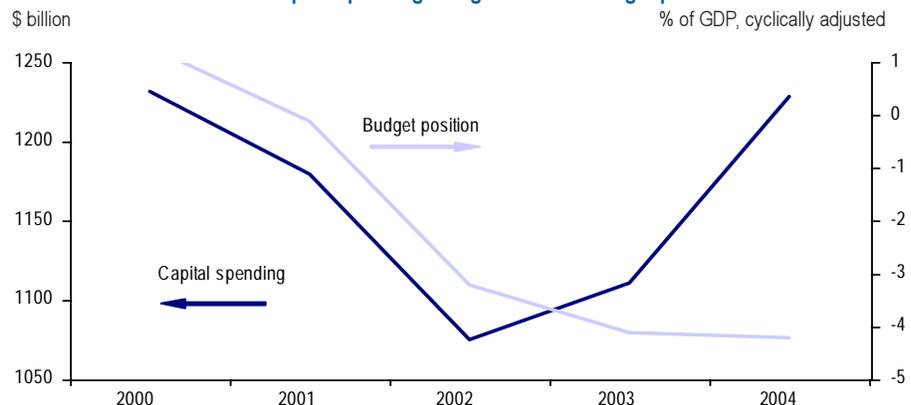
Although **US corporates** have engaged with balance sheet repair in the past few years, they **have not dramatically reduced debt** in the way that Japanese corporates have done (Chart 9). The level of corporate debt relative to GDP has declined since 2000, but largely due to nominal GDP moving up more quickly than the level of nominal debt. It is not clear what an end to the process of balance sheet repair in the US would look like. If corporate debt were reduced to pre-bubble

Chart 7: US non-residential capital spending and household saving rate



Source: JPMorgan

Chart 8: US non-residential capital spending and government budget position



Source: JPMorgan

levels, this would take a while longer. But it is not clear that this is necessary. Moreover, the American Jobs Creation Act gives corporates the ability to repatriate an enormous amount of foreign earnings this year—possibly as much as \$350 billion—which could be used to further reduce debt levels. If that were done, corporate debt in the US as a percent of GDP would move back closer to the level seen in the mid 1990s.

Two thirds of the rise in US profits came from the financial sector

One of the striking things about the rise in corporate saving in the US in recent years has been the dramatic move in the **financial sector**: of the rise in undistributed profits since 2000, around two thirds of it has come from the financial sector (Table 3). US bank profits have been supported by cheap funding rates, a boom in interest sensitive spending (autos and housing), financial innovation, the recycling of huge current account imbalances, and significant cost cutting.

As did European corporates

The European corporate sector has followed a similar path to the US corporate sector in response to the overextension of balance sheets in the late 1990s. The magnitude of the increase in corporate saving since 2000 looks to have been especially large in the **UK**. But, an expansionary fiscal policy—due to the fortuitous timing of the modernisation of public services—and the decline in household saving helped to ensure that UK growth held up relatively well. During the eleven quarters from mid 2000 to early 2003, when US GDP growth averaged 1.2%, UK growth managed to average 2%.

UK fiscal easing offset impact of higher corporate saving

Meanwhile, although the increase in corporate saving in the **Euro area** has been more modest than in the UK and the US since 2000, the outturn for growth has been much worse: the Euro area has now seen sixteen quarters of growth averaging 1.1%.

Table 3: US undistributed profits

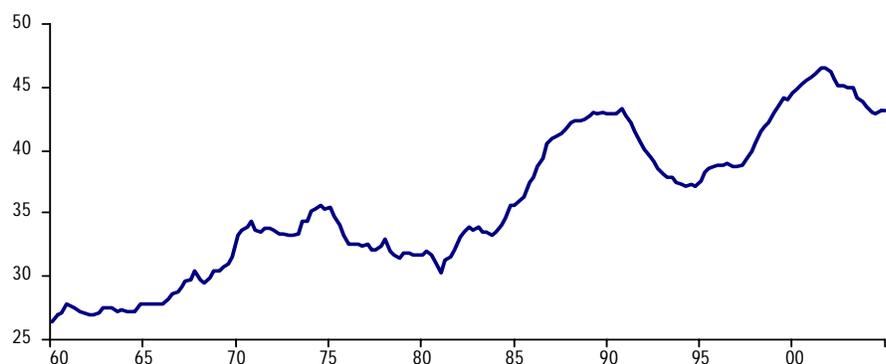
% of GDP

	2000	2004	Change
Undistributed profits	1.3	2.3	1.0
o/w Domestic non-financial	0.0	0.3	0.3
Financial	0.1	0.8	0.7
Foreign subsidiaries	1.2	1.3	0.1

Source: JPMorgan

Chart 9: Outstanding corporate debt in the US

% of GDP



Source: JPMorgan

Euro area corporates also raised their saving rate ...

... but households also started saving more, while governments did not raise spending or cut taxes

Euro corporates have not yet started lowering their savings rates

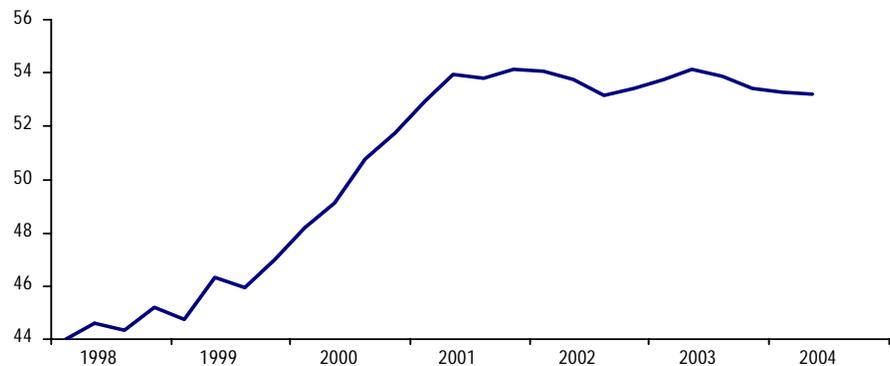
No wonder the Euro economy is in trouble

In the Euro area there was no mitigation of the corporate headwind from fiscal policy. According to the OECD, the fiscal stance in the Euro area has been broadly unchanged in the past four years, compared with easings worth 5.5% of GDP in the US and 4.4% of GDP in the UK. Another striking difference between the Euro area on the one hand, and the UK and the US on the other, has been the behaviour of household saving: the **household saving** rate in the Euro area looks to have risen over the past four years, possibly reflecting demographic pressures and fears about structural reform.

Corporate debt levels, measured relative to GDP, have barely declined in recent years in the Euro area and the UK, in marked contrast to the US and Japan (Charts 10 and 11). However, the increase in **corporate saving** in the UK and the US in the past four years has more than offset the decline in corporate saving seen in the second half of the 1990s. Although debt levels are still higher than before the bubble, it is not unreasonable to assume that the process of healing in the US and UK is almost over. This is not yet true in the Euro area; the increase in corporate saving since 2000 has not yet reversed the decline seen in the second half of the 1990s, which likely helps to explain why the corporate headwind has remained more intense in the Euro area than elsewhere.

Chart 10: Outstanding corporate debt in the Euro area

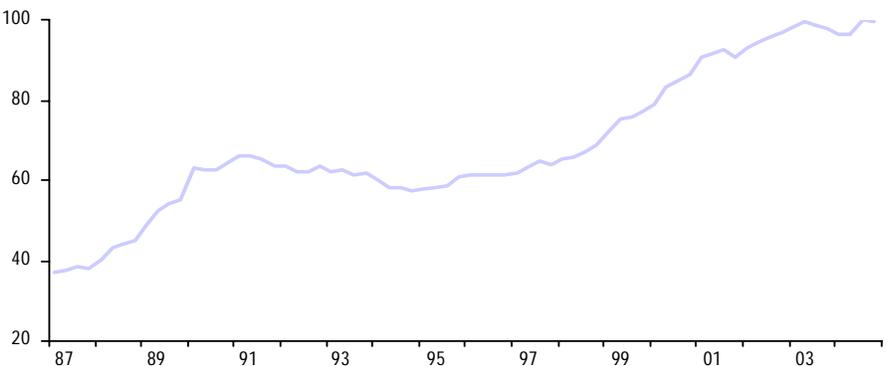
% of GDP



Source: JPMorgan

Chart 11: Outstanding corporate debt in the UK

% of GDP



Source: JPMorgan

Emerging economies have raised national saving since 2000, learning from the crises of the 1990s

Broadbased rise in emerging economy saving

A large number of emerging economies went through significant crises in the late 1990s and early 2000s. The proximate cause of these crises, in most cases, was a reversal of capital inflows; overoptimism by international investors led to strong capital inflows and buoyant investment spending, and the reversal of these flows led to sharp cutbacks in investment spending. The corporate and financial restructuring processes triggered by these crises bore down heavily on domestic spending. In order to mitigate the effects on growth, policymakers sought to maintain the very competitive exchange rates which followed the reversal of capital flows. This was done by maintaining low interest rates and engaging in a significant amount of foreign exchange intervention.

It is not possible to know the full details of how sectoral saving rates have evolved in emerging economies. However, in **Emerging Asia**, it looks as if the private sector financial position improved by 3.3% of regional GDP between 1996 and 2000 and by a further 0.3% between 2000 and 2004 (Table 4). Meanwhile, in Latin America the private sector financial position improved slightly between 1996 and 2000 and has improved by a further 1.9% of regional GDP since then. The moves in private saving have been reinforced by fiscal tightening, at least since 2000. In Emerging Asia, government saving increased by 1.8% of regional GDP from 2000 to 2004, and in Latin America it increased by 1.7%.

Table 4: Emerging economy financial balances

% of regional GDP, JPM weights

	1997	2000	2004
Emerging Asia			
Current account	1.1	2.8	4.9
Government balance	-1.0	-2.6	-0.8
Private sector balance	2.1	5.4	5.7
Latin America			
Current account	-2.9	-2.2	1.4
Government balance	-2.4	-2.5	-0.8
Private sector balance	-0.5	0.3	2.2

Source: JPMorgan

Table 5: Regional current account balances

Billions of US dollars

	1996	2000	2004	Changes	
				96 - 00	00 - 04
US	-120	-413	-666	-293	-253
Euro area	79	-29	36	-108	65
Japan	66	120	172	54	52
UK	-11	-37	-47	-26	-10
Canada	3	20	26	17	6
Australia	-16	-15	-39	1	-24
Emerging Asia	-40	86	193	126	107
China	7	21	70	14	49
Latin America	-39	-48	16	-9	64
Middle East	11	70	113	59	43
Eastern Europe and Russia	-15	14	14	29	0
Africa	-5	7	1	12	-6
Statistical discrepancy	-52	-163	-81	-111	82

Source: JPMorgan

Currency pegging and private sector saving led to growing current account surpluses in emerging economies

The combination of domestic restructuring, fiscal tightening, and the maintenance of undervalued exchange rates has tended to increase national saving rates relative to domestic investment, and this has led to **growing current account surpluses**. Since the mid 1990s, the Emerging Asian current account position has improved by \$233 billion. And since 2000, the Latin American current account position has improved by \$64 billion (Table 5). Another factor pushing up saving rates in emerging economies has been the rise in commodity prices, although in a sense this increased saving is likely to be of an involuntary nature. Over time, investment in resource producing industries is likely to increase in response to higher prices.

Looking for signs of normalization

If it is right that the low level of real interest rates, modest equity valuations, tight credit spreads, and an overvalued dollar reflect an unusually high desire to save on the part of corporates in the G6 economies, and of corporates, households, and governments in a number of emerging economies, then a full normalization of asset valuations will only take place when there is a full normalization of saving behaviour. This could of course take a long time: the Japanese corporate sector has been saving for over a decade. Nevertheless, our central view is that this **normalization of saving behaviour** takes place reasonably soon. Three features of our forecast indicate this: first, a view that corporates across the world turn expansionary again; second, that Asian domestic demand comes back on a sustained basis; and third, that Asian currencies are allowed to appreciate against the dollar.

Corporate healing is well advanced in the US and Japan but there is more to go in the Euro area

What signs are there that this process of normalization is under way? Perhaps the most striking evidence is that the **corporate healing process seems well advanced**: profitability is back to prior cyclical peaks and debt to income ratios have declined. And, alongside this evidence of corporate healing, there are some signs that a turn in corporate saving behaviour is underway. To get any details on this, we have to turn to the **non-financial corporate sector**. In the US, the domestic financing gap from the flow of funds has fallen sharply in the past year as internal funds have risen by 2.3% while nominal capital spending has risen by 16.8%. Clear signs here of a slowdown in profits growth but ongoing strong capital spending. Comparable data for Japan are derived from the MOF corporate survey. The pattern in **Japan** is somewhat different to the US. Over the past year, the domestic financing gap has actually widened as cash flow has risen by 10.5%, but nominal capital spending has risen by only 7.2%. Thus, although corporate spending has improved in Japan, this is not yet due to a shift in the corporate sector's high propensity to save. Signs of improvement in the **Euro area** are less evident. Capital spending has started to improve, but is still very weak. Meanwhile, the labor market in the Euro area has yet to show any meaningful signs of improvement.

Another indication of a more expansionary corporate sector is the **pick up in corporate borrowing**. During periods of balance sheet repair corporates are effectively in a liquidity trap; that is, borrowing is unlikely to pick up regardless of how low interest rates go. The pick up in corporate credit growth in recent quarters is a clear sign that the headwind of balance sheet repair is fading (see Charts 12-14).

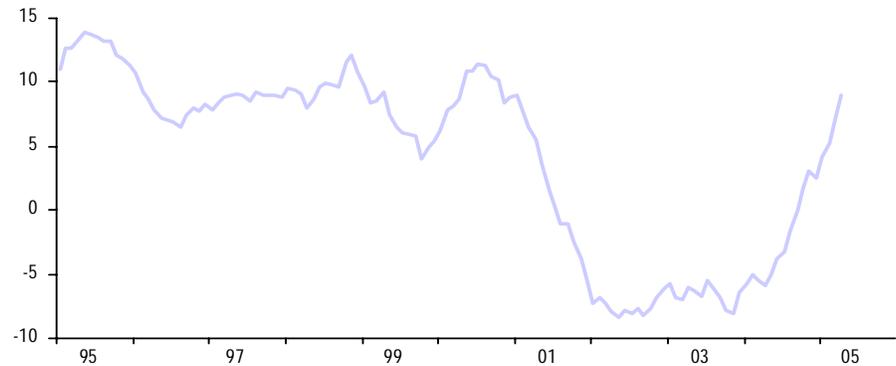
A full normalization of global interest rates will likely require a shift to a more normal environment in **Emerging Asia** and **Latin America**, which will involve lower saving, higher investment and higher currencies. The consequent fall in the dollar—which will help to keep more US domestic demand at home and shift more global demand towards the US—is an essential part of the process that will lift

interest rates in the US. There are certainly signs that investment in emerging economies is picking up after a prolonged period of softness and there is increasing talk of the adoption of more flexible exchange rate regimes.

But more broadly, the JPMorgan forecast for Emerging Asia and Latin American **current account positions** shows a significant shift towards less national savings.

Chart 12: US commercial loans

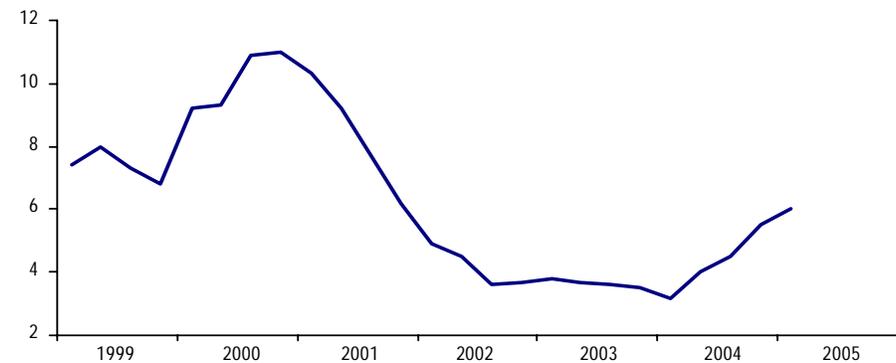
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Source: JPMorgan

Chart 13: Euro area loans to corporate sector

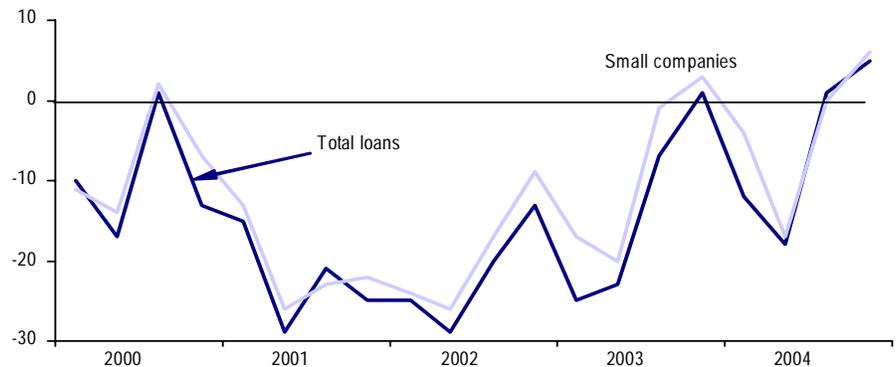
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Source: JPMorgan

Chart 14: Japan: business loan demand (BoJ survey)

DI



Source: JPMorgan

Emerging economies to reduce their saving but only slowly and modestly

From 2004 to 2006, our forecast for the **Latin American** current account position shows a move from a surplus of **1.1% of regional GDP to a deficit of 0.6% of GDP**. Our forecast for the **Emerging Asian** current account surplus shows a decline from **4.2% of regional GDP in 2004 to 2.7% of GDP in 2006**.

There are two implicit assumptions in the JPMorgan central view that are worth highlighting. First, that the unusual saving behavior will normalize relatively quickly, allowing a normalization of real interest rates, in the US at least, over the next twelve to eighteen months. The risk is that it takes longer for saving rates to normalize. And second, that the recent saving by corporates has been entirely related to the need to repair balance sheets, and that when that process is over corporates will return to a healthy pace of spending. The risk is that some of the corporate saving reflects a decline in attractive investment opportunities, as suggested perhaps by the moderation in the pace of decline of hedonically generated capital goods prices.

Corporate saving glut and the bond market

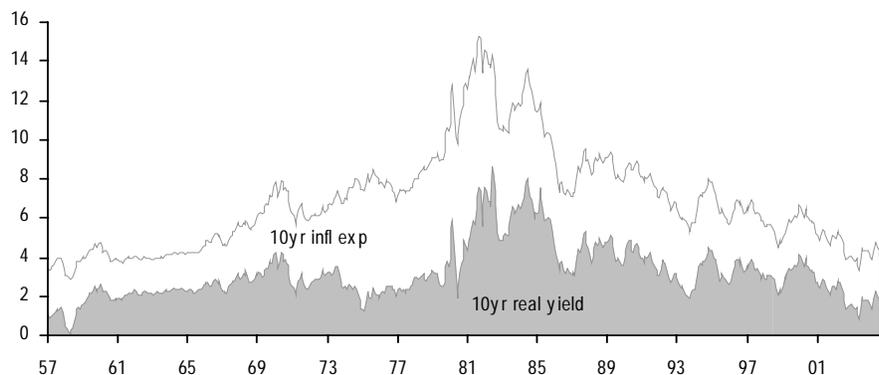
Bond yields are currently quite low by historical standards. Focusing on the 10-year US Treasury yield, which functions as the benchmark for world bond markets, the real yield (nominal minus expected long-term inflation) amounts to 1.5%, less than half of the long-term average just of 3.25% (see Chart 15). In Europe, the 10-year government benchmark is similarly trading at a 1.5% real yield (3.2% nominal minus 1.7% long-term expected inflation).

We update our bond yield model to include the saving from the financial sector and emerging economies

To judge the impact that the global saving glut is having on asset markets, we make use of our fair-value model of the fundamental drivers of asset prices (see *A Fair Value for US Bonds, Equities and Credit*, Nikolaos Panigirtzoglou and Jan Loeys, Jan 2005). Box 1 presents an updated version of this model. The reason for **refining our model** is that it did not previously **capture the effect of saving by emerging economies and the financial sector**. The differences with the previous version are that the corporate financing gap includes the financial sector, the real short rate is based on core CPI as opposed to headline CPI inflation and there is an additional variable to proxy for emerging economy saving. The standard error of the new version of the model at 63bp is lower than that of the previous version at 66bp. The coefficients are also slightly changed. Relative to the previous version, the coefficients are lower for the real short rate, the corporate financing gap, but slightly higher for the government deficit.

Chart 15: 10-year real yield and inflation expectations

in percent



Source: Federal Reserve Board and JPMorgan

Inflation volatility and emerging economy saving drive the supply of capital in the model, while the government and corporate sector drive the demand for capital

Our bond yield model starts with the real bond yield measured by the spread between the nominal 10-year UST yield and expected long-term inflation, derived from the Philadelphia Fed's Survey of Professional Forecasters. We explain fluctuations in this real 10-year yield as a function of the movements in the real monetary policy rate, inflation volatility and emerging economy saving (factors driving the supply of capital), and the funding needs of the government and by the US corporate sector (as factors driving the demand for capital).

Table 6 decomposes this US real yield by the impact that these bond drivers have had over different periods in the past. For the complete sample period (1959-2005), the real 10-year UST yield averaged 3.25%. The model allows us to decompose this average into a constant of 1.20%, plus 50bp due to the real short rate, 50bp as

**Box 1:
 Equation of the US 10-year yield**

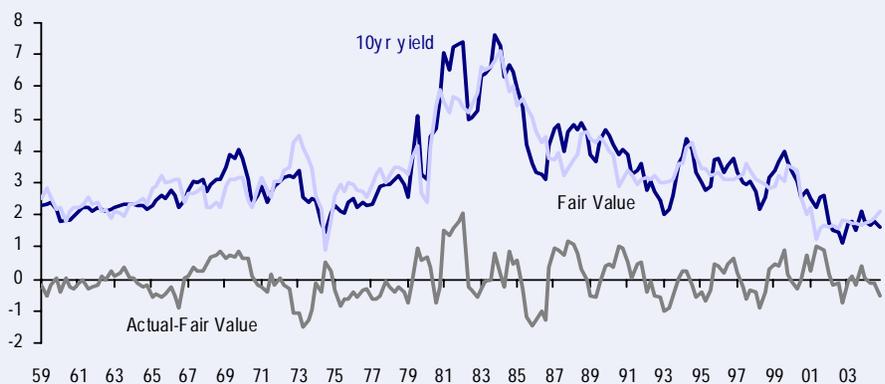
10-year real yield	=	1.22
		(0.14)
	+	0.38 × 3m real rate (based on core CPI)
		(0.04)
	+	0.34 × corporate financing gap/GDP
		(0.07)
	+	0.27 × government deficit/GDP
		(0.05)
	+	0.34 × 5y inflation stddev
		(0.09)
	-	0.14 × emerging economy current account
		(0.07)

(in percent, corporate financing gap, government deficit and emerging economy current account balance as % of US GDP – source: US Fed Flow of Funds, BEA NIPA and IMF respectively; inflation standard deviation is the standard deviation of monthly data on annual inflation over the past five years, standard errors in parenthesis)

The above model represents an updated version of our bond yield model. The differences with the previous version are that the corporate financing gap includes the financial sector, the real short rate is based on core CPI as opposed to headline CPI and that there is an additional variable to proxy for emerging economy saving.

Sample period	1959 Q3 to 2005 Q1
R ² -adj	78%
Standard Error	63bp
Residual half life	6 months

Source: JPMorgan



Source: Philadelphia Fed and JPMorgan

Easy monetary policy and corporate saving account for most of the drop in yields since 2003

inflation risk premium, 55bp due to government borrowing, and 50bp due to corporate funding. We can think of this as an expected short rate of 1.70% plus three term premia emanating from inflation volatility, funding pressure from the government and the corporate sector and saving supply from emerging economies.

Since 2003, the real US yield has been much lower at 1.65%, half of what it was during the 1990s, and thus at the source of talk of a bond yield conundrum. A common explanation has focused on reduced inflation uncertainty. However, our model estimates that the fall in this risk premium accounts only for a 25bp drop (from 50bp to 25bp). Much more important has been the **impact of easy monetary policy and the corporate saving glut**. Within our model, **monetary policy and corporate saving account for 60bp and 70bp respectively of the drop in the real yield** from the long-term mean. With both the real monetary policy rate and corporate financing needs being negative during this period, these premia moved from 50bp to -10bp, and from 50bp to -20bp (see Table 6). The increase in emerging economy saving explains another 35bp drop in the bond yield from its long run average. As discussed earlier in the paper, fiscal policy eased in response, but within our model this pushed up the real yield by 40bp (from 55bp to 95bp).

For bond markets in the **rest of the world**, we do not have stationary models that go back as far as the US, but it is clear to us that the same forces of easy monetary policy and a corporate savings glut are the main drivers of low bond yields there also. Real yields in the Euro area are at almost exactly the same level as in the US while those in Japan are even lower. As discussed in previous sections, the surplus of corporate savings is a phenomenon that is common across major economies. Together with equally easy monetary policy across the major economies, this explains the common low level of world bond yields.

A large chunk of corporate and emerging economy saving is transmitted through the banking sector

In other research, we have frequently pointed at the steady buying of bonds by **US banks as a driver of low bond yields**. This is fully consistent with the hypothesis of a global saving glut, as the banking system has been one of the main transmission mechanisms through which excess savings have pushed up bond prices. This transmission mechanism can be decomposed in five interrelated flows:

- reduced demand for loans and bond underwriting by companies;
- a resulting demand for other bonds by banks (as loan demand dried up);
- increased investment by corporate treasuries in bonds and bank deposits, which in turn find their way into other bonds;
- emerging economy saving and central bank reserves find their way into US bank deposits;
- record high bank profits boost bank capital which is largely invested in fixed income assets and less so in buying back equity capital.

These flows are largely “derivative” flows through which the rise in savings from corporates and emerging economies affect the equilibrium bond yield in the economy.

Table 6: US real yield decomposition

	10yr real yield	fair value	Contributions to fair value					EM current account	constant
			real short rate	corporate financing gap	government deficit	inflation volatility			
Value									
1960-2005	3.28	3.27	0.50	0.49	0.56	0.49	0.01	1.22	
2003-2005	1.66	1.79	-0.09	-0.21	0.93	0.27	-0.33	1.22	
2006		2.61	0.64	0.17	0.68	0.26	-0.35	1.22	

Source: JPMorgan

They do require close monitoring, though, not because they exert an independent impact, but because they provide early signals on the ultimate source of the demand for fixed income.

The financial sector makes a difference in total corporate saving

An important aspect of the transmission process from corporate savings to bond yields that most market participants (including ourselves) have not fully appreciated before is the extent to which **the financial sector** by itself has become a net saver and thus a net financier of the borrowing sector. In our previous thinking, we had thought of the financial sector as one that intermediates risk and capital, but not by itself a net provider of capital. That is, we thought of it as a pure intermediary and not a saver. That is why, in the version of our Fair Value Model that we published in January, we focused on the funding needs of the nonfinancial sector in the US.

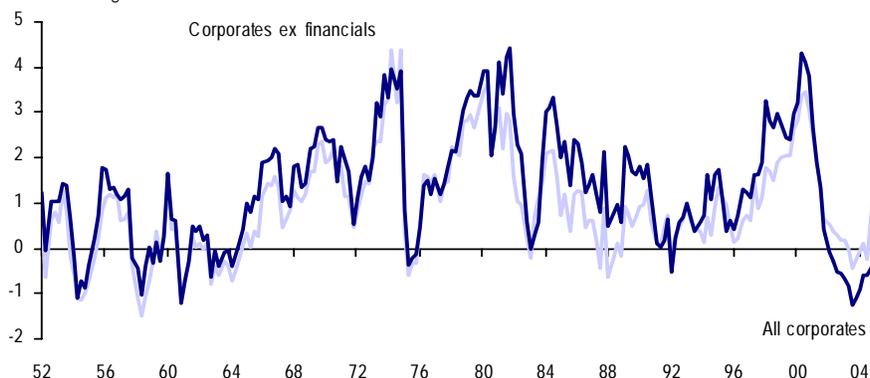
Chart 16 shows the net funding of the US corporate sector with and without financials. There has been a large divergence between the two funding gaps since 2000: the all corporate sector (incl. financials) financing gap has decreased by \$300bn, twice as much as the decrease in the funding gap of the non-financial corporate sector. This divergence is a reflection of the **larger share of financial profits in US corporate profits**. The increased profit share of financials is in turn the result of low real rates and increased borrowing by households that drove much of the expansion of bank balance sheets in the last five years as well as the result of cost-cutting.

Emerging economy saving and reserve accumulation currently depress bond yields by around 40bp

As discussed above, the global saving glut emanates not only from corporates across the world, but also from higher savings from **emerging economies**. It has received much greater press coverage, but the analysis on earlier pages clearly indicates that in terms of the change in recent years, it has been of a much smaller magnitude than the impact of corporate saving. It is difficult to quantify the impact of emerging economy saving into our bond yield model as data on emerging economy current account balances are only available annually since 1970. By making the assumption that the emerging economy current account balance was close to zero before 1970 and by interpolating annual data to derive quarterly observations, we are able to quantify the impact of emerging economy saving in our bond yield model. The emerging economy current account appears with a coefficient of -0.14 in the model, that is, a 1% increase in the emerging economy current account balance as a percent of US GDP lowers the fair value of the US bond yield by around 14bp. Since 2000,

Chart 16: US corporate financing gaps

% of US GDP, the financing gap is defined as the difference between capex and undistributed profits excluding foreign retained earnings



Source: US Federal Reserve and JPMorgan

the increase in saving by emerging economies, and the resultant reserve accumulation, could have contributed around **35bp to the fall in the real bond yield**.

A large part of deposit flows in US banks is due to emerging economy saving

There has also been an important transmission channel from emerging economy saving to bonds markets in the industrialised world. Since late 1990s, the assets to GDP ratio of US commercial banks have increased by more than 10 percentage points. The housing borrowing boom in the US is mostly responsible for the rise. The mirror image of the boom in borrowing is an increase in deposit flows. Chart 17 provides some tentative evidence that emerging economy saving could be partly behind these deposit flows. In addition, data on foreign liabilities at US commercial banks (Table 7) show that a large part of the expansion of US commercial bank balance sheets over the past years can be attributed to foreign flows.

Emerging economy and corporate saving should moderate gradually in coming years

What is our bond yield model telling us about bond yields **going forward**? The current fair value of the US 10-year yield is 4.55% vs a market value of 3.97%. That is, bonds are almost one standard error expensive, consistent with our medium term bearish view. Going forward, and based on our forecasts for the Fed funds rate to reach 4.25% by year end, the corporate financing gap to slightly rise from the current flat position to a deficit of 0.25%, for the federal government deficit to reach 2.8% and emerging economy current account surplus to slightly fall from 3% to 2.75%, the bond yield implies a fair value of 5.0% for end 2005. For end 2006 our forecasts for 4.5% Fed funds rate, corporate deficit of 0.5%, government deficit of 2.5% and emerging economy current account surplus of 2.5% imply a fair value of 5.10%.

10-year UST to reach 5% by end 2005 and 5.1% by end 2006

Table 7: US commercial bank assets and liabilities to foreigners

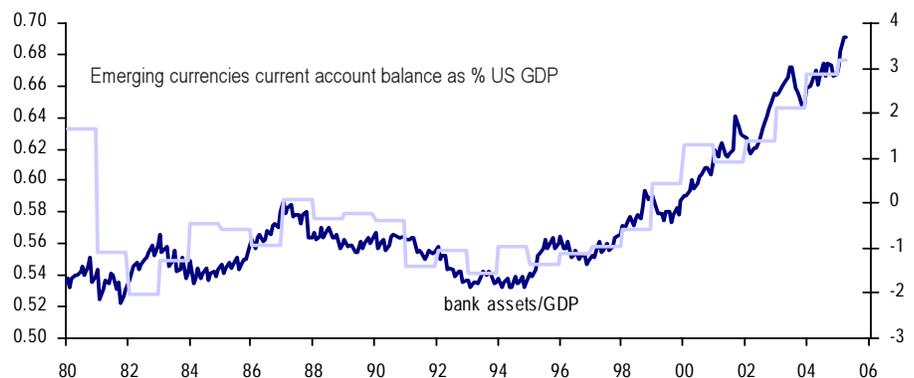
	Jan-May					
	2005	2004	2003	2002	2001	2000
assets	420	660	340	560	250	506
liabilities to foreigners	-35*	497	330	356	120	102

* Jan to Apr

Source: US Treasury International Capital System, Federal Reserve and JPMorgan

Chart 17: Emerging currencies current account balance and US commercial bank assets

% of US GDP, EM includes new industrialized Asian economies



Source: IMF World Economic Outlook, Federal Reserve and JPMorgan

Corporate saving and equities

This leaves our second puzzle: the disappointing return on equities in a world where corporate profits are reaching record highs and where the low competing yield on fixed income ought to pull investors into equities.

Corporate saving has been used mostly to retire debt than equities until 2003 ...

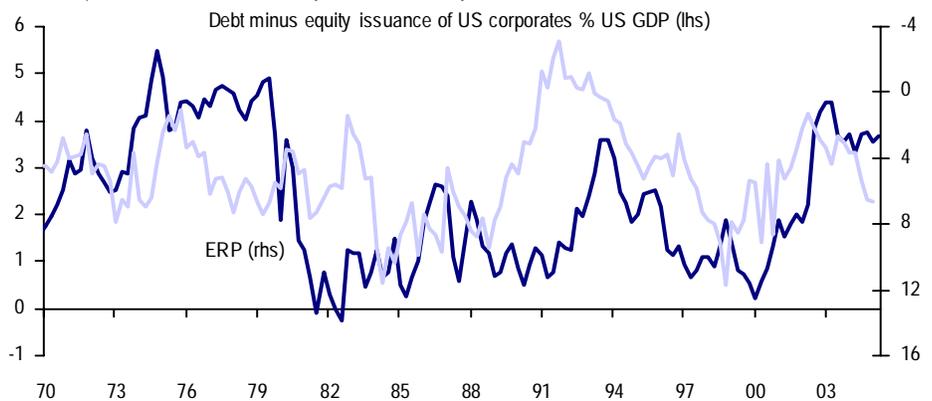
The reason for the underperformance of equities is that (1) the rise in corporate saving has been used more for the retirement of debt than of equities; (2) the rise in emerging economy saving has gone almost exclusively to bonds as most of the emerging economy saving flow has passed through central banks; (3) a fall in bond yields has only a marginal impact on equity yields (per our model);

... hurting equities relative to bonds

Most of the increase in corporate savings since 2000 has gone into repayment of debt as opposed to buy back of shares, adding to the poor performance of equities. Net equity issuance (ex financials) has slightly increased from an average of -\$120bn in 2000 to -\$60bn in 2003, while corporate credit market borrowing (ex financials) decreased from \$560bn in 2000 to \$310bn in 2003. But there has been a shift over the past two years. Net equity issuance decreased by \$100bn between 2003 and 2004, while corporate borrowing increased by \$100bn. This is consistent with the

Chart 18: US corporate borrowing minus equity issuance and S&P 500 Equity Risk Premium

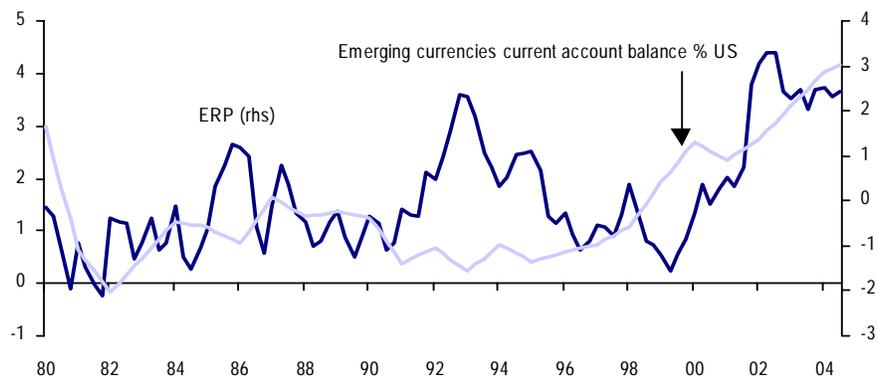
US corporate credit market borrowing and net equity issuance exclude financials, ERP in % is defined as the difference between the model implied Equity Discount Rate for the S&P 500 as derived in the "A Fair Value for US Bonds, Equities and Credit" and the 10-year real US bond yield.



Source: Federal Reserve and JPMorgan

Chart 19: Emerging currencies current account balance and S&P 500 Equity Risk Premium

ERP in %



Source: IMF World Economic Outlook and JPMorgan

fall in the ERP over the past two years as shown in Chart 18. Corporates are finding it increasingly attractive to issue debt and buyback shares because of the funding cost differential (i.e. ERP). Along with our expectation for continuation in corporate re-leveraging, debt issuance should continue to rise relative to equity issuance further supporting the valuation of equities relative to bonds.

Emerging economy saving delivered another blow to equities relative to bonds

The change in emerging economy saving behavior could have had important implications for the relative valuation of bonds vs equities. Central banks are generally conservative investors with a preference for lower-risk fixed income assets, as equities are considered to be too volatile or illiquid to meet their objectives. The simultaneous rise in both the S&P 500 equity risk premium and the emerging economy current account balance since 2000, shown in Chart 19, is consistent with this hypothesis.

But a reversal has started already. Equities should be little affected by a bond selloff

The expected rise in bond yields is likely to have a small impact on equity discount rates. In our model for the S&P 500 (see “*A Fair Value for US Bonds, Equities and Credit*”), the sensitivity of the equity discount rate to the 10-year bond is 0.10. So most of the expected 100bp rise in bond yields should be accommodated by a fall in the equity risk premium.

Corporate saving partly behind past credit spread compression

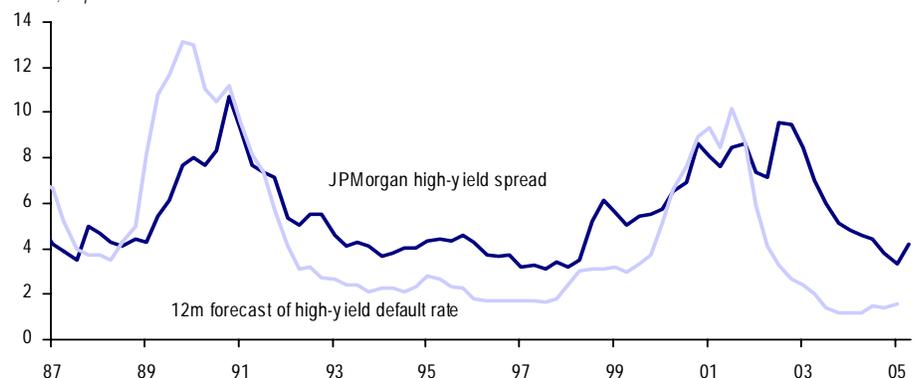
Corporate saving and credit spreads

Apart from its impact on equities, the dramatic increase in corporate saving has had a significant effect on the valuation of the other part of the corporate balance sheet, that is, corporate debt. Credit spreads declined significantly since 2002 (Chart 20) supported by the deleveraging reflected in the reduction of the corporate financing gap. To assess the quantitative impact that the corporate saving glut is having on credit spreads, we make use of the fair-value model that links high-yield credit spreads to measures of corporate leverage (see *A Fair Value for US Bonds, Equities and Credit*).

In this model, the 12-month forecast of the default rate is one of the main determinants of the high-yield spread. As shown in Chart 20, the 12-month forecast of the default rate has fallen since 2001 leading the fall in credit spreads. The expected default rate is a function of the cyclical position of the economy, financial leverage as proxied by interest expense to GDP ratio, and operating leverage as proxied by profit to GDP ratio (a profit margin proxy). More than two thirds of the 9% decline in the

Chart 20: Corporate high-yield spread and 12-month forecast of default rate

in %, the 12-month forecast of the high yield default rate is based on the model described in “*A Fair Value for US Bonds, Equities and Credit*”.



Source: JPMorgan

expected default rate since 2001 (which translates to around 300bp fall in credit spreads) is due to the reduction of financial leverage. As the result of low interest rates and corporate deleveraging, the interest expense to GDP ratio declined from more than 60% of GDP in 2000 to less than 30% in 2004 (Chart 21).

Corporate re-leveraging to modestly hurt credit through next year

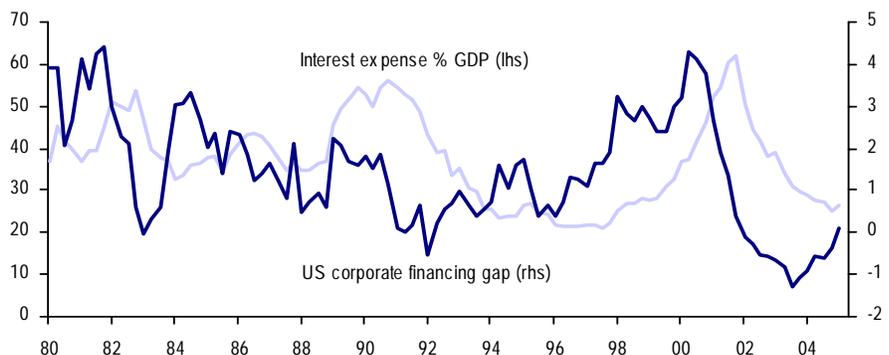
The corporate deleveraging process appears to have been completed in 2004. US corporates have already turned more expansionary in the last two quarters and we expect that corporate re-leveraging will continue at a gradual pace through 2006. As a result the expected default rate will slowly rise from the current 1.7% to 3% by the end of 2006, adding around 40bp to high yield spreads and 8bp to high-grade spreads.

Global saving glut and the dollar

As discussed earlier, even though we find that the global saving glut is dominated by high G6 corporate saving, there is a **significant emerging economy dimension** to the story. Chart 22 details the change in national and regional current account positions between 1997 and 2004. What is clear is that the rise in saving is a phenomenon that is confined neither to true developing countries nor to Asia. Asia certainly represents the biggest counterpart to the decline in US national saving (48%) but the Middle East, Latin America and the CIS group of countries have all posted substantial increases in their national saving/current account positions. Moreover, within Asia there has been a bigger increase in the current account position of developed economies (Korea, Taiwan, Hong Kong and Singapore) than of truly emerging economies within the region.

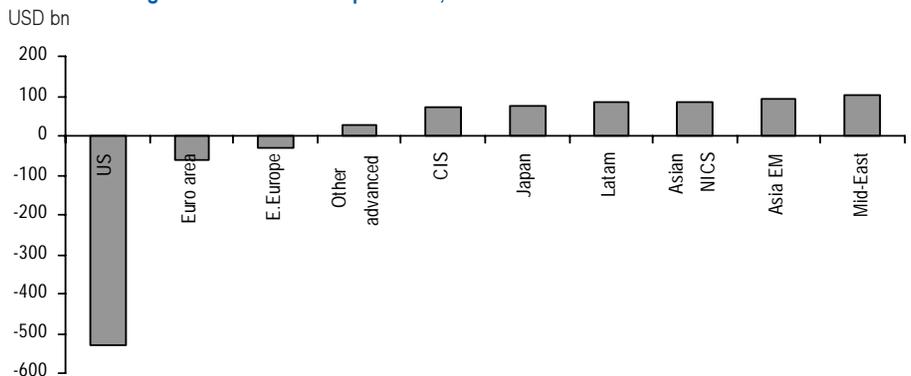
Asia has the lion share of emerging economy saving

Chart 21: US corporate financing gap and interest expense to profits



Source: Federal Reserve and BEA

Chart 22: Change in current account positions, 1997-2004



Source: JPMorgan

Exchange rate pegging in Asia and the resulting reserve accumulation mostly behind the emerging economy saving

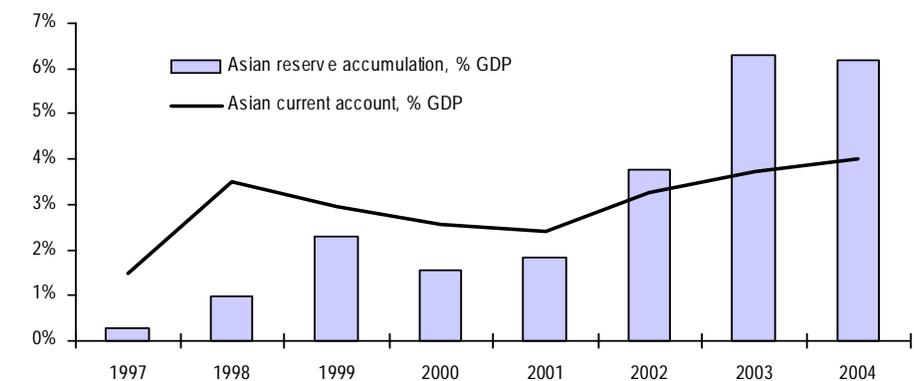
The rise in the US current account deficit is thus more involved than a simple story of rising national saving in the developing world. A more useful categorization from a currency perspective is between those countries where the increase in the current account surplus is in part the direct result of **exchange rate policies** (i.e. Asia) and those countries where the surplus stems from a marked shift in **fiscal policy** (Latin America) or the endogenous consequence of **higher commodity prices** (the Middle East and CIS countries).

With the latter two, it is difficult to argue that the change in national saving has distorted the foreign exchange market, with the currencies of those countries being artificially suppressed and the dollar artificially inflated in order to bring about the necessary deterioration in the US current account deficit (note, for instance, RUB's real effective exchange rate is 20% above its long-term average). With Asia, however, the situation is different, and the growing surpluses in the region do appear to be the result of an **exogenous shift in policy following the Asian currency crisis**, with countries seeking either to reduce their exposure to future financial crises through the accumulation of precautionary FX reserves (which requires those countries to run a larger current account surplus) or to promote export-led growth (where a larger current account surplus is a direct goal of policy). Whatever the motivation, the outcome is the same – a substantial accumulation of FX reserves, artificially undervalued local exchange rates, and an artificially supported dollar. The impact on the dollar from the rise in Asian national saving thus stems not merely from the rise in Asian national saving per se but that this saving has been channelled through the public rather than the private sector, thereby frustrating the exchange rate adjustment mechanism and perpetuating artificially high rates of national saving and large current account surpluses.

Asia central banks are forced to recycle two surpluses

The FX impact of Asian central bank behaviour runs deeper than a simple recycling of Asia's current account surplus. Asia not only runs a large current account surplus (4% of GDP in 2004) but since 2002 it has also been a net importer of private investment capital (some 2.2% of GDP in 2004). As such, the regional central banks are accumulating reserves in order not only to recycle the current account surplus but to recycle a private capital account surplus as well (Chart 23). In 2004 Asian reserve accumulation amounted to 6.2% of GDP compared to a current account of only 4%; for developing Asia the respective figures were 9.2% and 3.3%. In offsetting both the current and capital account pressure for an appreciation in Asian currencies, the support the Asian central banks have provided the dollar significantly exceeds that suggested by the rise in the level of Asian national saving alone.

Chart 23: Asian reserve accumulation significantly exceeds Asia's current account surplus



Source: JPMorgan

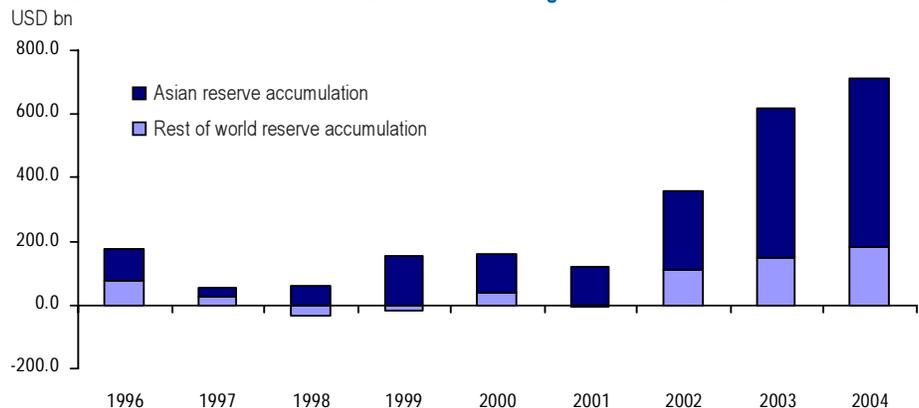
Reserve accumulation kept Asian currencies significantly undervalued relative to long run averages ...

The **dominant contribution of Asian central banks** to global reserve accumulation can be seen in Chart 24 – since 1997 Asian central banks have contributed \$1,725bn to the \$2,173bn increase in global FX reserves. The impact of this on Asian exchange rates is clear from the very significant undervaluation of effective Asian exchange rates from their long-term averages (Chart 25). Once again, this undervaluation stands in contrast to other countries whose current account surpluses have also increased, such as Russia and Brazil, where exchange rates are significantly stronger than their long-term averages.

... preventing a collapse of the dollar in recent years

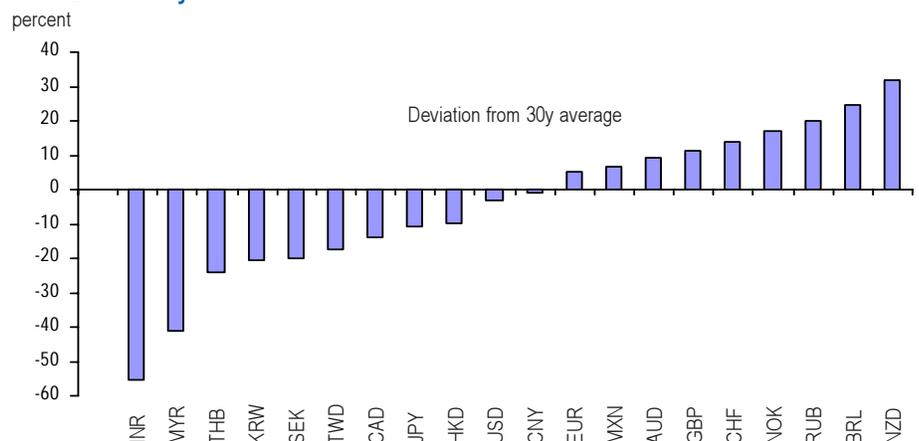
The **impact on the dollar from this reserve accumulation** is harder to gauge, not least because intervention also distorts interest rates and private sector capital flows, themselves determinants of the exchange rate. Nonetheless, from an intuitive perspective, the sheer scale of official financing in recent years points to significant support for the dollar. The scale of official financing for the US current account deficit is understated by the US balance of payments data, as the data under-records certain central bank inflows. A more reliable figure can be obtained from the IMF figures on global FX reserves. For 2003, the latest year for which data are available, official financing stood at 74% of the US deficit, compared to a 47% share recorded by the official US statistics. Data for 2004 is not yet available but taking the figures for the change in global FX reserves and assuming that the dollar share in reserves was constant, we estimate that global central banks bought \$460bn in 2004, financ-

Chart 24: Asian reserve accumulation accounts for 3/4 of global reserve accumulation



Source: JPMorgan

Chart 25: Currency undervaluations concentrated in Asia



Source: JPMorgan

ing some 2/3 of the US deficit. As Chart 26 reveals, the reliance of the US on official inflows has increased materially in the last two years, commensurate with the sharp increase in private capital flows to Asia and the attendant sharp increase in Asian reserve accumulation.

Asia to gradually adopt greater flexibility

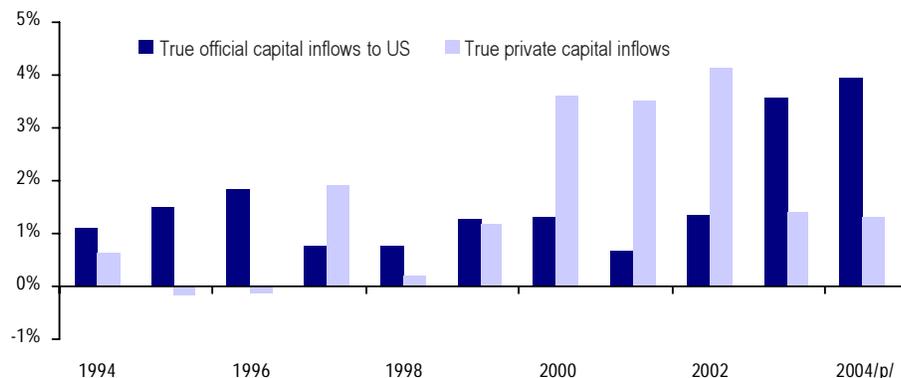
Looking ahead, we expect Asian central banks to slowly accept greater exchange rate flexibility. This is partly to promote more balanced economic development, partly to alleviate the strains on liquidity growth from reserve accumulation, which in the case of China now exceeds 10% of GDP per annum (sterilizing the liquidity impact of intervention becomes harder as reserve accumulation reaches such levels), and partly in recognition of the growing financial risks that central banks are exposed to as a result of significant reserve accumulation (a currency mismatch on their balance sheets).

... but the dollar should weaken only modestly against Asia

A weaker dollar versus Asian currencies is the intuitive, and expected, consequence of such a policy shift. The experience of Japan over the past year, however, cautions that a weaker USD is not the inevitable consequence of such a reduction in intervention. In particular, Japan has not intervened since March 2004, yet over this period the JPY has depreciated by 5% versus the USD and by 3% in trade-weighted terms. The reason is that private capital outflows from Japan increased, in the face of widening US-Japan interest rate differentials, at the same time that the BoJ terminated its dollar buying operation (indeed, arguably, it was the increase in private outflows that persuaded the MOF to suspend intervention). What this illustrates is that the reaction of Asian currencies and the dollar to a relaxation in exchange rate policies will depend upon the timing of this policy shift and whether, at this time, underlying growth and interest rate fundamentals are such that private capital outflows from Asia are liable to increase.

The turn in the general dollar trend provides some warning signals in this regard, as does the possibility of a further relaxation of controls on capital outflows from China. Nonetheless, the overall impact from a relaxation in intervention is expected to be a general, albeit modest, **decline in the USD versus Asian currencies**, reflecting the overall deterioration in the US capital account stemming from the reduction in official inflows to the US. The reduction in official largesse will entail a weaker dollar, necessary in order to reduce the current account deficit to a level consistent with the smaller level of aggregate capital flows (the weaker dollar will, of course, also lead to an increase in private capital flows, such that the adjustment will occur through both the current and capital accounts). Ultimately, exchange rate policies and

Chart 26: Official buying of USD exceeds private buying by almost a factor of 3 in recent years
% GDP



Source: JPMorgan

resultant currency misalignments have sustained an artificially high level of national saving in Asia and an artificially low level of saving in the US. A relaxation in these policies will allow some normalization in this situation, and a weaker dollar than would otherwise prevail is the means by which this adjustment will occur.

However, the move to more flexibility could be more messy ...

The adjustment process sketched out here is the benign, best-case scenario that we currently envisage. The **adjustment process may not be benign**, however. A more volatile scenario could be generated by a **precipitous reduction in Asian financing of the US deficit**, possibly precipitated by the deterioration in trade relations with the US, whereby the US moves to impose penal tariffs on China or other Asian countries deemed guilty of FX manipulation and those countries retaliate by staging a buyers strike in the Treasury market or, in the extreme, engaging in symbolic sales of US assets. The latter we regard as highly unlikely, constituting as it does 'Mutually Assured Financial Destruction' that should effectively deter either party from going down this route. Nonetheless, the heavy reliance of the US on official financing flows renders the dollar vulnerable to any marked deterioration in US-Sino trade relations. In this regard, the progress of the Schumer bill (which envisages tariffs on Chinese imports to secure a CNY revaluation) bears close scrutiny.

... bringing forward US current account sustainability issues

A slower-burning but ultimately still more volatile currency adjustment scenario involves a **loss of confidence** amongst private investors following an unchecked increase in foreign claims on the US. Debt-sustainability represents a longer-term constraint on the ability of the US to run current account deficits of 6-7% of GDP into the foreseeable future. At some point, the level of foreign indebtedness will call into question the ability of the US to service and to repay the debt. The constraint is clearly less binding for the US than for any other country since the US borrows in its own currency and a currency devaluation, rather than increasing net foreign debt as it would for other countries that borrow in foreign currency, actually reduces net foreign liabilities. Nonetheless, the longer that the US builds up its net foreign liabilities at the current rate, the greater the risk that at some point confidence in the dollar as a reserve currency and as a store of value will decline. We are some years away from this point yet; nonetheless, this represents the ultimate check on the ability of policymakers to sustain the current 'Bretton-Woods II' arrangement.

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