# **Global Viewpoint**

Issue No: 10/17 July 14, 2010

Goldman Sachs Global Economics, Commodities and Strategy Research at https://360.gs.com

# Declining US Activity and European Fiscal Risk Premia

Thomas Stolper thomas.stolper@gs.com +44 (0)20 7774 5183

Robin Brooks robin.brooks@gs.com +1 (212) 902 8763

Mark Tan mark.tan@gs.com +1 (212) 357 7621

Themistoklis M. Fiotakis themistoklis.fiotakis@gs.com +44 (0)20 7552 2901

Fiona Lake fiona.lake@gs.com +852 2978-6088

Swarnali Ahmed swarnali.ahmed@gs.com +44 (0)20 7051 4009

Roman Maranets roman.maranets@gs.com +1 (212) 357-6107

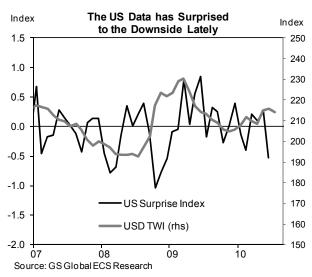
Weaker US growth, reasonably solid Euro-zone macro data and less political/fiscal disruptions than feared have been a feature of the past few weeks, and have motivated another forecast change to reflect more broad USD weakness than before. We now project EUR/\$ at 1.35 and 1.38 in 6 and 12 months to reflect the fundamental outlook. However, it is too early to sound the 'all clear' on the Euro in the near term as political stress could intensify again. Many European governments are still facing low approval ratings and the post-holiday period may be critical. We therefore keep the 3-month forecast at 1.22. Projected Yen strength is linked to US rate differentials and a reduced likelihood of Japanese interventions in light of the new managed \$/CNY float. Our new \$/JPY forecasts stand at 85, 83 and 90. We also discuss the impact of Renminbi appreciation in more detail. Lastly, developments in Europe and Switzerland suggest EUR/CHF can continue to depreciate, despite the move already seen. Our new forecasts see a temporary move below 1.30.

# 1. What Has Changed Since the Last FX Monthly?

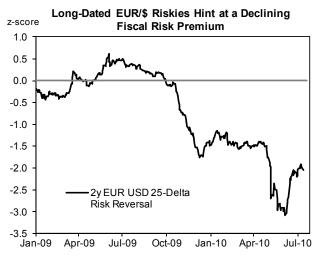
After earlier surprises to the upside relative to our bearish US views, macro data has recently weakened in the US. This has been notable on a number of fronts, including weaker business sentiment, slowing demand numbers (including consumer-related) and a renewed weakening in housing-related sectors. Our US Surprise index suggests that recent macro data has provided the largest negative surprises since late 2008. In turn, this weaker macro picture has translated into a significant rally in US fixed income and underperformance of US stock indices relative to overseas markets. Although it has taken a bit longer to materialise than we initially thought, our

core US growth scenario suggests this weakening in US activity is the beginning of a period of sub-trend growth, spanning about four quarters until the second half of 2011.

The second development is that European data has remained resilient and outperformed consensus expectations. On the basis of incoming data, we estimate that Q2 growth will be close to +0.9%qoq non-annualised, whereas consensus estimates still hover slightly below +0.6%. Moreover, there is generally little evidence that business or consumer sentiment have been affected by the fiscal/political stress in the Euro-zone in the months of May and June.







Source: GS Global ECS Research

The third, and possibly most important, development is that a number of potentially negative political and fiscal event risks did not materialise. In particular, Spain managed to refinance a sizeable chunk of maturing debt without much sign of funding stress. Also, the ECB has reduced the volumes of regular purchases of sovereign bonds in the secondary market. The maturing 1-year ECB funding operation was rolled into shorter maturities without much problem and the uptake was a lot smaller than feared. In addition, the markets shrugged off concerns about the German Presidential vote, which damaged Chancellor Merkel's coalition government when her candidate almost failed to win. And there have been unexpected positive events as well. The EU is in the process of conducting a series of banking-sector stress tests. The tests, which apparently include sizeable haircut scenarios for sovereign debt, are scheduled to be made public on July 23. Only a few weeks back, there were doubts that the results would be made public at all. Even Greece has successfully tapped the debt markets in recent days.

In the past we have linked the fiscal/political risk premium to large speculative short EUR/\$ positions and it doesn't surprise that relaxation in this area has translated into a notable decline in speculative shorts already. The

chart at the top of this page illustrates how long-dated risk reversals have come off the extreme skews in June.

Resilient Euro-zone growth, a notable US slowdown and gradual reduction of the fiscal risk premium in the Euro-zone have been at the core of our views throughout the year, although we have been uncertain about the exact timing. In particular, we have linked the large fiscal risk premium to rather extreme speculative short positions in EUR/\$, which are already starting to show signs of normalisation.

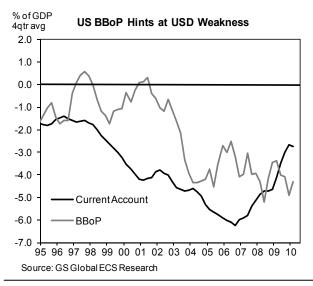
This rapid normalisation has surprised us, as we had only recently concluded that political risks may last a lot longer. We reached our previous 'bullish' 12-month target of 1.25 in the June edition of this publication, within weeks after changing our forecasts.

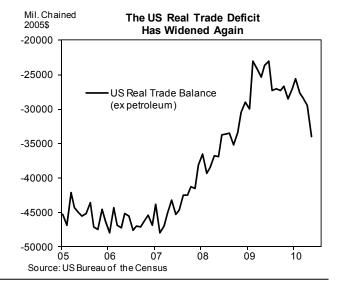
In the next sections we briefly review the arguments made in previous *FX Monthlies* on why we think EUR/\$ will ultimately go up again. We also present some calculations to quantify the fiscal risk premium more precisely and discuss why we think the 'real' EUR/\$ rebound may not have started yet.

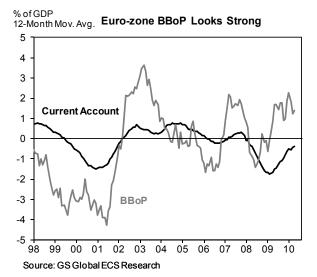
# 2. Recap of EUR/\$ Fundamentals

We have long highlighted that the key fundamental factors in our analytical toolbox continue to point to a stronger EUR/\$. These include a BBoP surplus in the Euro-zone and a BBoP deficit in the US. We have seen a renewed widening of the real US goods deficit expetroleum, which could increase the external funding pressures at a time when capital flows may weaken even more in response to weaker US growth.

Sticking with balance of payment dynamics, the evidence we have so far suggests that very little capital has been pulled out of the Euro-zone during the crisis. This includes portfolio flows for April and now also for May (from Japan), where there is little sign of outright repatriation from the Euro-zone, in part because foreign investors are shifting away from periphery to core assets within the Euro-zone, suggesting that the FX implications are limited.





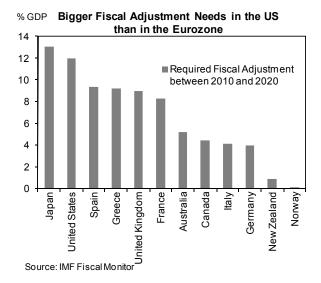


Moreover, during the whole first Euro leg down in January and February, we find little evidence of asset allocation shifts out of Europe, despite the ongoing concerns about Greece. This broad picture is also supported by the fact that the latest IMF COFER data on FX reserves indicates no notable shift out of EUR reserve holdings during the first quarter.

We have already mentioned our relative growth forecasts, which look very similar for the US and Euro-zone on a qoq basis for the next couple of quarters. However, if we take into account that US trend growth tends to be about 1% faster than Euro-zone trend growth, it is clear that the output gap dynamics are more supportive of the EUR. Europe's export industry is probably better geared to benefit from the strong growth in developing countries, due to its larger market share in investment goods.

There is still a lot of scepticism as to how much the Eurozone can grow at all given the fiscal contraction taking place in a number of Euro-zone countries. Our calculations suggest that at the peak of fiscal tightening in 2011 the negative impact on Euro-zone growth as a whole is highly unlikely to exceed 1% of GDP. This is mainly due to the fact that the countries with the biggest adjustment needs only account for about 18% of Eurozone GDP. Heavyweight Germany and also Italy need to do fairly little in terms of fiscal tightening. We have discussed this in previous Monthlies and separate calculations by our European team support our conclusions. It is also important to remember that a negative fiscal growth impact in 2011 of less than 1% is not that dramatic given the trend growth rate in the Eurozone is in the 2.0%-2.5% area. Worries about a fiscallyinduced recession appear exaggerated.

It is important to realise that a number of international comparisons suggest that the US is fiscally on a more threatening trajectory than most Euro-zone countries and certainly than the Euro-zone average. This issue will likely gain in importance as perceptions of the US growth outlook deteriorate. The next chart illustrates just one of



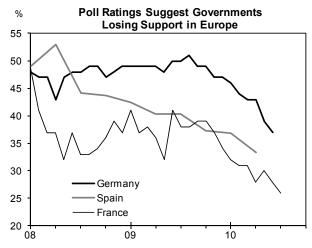
many cross-country comparisons of fiscal adjustment needs taken from the latest *IMF Fiscal Monitor*. It highlights that US deficits would need to be reduced by much more than those in the Euro-zone.

That said, the key issue in Europe has never been the scale of fiscal adjustment needs alone. It has much more to do with the ability to coordinate policies across the Euro-zone, and act decisively and quickly when necessary. This leads us to the next point about the timing of the expected EUR/\$ recovery.

#### 3. Are We There Yet?

Last month we highlighted that the adverse political events that led to the build-up of the large risk premium in the Euro were partly the result of unpopular governments being forced to implement unpopular policies to alleviate market concerns. One example was the surprise short-selling ban imposed by the German government.

However, many of the potentially negative events have not actually materialised over the last month or so, as we have highlighted in Section 1. above. This may be due partly to the fact that economic activity remained quite strong and hence worries about the political outlook were muted by the evidence of resilient growth. This is an endogenous dynamic that we highlighted last month as a mechanism to help reduce political pressures going forward. Moreover, it is also becoming clearer that in response to the fiscal crisis large parts of Europe's population consider fiscal consolidation a policy priority and, potentially, a positive development. A survey commissioned by the *Financial Times*, and published this week, suggests that 61%-84% of respondents (depending on the Euro-zone country) consider public spending cuts as "helpful" for the economy. Compared with our more pessimistic views last month, it therefore now seems likely that political stress will remain less pronounced than feared and that the EUR/\$ rebound can occur sooner rather than later.



Source: Infratest Dimap (Germany), CIS (Spain), TNS-Sofres (France).

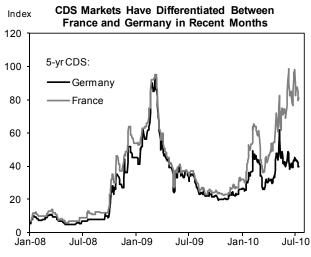
On the other hand, it seems too early to sound the 'all clear' on political stress in the Euro-zone. Many governments have faced new lows in terms of their popularity ratings (see chart above). And the fact that there have been no negative events last month does not necessarily mean there won't be any in the future. We also remain concerned about the post-holiday period from September onwards. French trade unions have already announced a strike for September 7 to demonstrate against an unpopular pension reform, which will take place in a climate of scepticism towards a government. It is notable that France is the only large Euro-zone country that has not yet announced a credible program to reduce the large budget deficit and rapidly growing debt levels. Markets have not fully focused on these issues as yet, although CDS spreads have increasingly differentiated between France and Germany in recent months (see chart above).

South of the Pyrenees, the current government in Spain may have to call early elections if the budget negotiations for 2011 fail in the autumn, which is looking possible given the current political approval ratings.

A third identifiable risk relates to the recapitalisation of banks after the stress tests. In particular, it will be interesting to see how markets react if Spain's FROB needs to tap markets to raise funds to recapitalise the regional savings banks.

Other negative but unpredictable political events could still develop, including in Germany, where the current government remains very unpopular and where the coalition parties struggle to find common political ground. We may need a few more months with strong activity data before we are willing to sound the all clear on European fiscal issues.

Overall, we therefore prefer to remain cautious on a 3-month horizon and can envisage EUR/\$ falling all the way back to 1.22 as one or more political risks materialise. That said, we feel fairly comfortable about assuming that on a 6-



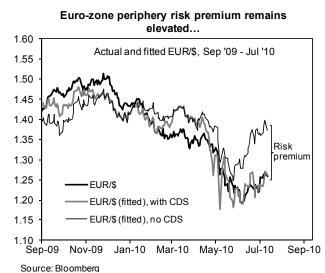
Source: GS Global ECS Research

to 12-month horizon most of the political stresses will have passed, the stability of fiscal trajectories will inspire more confidence, Euro-zone growth will remain resilient, and worries about growth and the fiscal trajectory in the US will become an increasingly prominent market focus. At that stage, the EUR will likely rally.

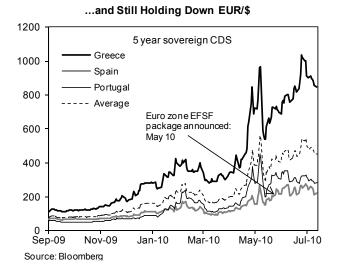
Should the political event risks not materialise, for example in the form of muted French demonstrations, then we may not actually revisit the 1.22 level. We also note that the key political parties in Spain, opposition and government, are all in favour of continued structural reforms. No doubt the tension between growth and balance of payment fundamentals on one side and fiscal/political factors on the other has been and remains a tricky balance to navigate.

#### 4. The EUR/\$ Risk Premium

In this section, we discuss the elevated risk premium on Euro-area assets, which emerged as a major factor for EUR/\$ between mid-April and early June, and was the principal reason for the downward revision to our EUR/\$ forecast last month. We have used a number of approaches to assess this, including speculative positioning measures and the price for out-of-the-money



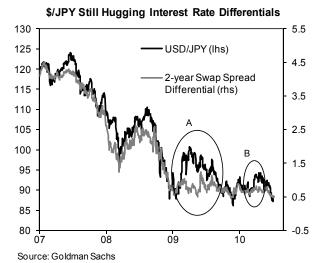
lssue No: 10/17 4 July 14, 2010



EUR puts vs calls (aka risk reversals). Here, we run a simple exercise to help us decompose the most recent EUR move to various drivers, and calculate the risk premium the EUR has recently built.

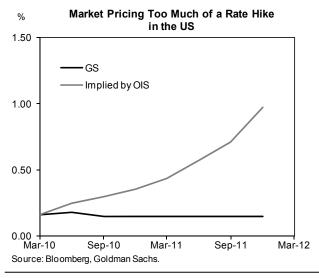
We run a simple regression model that links EUR/\$ to four sets of fundamentals: (i) the relative cyclical outlook in the US and the Euro-zone, for which we use the 2y swap rate differential as a proxy; (ii) the relative terms of trade of the US and Euro-zone, for which we use oil prices as a simplified measure; (iii) global risk appetite, which we control for by using the VIX index; and (iv) the Euro-zone risk premium, for which we use the average 5y CDS spread of Euro-zone periphery countries as a proxy (see chart above).

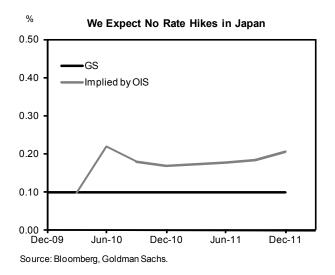
This last component—our proxy for the Euro-zone risk premium—rose sharply between mid-April and early June, and by itself accounts for much of the fall in EUR/\$ from 1.35 to 1.20 over that period, as highlighted in the chart on the previous page. Since early June, this Euro-zone risk premium has fallen only very slightly from its peak levels, with much of the move higher in EUR/\$ from its trough in early June accounted for by a cyclical rerating of US growth lower and Euro-zone growth higher



(from previously unrealistically depressed levels), as we highlighted in our *Global Markets Daily* on July 6. As our view of European policy measures is fundamentally positive—we think the EFSF will ultimately provide an adequate safety net for sovereigns on the Euro-zone periphery and that the banking stress tests to be unveiled on July 23 will eventually help the European interbank market to become unglued—there is scope for this risk premium to fall on a 12-month horizon.

To quantify the impact that a decline—or even an elimination—of the risk premium could have on EUR/\$, we re-estimate our model without our proxy for the Eurozone risk premium. In the absence of this factor, EUR/\$ would be trading around 1.38 currently. Relative to our fitted value, which includes periphery CDS spreads, this suggests that the Euro-zone risk premium could currently amount to as much as 12 big figures. This underscores the potential for further EUR/\$ strength as the cumulative effect of recent and prospective policy measures takes hold. On a 6- to 12-month horizon, we therefore see a substantial reduction in the Euro-zone risk premium as a key element of our EUR/\$ forecast of 1.35 and 1.38, respectively.





# 5. Heading Towards a Stronger Yen

The \$/JPY cross has continued to disappoint those looking for a much weaker Yen on the basis that the Japanese economy would not be able to weather the global crisis without a weaker Yen, and that the Fed would be quicker to deliver rate hikes than has actually been the case. In the event, the Japanese economy has been able to recover much more quickly than expected, helped by strong exports to the rest of Asia (particularly China) and a sizeable fiscal stimulus. On the other side of the equation, the Fed has remained on hold on the back of continued evidence of excess capacity in the US economy through unemployment levels still just shy of 10% and with core inflation at 44-year lows.

This translates into a continued strong relationship between \$/JPY and US-Japanese rate differentials. There have been times over the past 18 months when that relationship has not held as tightly as highlighted in the chart on the previous page. Circle A represents the point in time when significant unwinding of long Yen positions occurred in early 2009, when the macro data highlighted how much the Japanese economy suffered as a result of the crisis. And Circle B represents the period when Japanese investors were reported to lower their hedge ratios, that is, at the beginning of the current fiscal year in Japan. With \$/JPY back below 90—the level below which policymakers were thought not to tolerate anecdotal evidence suggests hedging programs have been stepped up again and the link has been re-established. Many interest rate differentials can be used to benchmark where \$/JPY 'should' be trading; however, both the 2-yr swap spread and year-ahead expectations for US rates suggest \$/JPY should be trading around 87.

With a US slowdown expected in the second half of the year and potential downside risks to the outlook for 2011, we do not expect the Fed to hike rates this year or next. As the latest *Bond Snapshot* from our Fixed Income Team illustrates, the market is still pricing in too much for US rates through end-2011 and as this is re-priced lower, it will likely push \$/JPY lower as well.

That said, other forces are at work. The press has recently contained a smattering of stories suggesting reserve

Size of Major Government Bond Markets

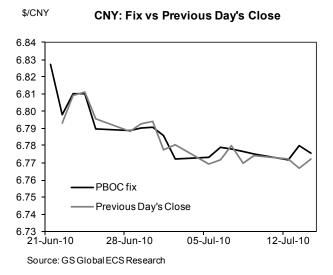
	US\$bn				
US	5050.0				
Japan	6094.4				
Euroland	4988.7				
Australia	94.0				
Canada	306.7				
Sweden	65.5				
Norway	26.6				
New Zealand	26.5				
Denmark	87.6				

Source: EFFAS & Bloomberg

diversification into the Yen. True, Japan's balance of payments data does indicate rather strong Chinese purchases of Japanese money market instruments. However, this flow is dwarfed by similar flows from other countries, so the broader issue of foreign buying of Japanese fixed income is not new. Nevertheless, Japan benefits from a large and liquid bond market, which is potentially able to absorb a greater share of the world's reserves in contrast to the likes of Australia, New Zealand or Canada, which have also reportedly seen reserve diversification flows but do not have deep enough bond markets to absorb significant volumes. If the Yen does benefit from increasing reserve diversification, it may well cause \$/JPY to decouple from rate differentials to the downside.

The perennial question in all this is intervention. The Japanese intervened heavily in \$/JPY until March 2004 to prevent Yen strength but had not done so since. Instead, the default reaction function has been to complain verbally about Yen strength on the back of any 2% intraday move in \$/JPY. This has also been the case under the new DPJ administration, as demonstrated last November when \$/JPY fell to 85 on the back of risk aversion and thin liquidity (although rate differentials suggested that it 'should' have been around 85 anyway). We expect this reaction function to continue—namely, that any sharp move in \$/JPY would generate verbal intervention. That said, the administration is probably still a long way from actual intervention, given the institutional desire implicit in, for example, the G20 statements to move away from non-market methods to control exchange rates. Intervention by the Japanese authorities could possibly trigger frictions with the US administration, which is currently heavily promoting exchange rate flexibility in Asia to support the case of further CNY appreciation. Thus, we do not expect the administration to actively prevent Yen appreciation for the time being.

Besides the direct intervention issue, there is the question of whether or not the Japanese government will manage to persuade the BoJ to undertake more monetary easing in some shape or form. There is a section of Japan's political class that argues for the BoJ to take a firmer stand against deflation, including buying more JGBs. However, the BoJ remains reluctant to go down that route, not least because the Bank has a fairly optimistic view of the Japanese economy and indeed forecasts a return to inflation by FY2011. The forecast on inflation stems from the fact that the BoJ considers trend growth in Japan to be 0.5%. While this is a rather low number, it means that Japan is growing eight times faster than trend and that, consequently, the BoJ thinks the output gap in Japan could close rather quickly. Thus, while the Bank expects a return to inflation, it will be very reluctant to engage in more JGB purchases. In addition, further JGB purchases by the BoJ (they already purchase \{21.6\text{trn a year}\) may turn the spotlight on Japan's fiscal situation, which does not stack up well compared with elsewhere.

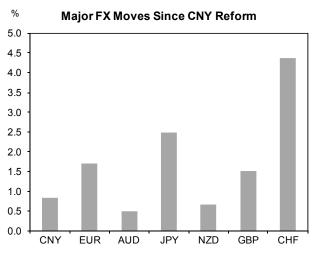


Taking all these factors together, we think there is scope for the Yen to appreciate from here and we now forecast the cross at 85, 83 and 90 vs the Dollar in 3, 6 and 12 months. The forecast of \$/\mathbb{\pmath}\$ 90 in 12 months gives a nod to the fact that the Yen is notably overvalued according to GSDEER, and we expect this overvaluation to be eroded on a longer-term horizon. In fact, the current and increased Yen strength may well be the trigger for Yen weakness later, through slowing export demand, a narrowing trade surplus and less investment demand.

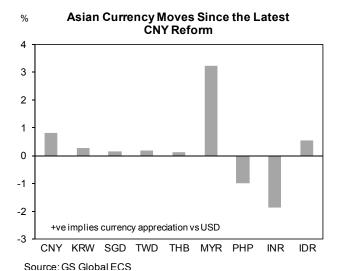
### 6. The Next Stage of CNY Reform

The Chinese administration announced further reform of the CNY exchange rate and an enhancement of the flexibility of the currency on June 19. The details of the reform emphasised that the CNY would continue to reflect market demand and supply, and that flexibility would be increased. The statement reiterated that the bands around the CNY fix would remain the same at +/-0.5%. In addition, with the BoP account moving closer to equilibrium, the statement noted that the basis for large-scale appreciation of the RMB does not exist.

Despite the different interpretations of the latest reform, in the intervening period since the announcement the



Source: GS Global Markets Research



CNY has moved back to a crawling peg arrangement—albeit with more intraday flexibility than allowed under the previous crawling peg period. The reform so far has panned out in line with our prior expectations.

While there is no rule in place to ensure that the fix reflects the previous day's close, there has been a reasonable relationship so far, except on July 13 when the fix was notably higher than the previous day's close. Using the fix as a guide, the CNY has appreciated by 0.8% vs the Dollar since June 21 and we expect a total 4.4% appreciation over the next 12 months to a level of \$/CNY 6.49. This compares with 1-yr \$/CNY NDFs, which are pricing in just 1.8% at the time of writing.

Over time we think the CNY will be managed more closely against a basket of currencies. However, so far it still appears to be the case that \$/CNY matters most. In a *Global Viewpoint* published just after the FX reform, we calculated the Trade Weighted Index (TWI) that the CNY might be managed against, which includes China's largest trading partners. To date, this TWI does not have an obvious direction but we are in the early days of the next stage of CNY reform and we have argued that if the Chinese do move towards trade-weighted management, the actual mechanics would not be particularly transparent. We will continue to watch this closely to see if trends emerge.

Asian currencies are broadly stronger since the start of the latest round of CNY reform. However, only the MYR has seen a notable move, whereas the rest of the region's currencies have appreciated less versus the Dollar than the CNY, and the PHP and INR are actually weaker over this period. One factor that has driven this move has likely been the fears over slower China and US activity, which have weighed on regional markets and which is not particularly positive for the high beta plays, such as the KRW and the TWD (even if the latter is more heavily managed). Risk sentiment may continue to weigh on Asian FX in the short run. That said, we expect China to ease policy to reignite growth going into Q4 (or possibly

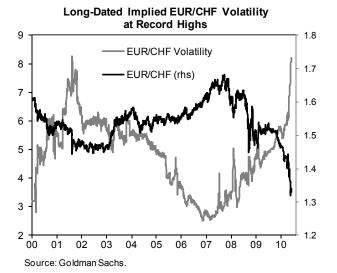
earlier), and that would be positive for Asian currencies. Continued CNY strength would also provide room for Asian currencies to appreciate, as we have pointed out throughout this year.

The major currencies have all appreciated alongside the CNY, but it is not clear that CNY reform was the catalyst for the move. Coinciding with CNY reform have been renewed fears over a US growth slowdown and this has put the Dollar on the back foot, helping to drive the Dollar weaker on a TWI basis. Indeed, the Dollar TWI weakness started ahead of the CNY move. Before the change to the Chinese FX regime we argued that broader factors would drive major currencies rather than CNY appreciation, and that appears to have been the case thus far.

#### 7. Our Revised EUR/CHF Forecast

The EUR/CHF cross has been on of the main shock absorbers during the crisis in the Euro-zone. We calculate that interventions by the SNB in the month of May amounted to around \$80bn, very large relative to the size of the economy (around 80% of base money). Although data on the nature of capital flows that drove this spike in reserve accumulation is not vet available, it is likely that safe-haven flows from the Euro-zone—especially after the May 10 Euro-zone rescue package failed to calm markets-drove much of this. In response to the overaccumulation of reserves, and given signs of strong resilience in the Swiss export sector, the SNB has recently accepted notably more CHF appreciation. Longdated options market indicators suggest this change in intervention stance may have led to the accelerated unwinding of CHF funding structures (see chart below).

Given that we expect continued near-term noise out of the Euro-zone (as illustrated by our 3-month EUR/\$ forecast and potential further pressures to unwind old CHF funding structures), we expect EUR/CHF to go notably lower (to 1.27) on a 3-month horizon. However, as the cumulative impact from Euro-zone policy measures is felt, we expect the Euro-zone risk premium to fall, as argued in Sections 1 to 4. On this basis, we expect some



**New FX Forecasts** 

	New Forecasts			Old Forecasts		
	3m	6m	12m	3m	6m	12m
EUR/\$	1.22	1.35	1.38	1.15	1.15	1.25
GBP/\$*	1.45	1.61	1.64	1.37	1.37	1.49
\$/JPY	85	83	90	92	94	98
EUR/PLN	4.05	3.90	3.77	4.05	3.95	3.80
EUR/CHF	1.27	1.30	1.33	1.35	1.35	1.40
EUR/CZK	25.00	25.00	24.80	26.00	25.50	25.00
EUR/HUF	275	270	270	275	275	270
\$/ZAR	7.80	7.50	6.90	7.50	7.50	7.30
\$/RUB	30.50	29.50	27.50	32.00	30.50	28.50
\$/COP	1900	1950	2000	2000	2050	2150
\$/PEN	2.80	2.80	2.85	2.90	2.95	2.95
\$/MYR	3.10	3.05	3.00	3.15	3.10	3.05
\$/SGD	1.36	1.33	1.31	1.38	1.36	1.34
\$/THB	32.00	31.20	31.00	32.20	32.00	31.30
\$/TRY	1.58	1.43	1.40	1.65	1.60	1.45
\$/EGP	5.80	5.50	5.60	5.80	5.70	5.40
\$/ILS	3.90	3.60	3.50	3.95	3.84	3.60
\$/INR	47.50	44.00	43.00	47.50	46.00	44.50

\*We have not changed EUR/GBP. Change in GBP/\$ reflects change in our EUR/\$ forecasts.

of the safe-haven support that has driven EUR/CHF lower to reverse, and hence see EUR/CHF at 1.30 and 1.33 in 6 and 12 months, respectively.

Although the principal driver of this forecast is our take on safe-haven flows, it is also true that excessive CHF strength would hurt Swiss economic growth. We estimate that the appreciation year-to-date brings growth for the year roughly in line with the SNB's forecast of 2%. Implicitly, our FX forecast also reflects the fact that additional CHF strength from here on would undermine economic growth, which would then trigger some correction of the overshoot. Therefore, we see EUR/CHF at 1.27, 1.30 and 1.33 on a 3-, 6- and 12-month horizon.

## 8. Other Forecast Changes

Apart from EUR/\$, \$/JPY and EUR/CHF, we have also revised other currencies, mostly to reflect our new EUR/\$ path. The full list of forecast revisions appears in the table above.

We, Thomas Stolper, Robin Brooks, Mark Tan, Themistoklis M. Fiotakis, Fiona Lake, Swarnali Ahmed and Roman Maranets, hereby certify that all of the views expressed in this report accurately reflect personal views, which have not been influenced by considerations of the firm's business or client relationships.

#### Global product; distributing entities

The Global Investment Research Division of Goldman Sachs produces and distributes research products for clients of Goldman Sachs, and pursuant to certain contractual arrangements, on a global basis. Analysts based in Goldman Sachs offices around the world produce equity research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs in Canada by Goldman Sachs. (ABN 21 006 797 897) on behalf of Goldman Sachs in Canada by Goldman Sachs & Co. (all other research); in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs apan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs JBWere (NZ) Limited on behalf of Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman Sachs & Co. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom and European Union.

European Union: Goldman Sachs International, authorised and regulated by the Financial Services Authority, has approved this research in connection with its distribution in the European Union and United Kingdom; Goldman, Sachs & Co. oHG, regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht, may also distribute research in Germany.

#### General disclosures

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst's judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by our Global Investment Research Division. SIPC: Goldman, Sachs & Co., the United States broker dealer, is a member of SIPC (http://www.sipc.org).

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and our proprietary trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, our proprietary trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

We and our affiliates, officers, directors, and employees, excluding equity and credit analysts, will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors should review current options disclosure documents which are available from Goldman Sachs sales representatives or at <a href="http://www.theocc.com/publications/risks/riskchap1.jsp">https://www.theocc.com/publications/risks/riskchap1.jsp</a>. Transactions cost may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For all research available on a particular stock, please contact your sales representative or go to www.360.gs.com.

Disclosure information is also available at http://www.gs.com/research/hedge.html or from Research Compliance, 200 West Street, New York, NY 10282.

No part of this material may be (i) copied, photocopied or duplicated in any form by any means or (ii) redistributed without the prior written consent of The Goldman Sachs Group, Inc. © Copyright 2010, The Goldman Sachs Group, Inc. All Rights Reserved.