Peter Hördahl
+41 61 280 8434
peter.hoerdahl@bis.org

Patrick McGuire
+41 61 280 8921
patrick.mcguire@bis.org

Overview: markets rally until late February[1]

Prices of risky assets rallied between end-November and late February as the outlook for economic growth appeared to improve, while implied volatilities remained near record lows. In this environment, yields rose in major government bond markets, and perceptions grew among investors that monetary policy might turn out to be tighter in the foreseeable future than previously expected. In the United States, data releases indicated surprising strength in the economy, in particular during the first half of the period under review, leading to subsiding expectations among investors of a near-term lowering of policy rates by the Federal Reserve.

Corporate profitability and the ongoing strength of merger and acquisition (M&A) activity contributed to rallies in global equity markets. At the same time, spreads on risky corporate debt fell to all-time lows during the period, reflecting strong investor risk appetite, sound corporate balance sheets and surprisingly low default rates, particularly for higher-yielding credits. Spreads in some collateralised debt obligation (CDO) markets, mainly those centred on the housing sector in the United States, widened significantly over the past two months, possibly foreshadowing a broader turn in the credit cycle in the months to come.

As in high-yield credit markets in advanced economies, spreads on emerging market debt hit historical lows in the first two months of 2007, while equity prices continued to increase. Local events affected some individual countries negatively, but seemed to have little overall effect on investors' perceptions of emerging asset markets up until the last week of February. Instead, investors were largely anticipating continued strength in emerging economies in general, as well as an improving outlook for the US economy. The strong appetite for risk among investors is likely to have been another important factor behind asset price developments in emerging markets during the period under review.

Bond yields rise on strong economic data

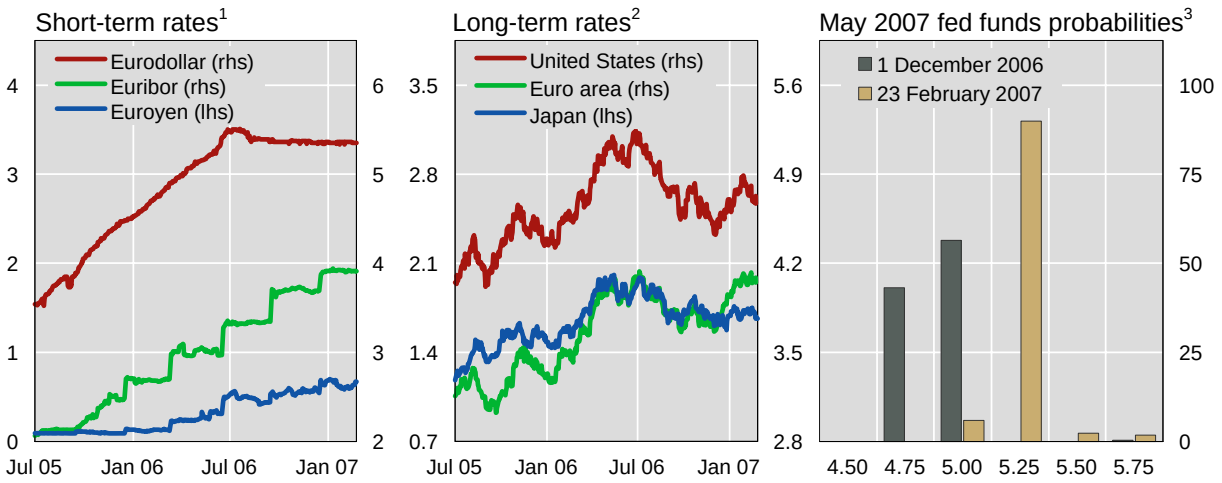
Yields on government bonds rise ...

Government bond yields in major industrialised economies rose towards the end of 2006 and in early 2007. After having reached its lowest level in almost a

[1] The period covered in this Overview is from end-November 2006 to 23 February 2007.

Interest rates

In per cent



[1] Three-month rates. [2] Ten-year government bond yields; for the euro area, German bund. [3] Implied risk neutral probabilities for the fed funds rate following the 9 May 2007 FOMC meeting, as implied by prices of options contracts on fed funds futures on the dates indicated in the graph. The probabilities are backed out along the lines suggested by J Carlson, B Craig and W Melick, "Recovering market expectations of FOMC rate changes with options on federal funds futures", *Federal Reserve Bank of Cleveland Working Paper*, 05-07, July 2005.

Sources: Bloomberg; BIS calculations. Graph 1

year at the start of December 2006, the 10-year US Treasury bond yield subsequently increased by almost 50 basis points to 4.90% at the end of January, before retreating to around 4.70% by late February (Graph 1, centre panel). In the euro area, long-term bond yields followed suit, with the 10-year German bund yield rising almost 40 basis points to 4.05%. Yields also edged up in Japan, but by substantially less than in Europe and the United States. By late February, the Japanese 10-year bond yield stood at just below 1.70%, less than 10 basis points higher than at the start of December last year. Short-term money market interest rates remained steady in the United States, reflecting the unchanged monetary policy stance of the Federal Reserve, while they rose in the euro area and Japan, where policy rates were tightened (Graph 1, left-hand panel).

... as expectations of a "certain" Fed rate cut evaporate

A factor contributing to the rise in bond yields, particularly in the United States and to some extent in Europe, was a growing perception among investors that monetary policy might turn out to be tighter than previously expected. At the beginning of December, prices on federal funds futures options suggested that markets considered a 25 basis point rate cut by the Federal Reserve a near certainty in the first five months of 2007, and that the probability of two 25 basis point cuts during that period was high (Graph 1, right-hand panel). However, by late February, the options market suggested that an easing of policy rates by May 2007 was almost fully ruled out, with the probability of no change standing at 90%. Moreover, a pronounced upward shift in the entire fed funds futures curve indicated that the odds for a rate cut in the second half of the year had fallen considerably (Graph 2, left-hand panel). The market's assessment that policy rates would remain steady for some time was reinforced by the FOMC statement on 31 January and the

Federal Reserve Chairman's testimony to Congress two weeks later, which acknowledged that economic growth was firmer, but which also pointed to improving core inflation figures. In the euro area, the ECB delivered an expected 25 basis point rate hike on 7 December, and left policy rates unchanged in January and February. Developments in the EONIA forward rate curve suggested that by late February markets expected monetary policy in the euro area to be tightened more in the course of 2007 than had been anticipated in November 2006 (Graph 2, centre panel).

The Bank of England surprises markets …

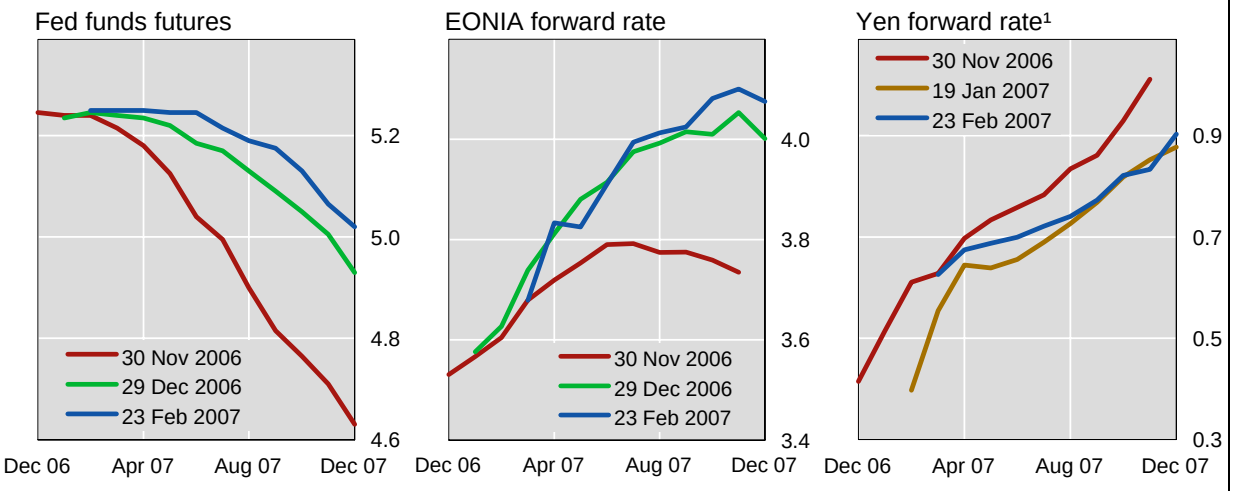
The period under review saw a couple of monetary policy decisions that surprised markets. The Bank of England tightened monetary policy on 11 January in a move that was almost entirely unanticipated by investors, and which resulted in a significant rise in UK bond yields, and even some spillover effects beyond the United Kingdom. The decision reflected data that had been made known to the Bank of England, but not yet to markets, indicating that UK CPI inflation had reached 3%, ie fully 1 percentage point above the Bank's inflation target.

… as does the Bank of Japan

In Japan, in the days before the Bank of Japan's monetary policy meeting on 17–18 January, market expectations indicated a probability of a rate hike around 70–80%, as measured by money market rates as well as by analyst surveys. However, on the day before the announcement of the decision, news reports began to circulate that a policy tightening was unlikely, causing bond yields to fall considerably. The subsequent official announcement that interest rates would remain unchanged thus had little impact on bond yields. Implied volatilities on short-term yen interest rates rose after the monetary policy decision became known, while interest rates fell and implied forward rates shifted downwards. The segment of the implied forward curve corresponding to the second half of 2007 was little changed following the Bank of Japan's decision to raise its benchmark interest rate by 25 basis points to 0.5% at its

Forward curves

In per cent



[1] Implied one-month rates; calculated from Libor fixing rates.

Sources: Bloomberg; BIS calculations.

Graph 2

subsequent monetary policy meeting on 21 February (Graph 2, right-hand panel).

Upbeat economic news ...

The link between perceptions about the strength of economic activity and market expectations about monetary policy was evident both in the United States and in the euro area. A number of data releases, in particular in December and January, indicated surprising resilience of the US economy, which, in combination with falling oil prices, underpinned a shift in investors' expectations towards a more optimistic outlook. In the euro area too, data releases continued to paint an upbeat picture with respect to current and future economic activity. As the positive news accumulated, US and euro area nominal bond yields rose, largely reflecting rising real yields (Graph 3, left-hand panel). Towards the end of the period under review, however, a partial recovery of oil prices as well as some less favourable data releases seemed to dampen investors' optimism about the US economy, which in turn prompted a partial retreat of US bond yields.

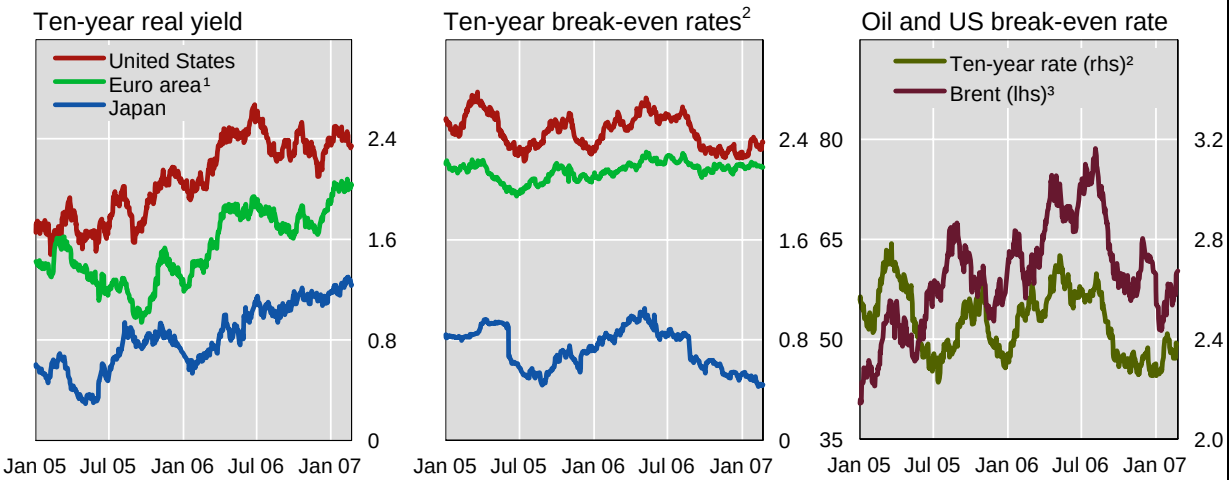
... lifts real and nominal yields ...

... while leaving break-even rates little changed

The rise in nominal bond yields in major industrialised economies since end-November was to some extent restrained by incoming inflation data, which mostly indicated stable or reduced price pressures. Break-even inflation rates remained fairly stable in Europe and the United States (Graph 3, centre panel). Falling oil prices might have contributed in this regard, at least until they started to recover in mid-January (Graph 3, right-hand panel). However, break-even inflation rates in the United States rose somewhat following the release of higher than expected US inflation figures in the second half of February.

Estimates of nominal term premia in the US term structure of interest rates suggest that part of the increase in bond yields was due to premia increasing from the extraordinarily low levels reached at the beginning of December (Graph 4, left-hand panel). The rise in the 10-year premium was almost fully mirrored by an increase in the two-year segment, suggesting that the premium investors demanded to bear interest rate risk had increased in parallel across

Real yields, oil price and break-even inflation

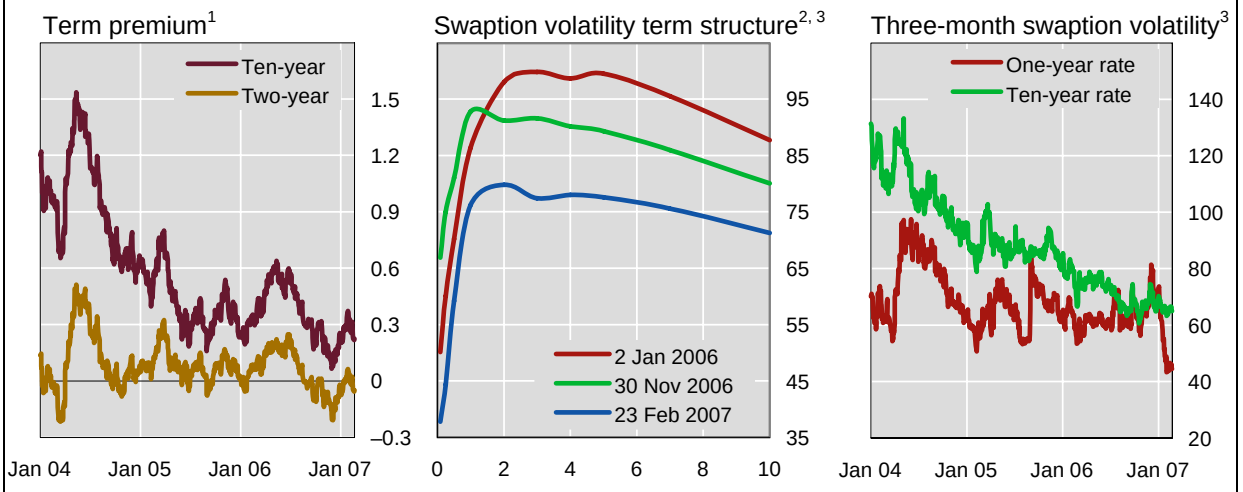


[1] Based on French government bonds linked to euro area inflation, in per cent. [2] Nominal minus real government bond yields, in per cent. [3] In US dollars.

Sources: Bloomberg; national data.

Graph 3

US term premia and swaption volatility



[1] US term premium in per cent, based on D Kim and J Wright, "An arbitrage-free three-factor term structure model and the recent behavior of long-term yields and distant-horizon forward rates", *International Finance Discussion Paper*, 2005-33, Federal Reserve Board, August 2005. [2] Term structure of implied volatilities on one-year swap rates. The horizon on the x-axis is measured in years. [3] In basis points per year.

Sources: Bloomberg; BIS calculations. Graph 4

the entire term structure. However, rising premia accounted for only around half of the overall increase in nominal yields, implying that a large part of this rise was due to upward revisions of the expected trajectory of future interest rates by investors.

Implied interest rate volatilities drop to new lows ...

Uncertainty about the outlook for short-term interest rates fell to new lows in January and February, as measured by the three-month implied volatility on swaptions on one-year swap rates (Graph 4, right-hand panel). By contrast, the implied volatility on 10-year swap rates fell considerably less than that on one-year rates, suggesting that a particularly pronounced reduction in uncertainty may have taken place at the short end of the maturity spectrum. Possibly, this was a result of growing perceptions among investors that the Federal Reserve would be likely to keep interest rates on hold for some time. This was also reflected in a substantial narrowing of implied fed funds probability densities over possible outcomes of future rates during the period under review (Graph 1, right-hand panel).

... across all horizons

The fall in implied volatilities was not limited to near-horizon swaptions only. The entire term structure of implied swaption volatilities on one-year swap rates shifted downwards between end-November 2006 and late February 2007 (Graph 4, centre panel). While for horizons beyond two years this represented a continuation of the decline in implied short-term interest rate volatility that had been ongoing for much of 2006, for shorter horizons the decline since end-November was a reversal of earlier increases in the second half of 2006. The downward shift in the term structure of volatilities since November was essentially parallel across the entire spectrum up to 10 years ahead, suggesting either that reduced uncertainty about short-term interest rate developments was perceived as a structural and hence persistent phenomenon, or that the decline in implied volatilities in part reflected a

reduction in markets' required compensation for volatility risk across all horizons.

M&A activity buoys equity markets

Global equity markets continued to rally during the period under review, with markets in Japan and Europe outperforming those in the United States (Graph 5, left-hand panel). The TOPIX index rose by 13% between end-November 2006 and late February, reaching a 15-year high during the period. Similarly, the European DJ STOXX index rose by 9%, and the S&P 500 by 4%, both reaching six-year highs.

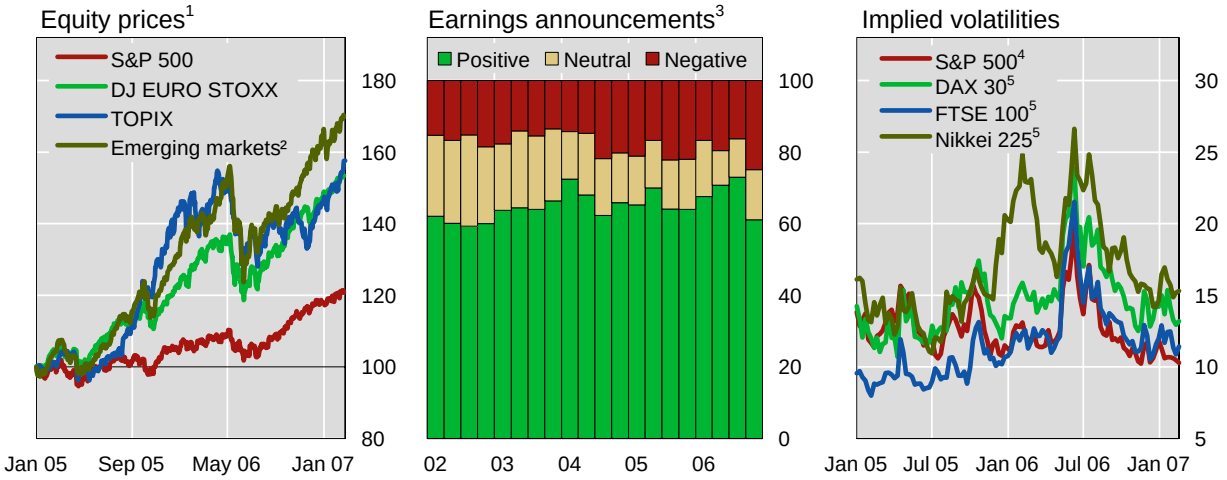
S&P 500 reaches a six-year high

Equity markets in the United States took their cue from incoming information on whether fourth quarter corporate earnings growth would be as robust as in previous quarters. But market participants also reacted to signals of a possible slowdown in the US housing sector. The S&P 500 briefly touched a six-year high on 24 January, after Yahoo! and Sun Microsystems reported better than expected earnings, only to reverse these gains the next day following a worse than expected existing home sales figure and disappointing earnings from other bellwether companies. The index had recovered by early February, boosted in part by positive earnings news, but temporarily retreated following announcements on 8 February by HSBC Holdings and New Century Financial Corporation which pointed to a deterioration in the subprime mortgage loan market in the United States (see below).

Earnings growth slows in the United States

Overall, US corporate earnings for the fourth quarter of 2006 exceeded analysts' expectations, although growth seemed to slow relative to previous quarters. With the reporting season for companies in the S&P 500 near completion by late February, positive surprises again outnumbered negative, but by a smaller margin than in previous quarters (Graph 5, centre panel). The

Equity markets and corporate earnings

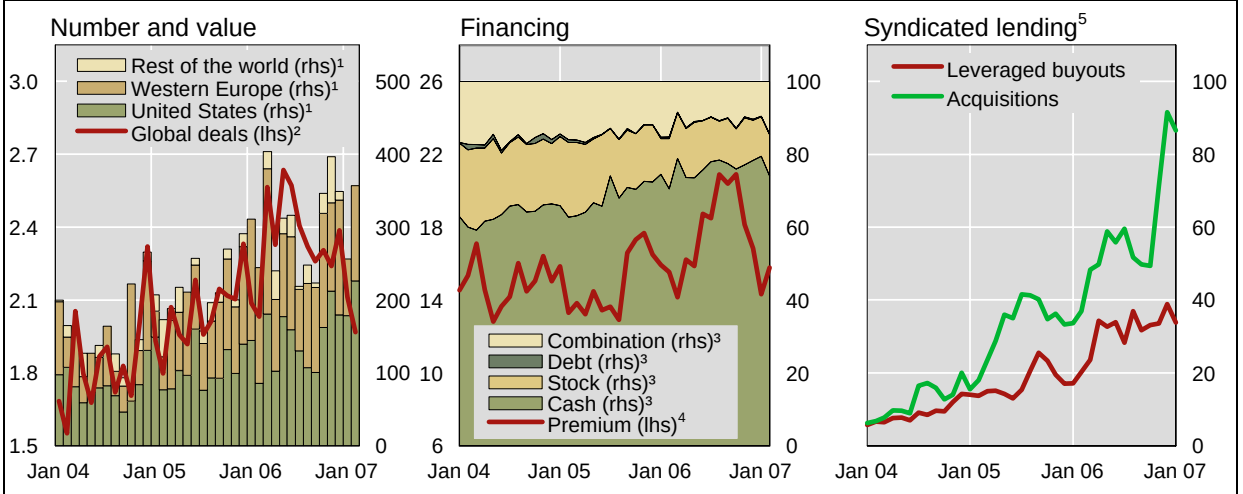


[1] In local currency; 3 January 2005 = 100. [2] Morgan Stanley Capital International index. [3] Based on 12-month trailing earnings per share; companies in the S&P 500 Index, in per cent. [4] Chicago Board Options Exchange VIX volatility index; weekly averages, in per cent. [5] Volatility implied by the price of at-the-money call options contracts on stock market indices; weekly averages, in per cent.

Source: Bloomberg.

Graph 5

M&A activity



[1] Value of announced mergers and acquisitions, in billions of US dollars. [2] Number of global deals, in thousands. [3] Share of global M&A activity financed by instrument, in per cent. [4] Average premium; three-month moving average, in per cent. [5] In billions of US dollars; three-month moving averages.

Sources: Bloomberg; Dealogic Loanware; Standard & Poor's; national data. Graph 6

share of companies which reported positive surprises (61%) was the lowest since the fourth quarter of 2002, while the share reporting negative surprises (25%) was the highest since the third quarter of 1998. Moreover, aggregate earnings growth for the fourth quarter, at just under 10% (on a share-weighted basis), was considerably less than the 15% or more seen at a similar stage in the previous three earnings seasons.

Generally strong corporate earnings also buoyed equity markets in Europe, as did positive data about euro area and US macro developments. Positive earnings news and rumours of corporate takeovers led to 10 consecutive daily advances for the DJ STOXX index in the first half of December, the longest such rally since 1997. Although incoming earnings news at times dampened investors' enthusiasm, equities continued to trend upwards through mid-February, with the index hitting a six-year high on 24 January.

Yen depreciation supports Japanese equities

After a lack of direction in the third quarter of 2006, Japanese equity markets finally found their footing in late November. While strong corporate earnings were key, the rally in part also reflected the weakening of the yen over the period under review, allegedly caused by carry trade positions which put downward pressure on funding currencies (see the box on page 8). The rally started after 22 November, when the yen hit a record low against the euro, and ultimately propelled the TOPIX index to a 15-year high by 21 February. Firms in the iron and steel and maritime transportation sectors saw the largest gains, although automobile and consumer electronics firms were also amongst the top performers during the period.

News of mergers and acquisitions also helped to support equity markets in both Europe and the United States. The announced purchase of Mellon Financial by the Bank of New York on 4 December, for example, helped to boost the S&P 500 Index by 1%. On 7 February, a private equity group, Blackstone, won the bidding war for Equity Office Properties Trust with its

Detecting FX carry trades

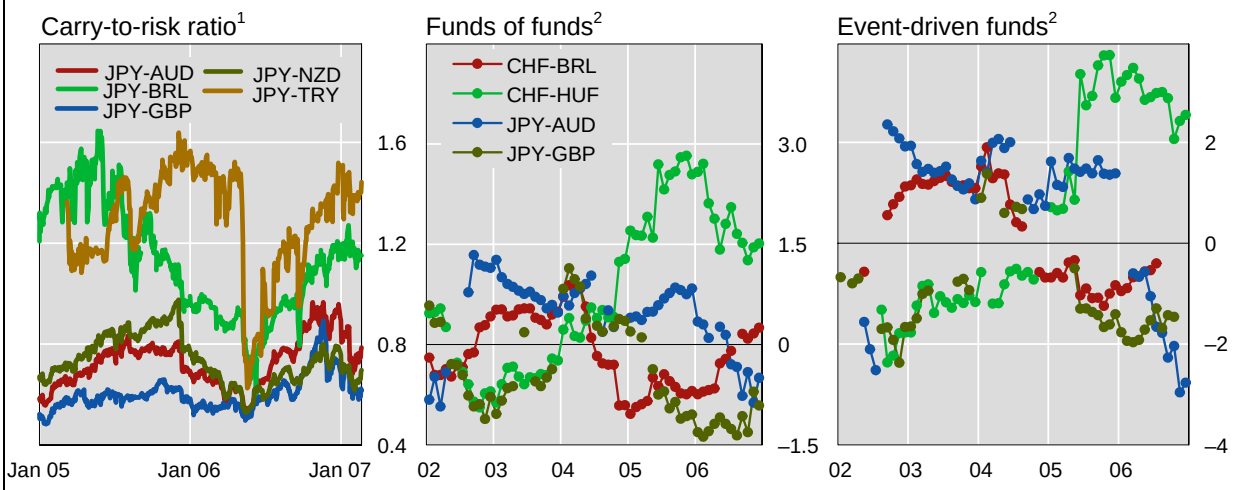
Patrick McGuire and Christian Upper

Many market participants have attributed the recent weakness of the Japanese yen and the Swiss franc to a pickup in carry trades funded in these currencies. However, measuring the volume of carry trades on the basis of publicly available information is problematic, both because of incomplete data, which makes it difficult to distinguish carry positions from other trades, and because of a lack of consensus on what exactly constitutes a carry trade.[①] This box draws on various sources of data in an attempt to measure whether carry trade activity has been high in recent months. Overall, the evidence is mixed. Data on positions in the derivatives market are broadly consistent with growth in activity, in particular for trades funded in yen, while data on cross-border bank lending are more difficult to interpret. Similarly, hedge fund returns appear to be sensitive to carry trade payoffs, but the results are far from conclusive.

The expected payoff of a carry trade depends on the interest rate differential and the likelihood of adverse exchange rate movements. The carry-to-risk ratio[②] – an ex ante measure of the attractiveness of specific currency pairs – indicates that yen-funded carry trades targeting emerging market currencies (eg the Brazilian real or the Turkish lira) have become increasingly attractive since mid-2006, whereas those targeting the currencies of more advanced economies have lost some of their lustre in recent months (Graph A, left-hand panel). Carry trades funded in francs show similar patterns, although they generally have lower carry-to-risk ratios than trades funded in yen.

Hedge funds are reportedly heavily involved in carry trades. Indeed, style analysis regressions suggest that hedge fund returns are partly driven by carry trade payoffs.[③] For many hedge fund families, including funds of funds and event-driven funds, proxies for the ex post payoff of various carry trade positions turn out to be statistically significant, although their overall net effect on hedge fund returns does not seem to have increased recently (Graph A, centre and right-hand panels). In some cases, the estimated coefficients are negative, perhaps reflecting positioning in expectation of an unwinding of the carry trade, or on the relative performance of different currency pairs.

Hedge fund returns and carry trade payoffs



[1] Three-month interest rate differential divided by the implied volatility of the currency option; the funding currency is the Japanese yen. [2] Coefficients from 24-month rolling stepwise regressions of hedge fund returns on market indices and proxies for carry trade payoffs; the first currency in the pair is the funding currency.

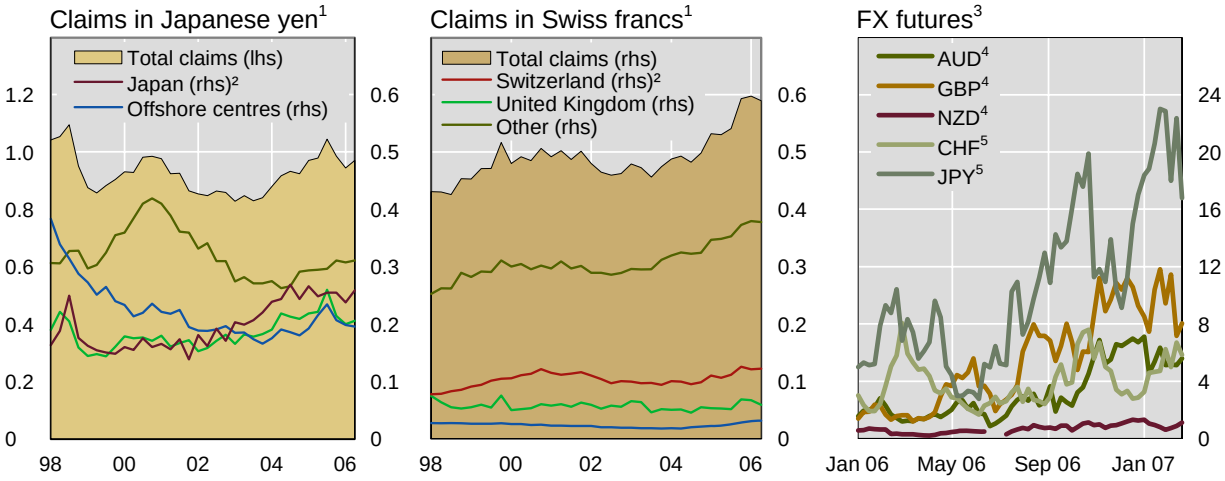
Sources: Datastream; HFR; JPMorgan Chase; BIS calculations. Graph A

Other sources of data might also throw light on this issue. Carry trades can be done through outright borrowing and lending or through derivatives, which are often hedged in the cash market, thus potentially leaving footprints in the BIS international banking statistics. However, the extent to which movements in these data reflect carry trade activity is difficult to quantify since global claims flows reflect many types of economic activity. A pickup in claims on residents in financial centres, where many hedge funds or proprietary trading desks are located, might arguably be more likely to reflect carry trade activity, at least in the narrow sense of the term, than a similar rise elsewhere in the reporting area. With this in mind, the evidence for a recent pickup in carry trade activity in the

BIS international banking statistics is mixed (Graph B, left-hand and centre panels).④ The rise in the stock of outstanding yen-denominated claims in the second half of 2005 did in part reflect greater credit to residents of the United Kingdom and offshore centres; however, claims have since fallen. Swiss franc claims grew in the first half of 2006, although claims on borrowers in these financial centres have remained relatively small. The rise in claims in the first half of 2006 was primarily the result of greater lending to residents in the euro area.

Data on open positions in exchange-traded FX futures in potential funding and target currencies provide the strongest evidence for a growth in carry trade activity in recent months. Non-commercial ("speculative") short positions in yen futures traded in the United States rose between mid-2006 and late February 2007, particularly during periods of yen depreciation (Graph B, right-hand panel). By contrast, speculative short positions in the franc yield little evidence of an increase in futures-based carry trades over this period. Data on speculative long positions in FX contracts on the main developed-country target currencies increased considerably in the second half of 2006, but declined somewhat in early 2007 (Graph B, right-hand panel), consistent with the rise and subsequent fall in the carry-to-risk ratio over this period. However, the weekly movements in this ratio appear to explain little of the changes in speculative positions, although the relationship is statistically significant for some currencies.⑤

Tracking the carry trade



[1] BIS reporting banks' (in currency reporting countries) cross-border claims and claims on residents, by residency of counterparty; in trillions of US dollars, at constant end-2006 Q3 exchange rates. [2] Excluding claims of banks located in the country. [3] In billions of US dollars; derived using exchange rates at the beginning of 2006. [4] Non-commercial short positions. [5] Non-commercial long positions.

Sources: CFTC; BIS. Graph B

Evidence from the OTC derivatives market is sketchier still than that from exchange-traded contracts. The BIS semiannual OTC derivatives survey indicates that, up to end-June 2006, positions in FX contracts denominated in the main funding and target currencies grew faster than the market as a whole. More up-to-date settlement data from CLS Bank show some increase in the volumes of FX swaps denominated in yen, francs and sterling in late 2006. However, turnover in these contracts has been relatively stable, suggesting that activity may be mainly driven by factors other than carry trades.

① Some observers classify as carry trades all foreign currency lending, including, for example, foreign currency bond purchases by Japanese households or Swiss franc-denominated mortgage borrowing by residents of central European countries. This box deals primarily with speculative trades with offsetting long and short positions, since these are arguably more likely to be unwound quickly should market disruptions occur. ② Defined as the three-month interest rate differential weighted by the implied volatility of exchange rates. ③ Style analysis consists of panel regressions of hedge funds' returns on explanatory variables which track the returns of broad market indices, as well as proxies for carry trade payoffs. The analysis is based on hedge fund return data from HFR and 24-month rolling panel regressions on individual hedge fund families. See P McGuire et al, "Time-varying exposures and leverage in hedge funds", *BIS Quarterly Review*, March 2005, for a more detailed discussion. ④ The figures do not include claims of banks in the United States on US residents. ⑤ Data from other exchanges also provide evidence. Open interest in futures traded in Japan increased sharply, in particular in contracts on the Australian and the New Zealand dollar. Positions in the US dollar contract traded in Brazil also grew in late 2006. Futures on the Turkish lira are traded on the Turkish Derivatives Exchange, but volumes are low by international standards.

$39 billion bid, the largest leveraged buyout on record. More broadly, indicators of M&A financing for the most part pointed to continued high levels of activity, although the number of announced deals has declined somewhat in recent months (Graph 6, left-hand panel).

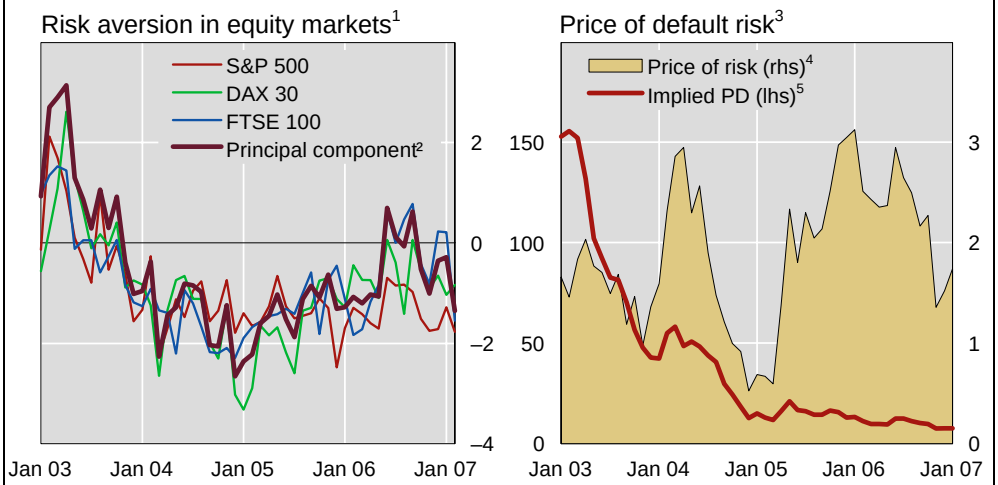
In addition to earnings and M&A activity, greater investor risk appetite also seemed to contribute to the rallies in the major equity markets. Implied volatilities remained low relative to mid-2006, in particular for the S&P 500 (Graph 5, right-hand panel). Implied volatility is influenced by both perceptions of future market volatility and investors' aversion to such volatility. These can be disentangled by comparing the distributions of expected returns implied by option prices with that of historical returns. Measures of risk aversion derived in this way indicate a decrease during the period under review, with the common component of the individual measures for various equity markets reaching its lowest level since July 2005 (Graph 7, left-hand panel).

High-yield credit spreads touch historical lows

Record low credit spreads reflect …

Corporate credit markets continued to rally between end-November and late February. High-yield credit was especially strong, with spreads falling to record lows in some markets (Graph 8). US dollar high-yield asset swap spreads tightened by 59 basis points, and ended the period near the lowest level on record (198 basis points). Similarly, spreads in euro and sterling high-yield credit markets touched record lows during the period. Investment grade credit markets also rallied, with spreads in the US dollar market tightening by 9 basis points, and spreads on euro and sterling debt by 5 and 7 basis points respectively.

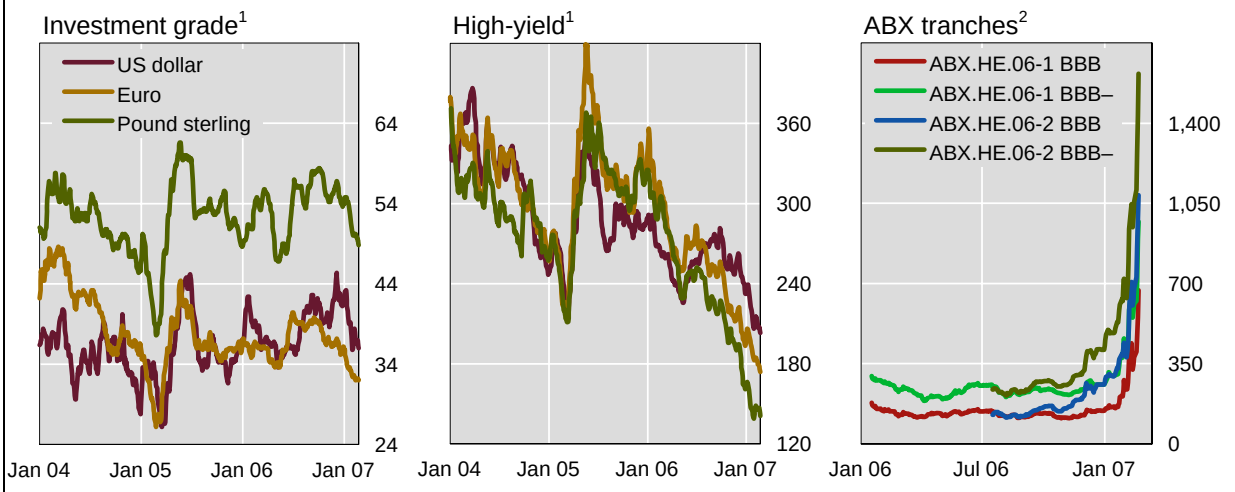
Risk appetite in equity and credit markets



[1] Derived from the differences between two distributions of returns, one implied by option prices, the other based on actual returns estimated from historical data. [2] First principal component of risk appetite indicators estimated for the S&P 500, DAX 30 and FTSE 100. [3] Based on one-year spreads and default probabilities for the constituents of the DJ CDX.NA.IG.4 index. [4] Ratio of risk neutral to empirical probabilities of default. [5] Probability of default (PD) implied by one-year CDS spreads, assuming a recovery rate of 40%, in basis points.

Sources: Bloomberg; Chicago Mercantile Exchange; Eurex; London International Financial Futures and Options Exchange; Markit; BIS calculations. Graph 7

Credit spreads



[1] Merrill Lynch corporate bond indices; asset swap spreads over Libor; five-day moving average, in basis points. [2] Home equity floating closing on-the-run spreads, in basis points.

Sources: Bloomberg; JPMorgan Chase; Merrill Lynch; Moody's Investors Service; BIS calculations. Graph 8

As in equity markets, greater investor risk appetite seemed to contribute to the rally in credit markets. A simple estimate of risk appetite in credit markets can be constructed as the ratio of risk neutral default probabilities derived from credit spreads to those derived from underlying balance sheet information (Graph 7, right-hand panel). This ratio has trended downwards since the summer of 2006, hitting its lowest level in November since March 2005.

... strong demand for structured products ...

Investor demand for structured credit products remained strong in the fourth quarter of 2006, also helping to keep credit spreads low. Global issuance of funded CDOs in 2006, at $489 billion, was the highest on record, with particularly robust activity in the fourth quarter. Issuance of synthetic CDOs, which package and securitise credit default swaps on a range of companies, also soared in 2006 to an estimated $450 billion, double the amount issued in 2005. Arrangers of such products often hedge their positions in the cash markets, possibly putting downward pressure on credit spreads.

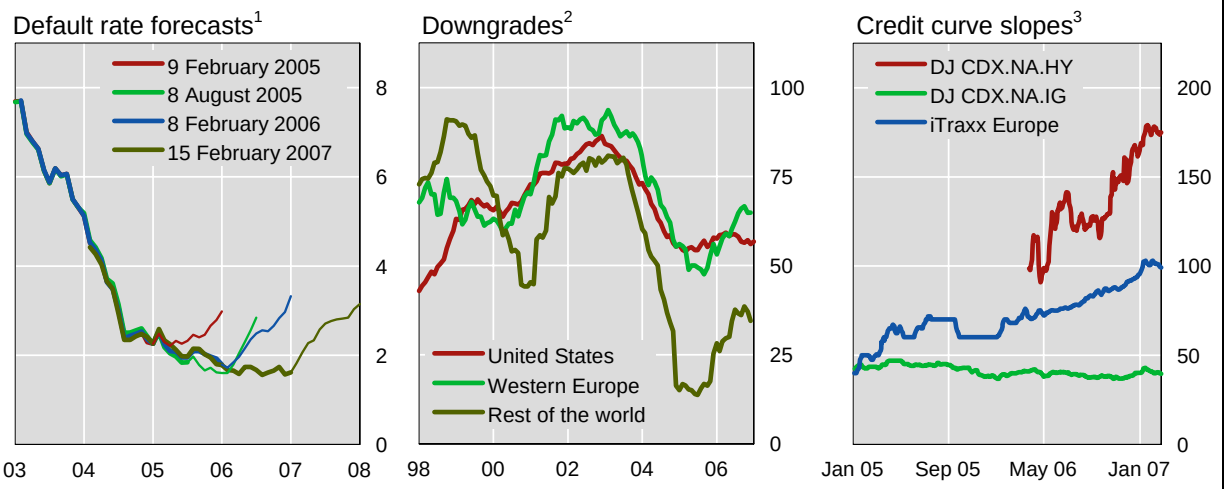
... sound corporate fundamentals...

The rally in credit markets has been underpinned by earnings growth and generally strong corporate balance sheets. On an aggregate basis, corporate profits as a share of GDP have trended upwards in all major markets since mid-2001, and liquid assets relative to debt remain at elevated levels. Moreover, in the United States at least, corporate debt as a share of cash flow fell in 2006 for the fifth year in a row. The apparent health of the corporate sector has led to the surprisingly low realised default rates for speculative grade credit, which have hovered near 2% since 2005, consistently below forecasts (Graph 9, left-hand panel).

... and unusually low corporate default rates

Market participants generally expect default rates to rise in 2007, although there does not appear to be much concern over a sudden and widespread deterioration in credit quality. That said, the difference in spreads between long- and short-maturity high-yield CDS indices has been rising since at least May 2006 in both US and European markets (Graph 9, right-hand panel). Spreads at all maturities have tightened, but those on short- and medium-

Default rates and credit quality



[1] Speculative grade default rate forecasts by Moody's at the time of the legend date, in per cent; the thin lines refer to forecasts one year ahead of the legend date; the thick lines refer to historical default rates. [2] Non-financial corporate downgrades as a percentage of all rating changes by Moody's; 12-month trailing average. [3] Ten-year minus three-year (10- minus five-year for iTraxx Europe) slope for on-the-run CDS spreads; five-day moving average.

Sources: JPMorgan Chase; Moody's Investors Service; BIS calculations. Graph 9

maturity instruments have narrowed the most. While strong investor demand for shorter-term instruments may have played a role, the steepening of the term structure of these contracts may indicate that market participants' sanguine view of default risk over the near term has not entirely spilled over into their longer-term expectations.

Credit investors also seem unconcerned about the ongoing global M&A boom and its possible implications for credit quality. Debt financing of these deals, tracked by syndicated loans earmarked for acquisitions and leveraged buyouts, has risen sharply in recent months, possibly signalling a rise in corporate leverage levels. Equity financing of deals has become less common, accounting for around 12% of announced deals in 2006, compared to 17% in 2005 and 19% in 2004 (Graph 6, centre and right-hand panels). On average, the premiums paid in recent deals have not been particularly high.

Home equity CDO spreads widen significantly

Problems in the subprime sector of the US mortgage market have become more visible, although it is not yet clear how these might spill over into the broader credit markets.[2] Spreads on non-investment grade tranches of home equity CDOs had widened considerably in December, reflecting rising delinquency rates and news of the bankruptcy of several subprime lenders in the United States (Graph 8, right-hand panel). But following HSBC's announcement on 8 February that more funds would have to be set aside to cover bad debts in its subprime lending portfolio, and New Century Financial's downward revision of its 2007 loan production forecast, spreads widened by an additional 200+ basis points in the space of two days. Spreads widened further following an announcement on 20 February of large net losses for the fourth

[2] See A Frankel, "Prime or not so prime? An exploration of US housing finance in the new century", *BIS Quarterly Review*, March 2006, for a discussion of risks in subprime mortgage markets.

quarter of 2006 by Novastar, another large subprime lender in the United States.

Emerging market spreads decline further

In emerging markets, spreads continued to tighten while equity prices rose further during the period under review. Between end-November and late February, the EMBI Global spread index fell from 200 to 170 basis points, hitting all-time lows along the way (Graph 10, right-hand panel). Emerging market CDS spreads also continued on their downward path, although not reaching the lows seen prior to the May–June sell-off. Between the end of November and late February, the MSCI Emerging Market equity index rose by 7%, on top of the 21% increase seen in the first 11 months of 2006.

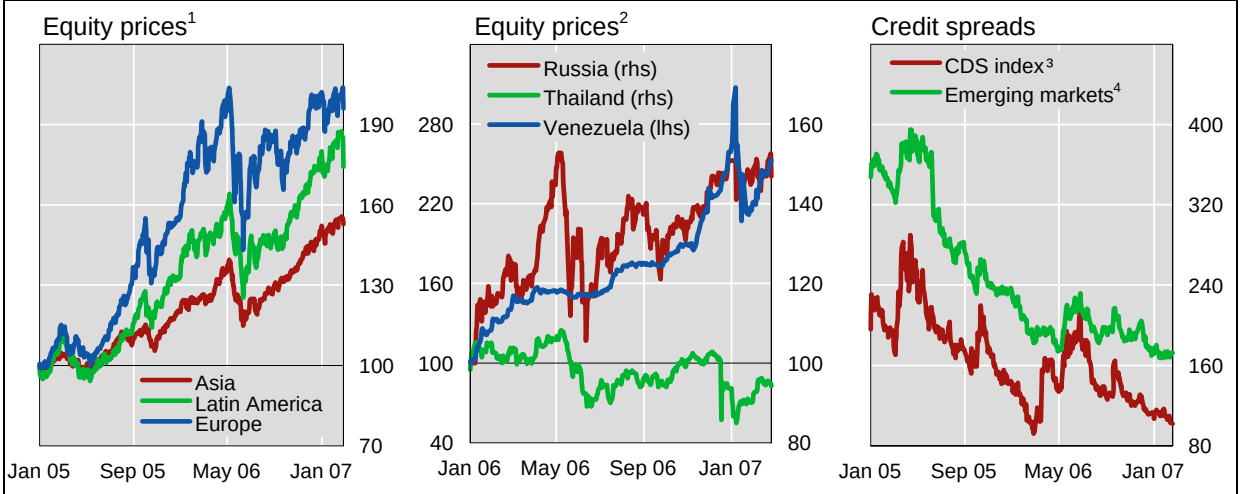
Temporary volatility in emerging asset markets …

In this generally positive market environment, some emerging equity markets suffered a temporary setback and a bout of volatility at the very beginning of 2007, as stock prices suddenly fell sharply. Among the hardest hit was the Russian equity market, which lost almost 7% between end-2006 and 9 January (Graph 10, centre panel). While few immediate triggers for these abrupt price movements were apparent, the prolonged fall in both oil prices and a number of other commodities is likely to have contributed to the decline. Another factor could have been a sense among investors that the Russian market, in particular, was overdue for a correction, following a 51% increase in 2006. Although the episode led some market participants to question whether the risk appetite of investors for emerging market assets was declining, within a couple of weeks most of the losses suffered in January had been recouped.

… triggered by local events …

High-volatility market flare-ups occurred in some countries, triggered by local events, but these remained largely localised. On 18 December, the Bank of Thailand announced the introduction of capital controls aimed at stemming the inflow of speculative capital. The measure stipulated that financial

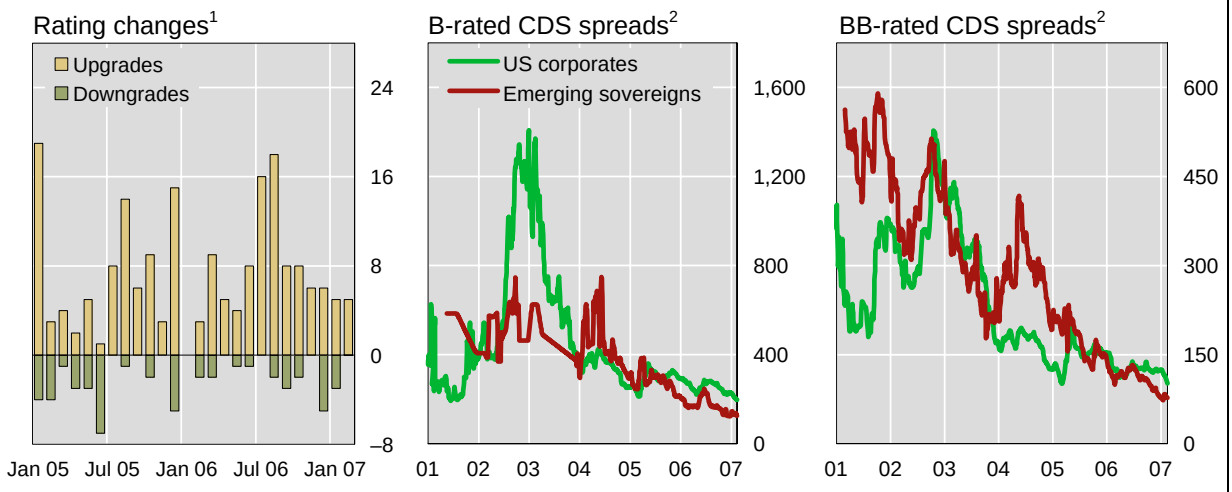
Emerging market equity prices and sovereign spreads



[1] In local currency; 3 January 2005 = 100. [2] In local currency; 3 January 2006 = 100. [3] Emerging markets CDX five-year on-the-run CDS mid spread, in basis points. [4] EMBI Global index; sovereign spread over government bond yields, in basis points.

Sources: Datastream; JPMorgan Chase; BIS. Graph 10

Rating changes and credit spreads



[1] Monthly long-term foreign and local currency sovereign rating changes from Fitch, Moody's and Standard & Poor's. [2] Daily median CDS spreads; five-day moving averages, in basis points.

Sources: Bloomberg; Dealogic; Markit; BIS calculations. Graph 11

institutions would be required to withhold 30% of foreign currencies exchanged for Thai baht in unremunerated accounts. Moreover, investors would be able to recoup their funds only after keeping their investment in Thailand for at least one year, or face losing a third of the deposit. The measures were motivated by concerns about a sharp appreciation of the Thai currency, which prior to the announcement had strengthened by 4% against the US dollar in one month and by 16% since the beginning of 2006. The increase in the value of the baht, which had gathered pace after the military coup in September, was beginning to hurt Thai exporters progressively more, prompting the authorities to take action. It was thought that the capital inflows were going into the domestic bond market, and the measures were designed to discourage such inflows specifically. In the days following the announced capital controls, the baht depreciated by up to 4%, but the largest effect was seen in the Thai stock market, which lost around 15% on the day after the announcement, suggesting that a large part of the flows had been going into the equity market rather than the bond market (Graph 10, centre panel). On that day, net sales of equities by non-residents reached a record $700 million. As a consequence, the government decided to introduce a number of exemptions to the controls, including for investments in equities. By late February, about two thirds of the stock market losses had been recouped, while the baht had resumed its upward path and had strengthened a further 5% compared to the level seen before the introduction of capital controls. Overall, the effect of the Thai turbulence on markets in Asia and elsewhere was limited and temporary.

Two Latin American countries also experienced some turbulence as a result of political factors. Spreads on Ecuador's external debt soared to more than 1,000 basis points as markets priced in the increased likelihood of losses following a presidential election in which the winning candidate had publicly discussed the possibility of an Argentine-style default. In Venezuela, meanwhile, credit spreads rose and equity prices fell by almost 20% following

the announcement that a number of private companies would be nationalised. Falling oil prices also weighed on prices of Venezuelan assets at times.

... has little overall impact on spreads

Apart from such bouts of temporary volatility, generally favourable economic conditions and improvements in the outlook for the US economy continued to support emerging market asset prices up until late February. Strong domestic growth prospects and a generally positive fiscal outlook played a role as well. Nonetheless, investors' strong appetite for risk also appeared to be an important factor behind the continued positive developments in emerging asset markets during the period under review. While positive rating changes continued to outnumber negative ones in the past few months – Standard & Poor's, for example, raised India's debt rating to investment grade in January – the ratio of positive to negative changes was lower in the three-month period between December and February than it had been in any three-month period since mid-2005 (Graph 11, left-hand panel). This, however, had little impact on the pace of narrowing of emerging market credit spreads.

The attractiveness of emerging market debt for investors was also evident in the continued decoupling of such spreads when compared to US corporate spreads within the same rating category (Graph 11, centre and right-hand panels). Seen over a relatively long time horizon, emerging market B and BB-rated CDS spreads have generally tended to exceed those on comparable corporate CDS spreads, with the notable exception of a period in 2002–03 following the collapse of Enron and the revelation of a string of corporate governance improprieties in the United States. However, as of around mid-2005, a significant shift in the relative pricing of emerging market and corporate credit seems to have taken place, with spreads on the former now tending to be lower than those on the latter. This tendency has persisted through recent months. For example, since the sell-off in May–June 2006, the median value of five-year CDS spreads on BB-rated emerging market debt has fallen by 35 basis points, while the corresponding CDS spread on US corporates has declined by only 10 basis points. This could suggest a significant reassessment of the riskiness of emerging market credit vis-à-vis corporate credit within the same rating category, and/or a substantial reduction in the price of emerging market credit risk.