

Market Risk Report

June 2007

Executive Summary

- “Sell in May and go away”? Better economic news and continuing M&A have led to a great run in the equity markets, but a fall in bond prices. Volatilities have generally been very low, FX volatility has all but gone despite the slide in the Yen. Fear levels, as measured by bond spreads, are very low indeed.
- Equity markets rose again, and volatility levels fell back to below 12-month averages. However, the VIX seems to have settled at a new higher level, around the 13% mark.
- Fixed income remains negatively correlated to equities: prices fell in May. Volatility fell back again to close to 12-month lows (and Japan hit a new 12-month low of 2.0%), and spreads continued to narrow: the EMBI spread hitting a 12-month low of just 152bp. Fear levels are very low.
- FX volatility fell again, reaching exceptionally low levels during May as the Yen continued to slide against the dollar but other currencies didn't move. In fact, a year ago volatilities were between 10% and 12%: they are now all below 4.5%: a record low for any asset (excluding bonds) since we started producing this report.
- Option volatility would have remained low during May as indicated by the low level of volatility of implied volatility. Price movements in equity markets were positive: pushing calls into the money and puts out.
- Commodities' prices were basically flat on the month and volatility remained slightly below 12-month averages.
- Real Estate prices continued to flounder after a strong run during 2006 although Japan showed some resilience: volatility remained below 12-month averages.

In this month's issue: An overview of global economic growth and the impact of China

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Key News (Major Volatility-Driving Events)

Economic news improves

US and UK inflation appeared to be slowing, but the European economy remains strong. Germany in particular saw strong growth with industrial production growing 7.7% in the year to March. GDP growth for the US for 2007Q1 was revised down to 0.6%.

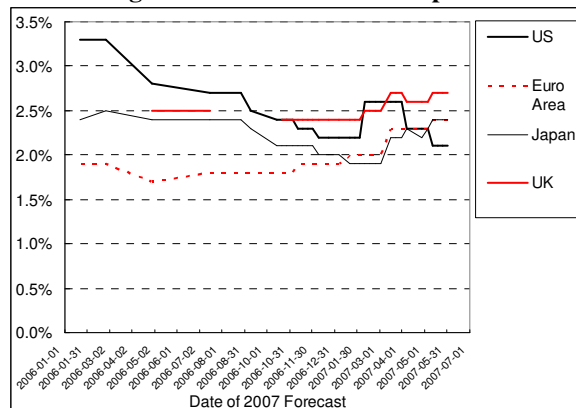
Consumption remained high in both the US and Europe. US consumer confidence grew in May despite building permits falling to lowest level in 10 years and unemployment rising from 4.4% to 4.5% in April.

This better news suppressed volatilities.

GDP growth forecasts increased, except for the US

GDP growth estimates for 2007 were revised upwards in May for Europe the UK and Japan, but down again for the US, which is now forecast to lag the other three regions this year. US forecasts remain very high (and perhaps unrealistically so?) for 2008 at 2.7%.

2007 GDP growth estimates rose except for the US



Deals and growth lead the (equity) markets up

May was characterised by continuing high volumes of M&A with records being broken in many sectors and the continuing demand from private equity for listed companies.

Equity markets rose, and all major indices are up year to date in both Dollars and Euros.

The S&P500 hit a new all-time high. However, the FT interestingly pointed out that it is flat over the last 7 years, and in that period is down 28% in Euro terms and down 57% against Gold, and the MSCI Emerging Markets Index has risen 96%.

Chinese stockmarkets continued their bull run: the Shenzhen Composite is up 135% year to date. Perhaps predictably, Alan Greenspan warned of a possible correction. A subsequent 6.5% fall engineered by the authorities at the end of the month was largely ignored by western markets.

The Yen stays under pressure

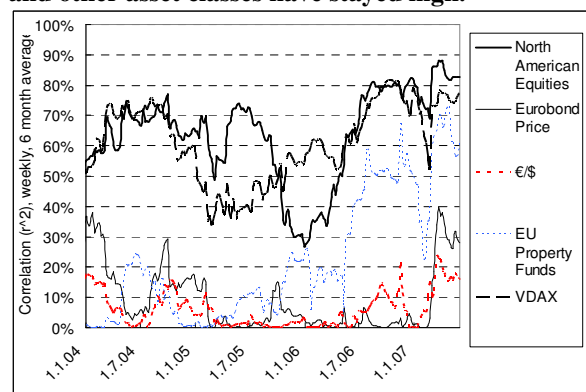
The Yen continued to fall against the Dollar and got reached the technical ¥122 level, last seen in 2002. Volatility remained very low though.

Correlations stay high

6-month inter-market correlations remain high. European equities have a correlation of 83% with North America, 77% with the VDAX and 61% with property shares. Bonds are still well correlated with equities, at 28% (but in a negative sense, with prices falling as equity markets rise).

The message remains from the last three months that good diversification is very hard to find.

Correlations between the European equity market and other asset classes have stayed high.



Oil prices flat

The Oil price was flat at \$64 and the market does not seem to be focussing on oil at present.

An Overview of Global Economic Growth and the Impact of China

Overview

This article looks at the regional contribution to total global GDP growth, to try to quantify which regions are driving GDP growth.

We show how although China represents just 6% of global GDP, it is forecast to contribute 17% of GDP growth and as much as 1/3 of the global growth in demand for basic items such as fuel.

We have chosen to look at GDP in current US\$, rather than on a purchasing power parity (PPP) basis. In our view PPP numbers give a better reflection of the domestic economy, but current dollar figures are more useful for looking at trade and the international and global impact of domestic growth. GDP estimates are taken from The Economist, and population and total GDP figures from the IMF.

Total GDP by Region

GDP is of course a combination of population size and per capita wealth. As Europe and the US are both populous and wealthy, it is not a surprise to see them top the table. Whilst China is populous, its GDP per capita is very low still and it's overall contribution to global GDP is low at just 6%.

Aggregating total GDP by region, we see that Europe and North America contribute almost exactly one third each, with BRIC (Brazil, Russia, India, China) amounting to just 12% and Japan just 9%.

Total GDP Growth by Region

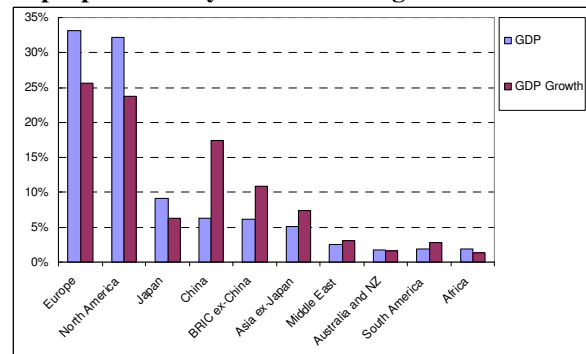
The fastest growth countries tend to be the developing ones, which at present are smaller in absolute GDP terms. Forecasts for aggregate GDP growth over 2007 and 2008 show that the fastest growers will be China, India, Argentina, Russia and Pakistan: all forecast to grow faster than 6%/a.

Conversely, the five lowest growth economies for which there are reliable forecasts are all European (Italy, Switzerland, France, Germany and Belgium).

If we look at contribution to global GDP growth, we see that China, despite it's small size, is forecast to contribute 17% of global GDP growth over the next two years.

REGION	TOTAL GDP, US\$ BN	GDP CAGR 2006-2008	GDP ANNUAL INCREASE 2006-2008, \$BN
Europe	15,788	2.6%	409
North America	15,353	2.5%	378
Japan	4,367	2.3%	100
China	2,985	9.3%	278
BRIC ex-China	2,933	5.9%	174
Asia ex-Japan	2,407	4.9%	117
Middle East	1,215	4.0%	48
Australia and NZ	858	3.1%	26
South America	875	5.1%	44
Africa	897	2.3%	21

China is forecast to contribute enormously and disproportionately to world GDP growth



Income Elasticity of Demand

However, the pure growth impact hides much more significant trends.

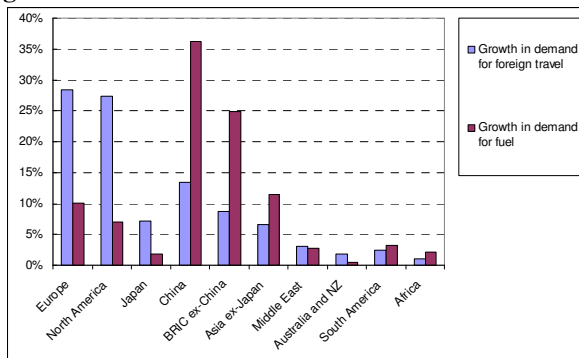
To understand more, we need to look at an economic concept called the income elasticity of demand. In simple terms, it defines how much more we spend on something as our income increases. For instance, if our income increases by 1%, we spend roughly 0.3% more on fuel and light, so the income elasticity is 0.3. However, we spend 1.14% more on foreign travel, so the income elasticity is 1.14. (Goods for which $0 < \text{elasticity} < 1$ are called normal goods: their share of expenditure falls as income rises and those > 1 are called superior or luxury goods: their share of expenditure rises as income rises. There is also a smaller class of goods for which $\text{elasticity} < 0$. These are called inferior goods, but are rare.

Tobacco is often considered to be in this group: richer people in general don't smoke.)

The key point here is that countries with lower GDP per capita (e.g. China) in general spend a much lower proportion of income on luxury goods (e.g. Gucci), and a much higher proportion on normal goods (e.g. fuel). As a result, growth in lower GDP per capita countries results in a much higher contribution to global growth in normal goods than in luxury goods. Hence the growth in China causes an anomalously high contribution to commodities growth, but very little (so far) to aviation.

We have re-calculated contribution to global growth using published estimates of income elasticity of demand. If we look again at the chart above, but estimate contribution to growth for fuel and foreign travel, we see the following chart.

China is forecast to contribute almost 1/3 of global growth in demand for fuel, but just 13% of global growth in demand for aviation



The difference is stark: China is likely to contribute enormously (perhaps 1/3 of total) global growth in demand for basic goods such as fuel. This explains why the growth in China has

driven commodity prices so strongly, but many other markets e.g. service have been largely unaffected by its rise. Of course as China gets richer this mix will shift...

Risks

Of course this analysis causes us to look at what the risks to the markets could be.

The main area of risk in our view would be caused by sharply slowing growth, whether in the developed markets or China.

In developed markets, US GDP forecasts have already been revised down this year, and the 2007Q1 actual was weaker than expected. Interest rates are now not expected to fall, and the housing market is quite weak. There certainly are enough potential areas of weakness to be cause for concern. Given recent market reactions, slowing US GDP growth would weaken the dollar and almost certainly dent US stock markets.

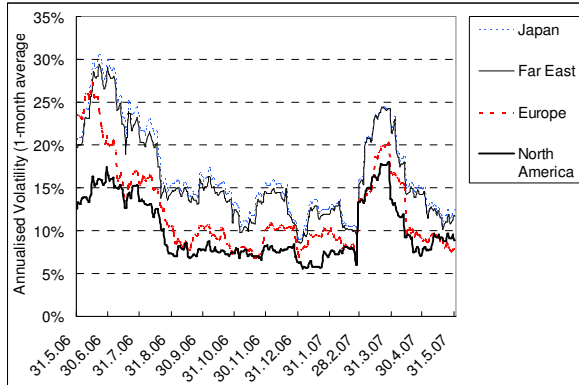
Downside risks to Chinese growth could come either from a natural slowdown in the economy, or the bursting of a bubble, either market-induced or manufactured. The impact is hard to forecast, but given the above analysis would be likely to come via the commodities end of the market. This would lead to falling commodities prices, a weakening of commodity-based currencies such as the Australian and Canadian dollar, and consequently an unwinding of Yen carry trades leading to a sharp rise in the Yen. Beyond that it is hard to forecast impact in other markets, but what is clear is that we would see a lot of volatility in several different asset classes, from bonds to FX to commodities.

Equities

Volatility: Regions

During May volatilities continued to fall from their spike at the end of February. Volatility fell in all regions to below 12-month average levels.

Volatility fell again in all regions

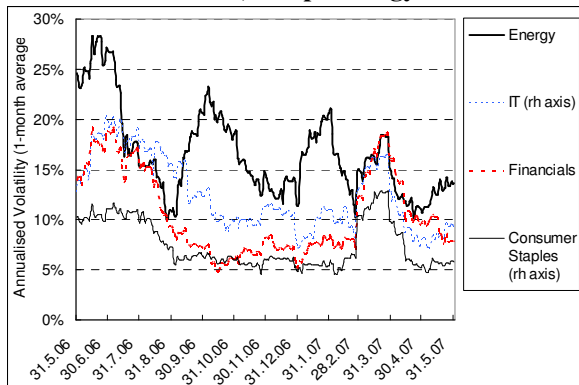


Note: based on MSCI regional indices

Volatility: Sectors

Sector volatilities fell in all sectors except Energy, where the continuing uncertainty over the Oil price dragged volatility higher. However, volatility remains below 12-month averages in all sectors.

Sector volatilities fell, except Energy

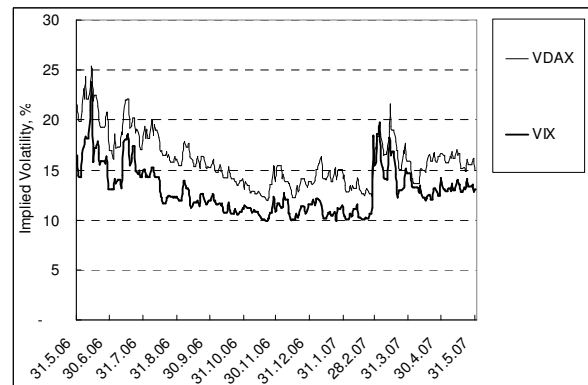


Implied Volatility (Market-Implied Near Term Outlook)

The VIX and VDAX indices show the expected volatility of the S&P500 and DAX respectively over the next 30 days based on options' prices.

Both spiked dramatically at the end of February but fell during March. In April both were stable at higher levels than we have seen over the last 12 months. May saw a continuation of slightly higher levels: we appear to have reached a new, higher, base level than before, of around 13% for the VIX. This is very close to 30-day historical levels, implying that the market is not expecting higher volatility levels over the next month. This is actually an unusual situation, as the "forward curve" for the VIX is normally upward sloping, i.e. the market has normally expected volatility to rise.

The VIX (US) and VDAX (Germany) are both implying that equity volatility will remain flat over the next month

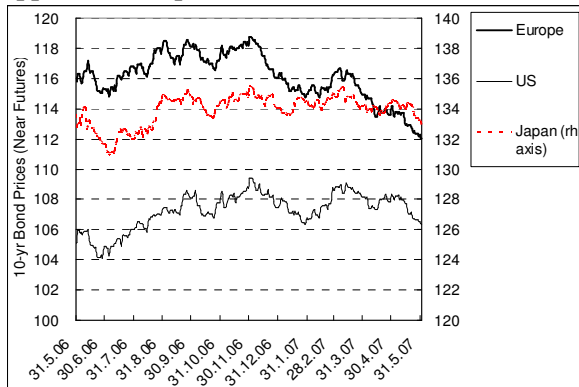


Fixed Income (10 Year Government Bonds)

Prices

Bond prices continued to fall during May as economic growth prospects remained good (in Europe) or improved or at least weren't as bad as feared (in the US) and rates looked more likely to rise than before.

10-Year bond prices fell as economic conditions appeared to improve



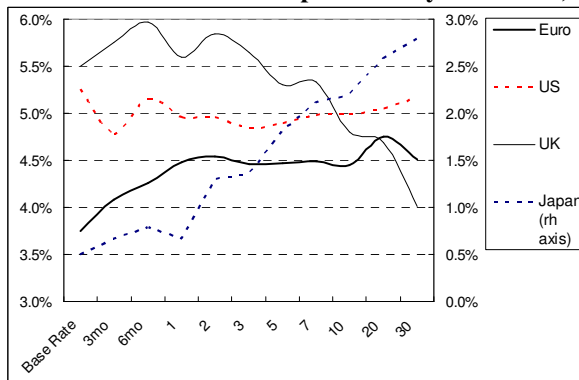
Interest Rate Expectations

US markets now appear to be ruling out a rate cut, but also ruling out a rate rise: the yield curve is very flat.

In the UK the market now expects rates to reach 6% within 6 months. News reports of a 50bp rise at the last meeting seemed somewhat sensational.

In Europe the yield curve looks more “normal” (upward sloping) as the economies accelerate, and rate rise expectations remain with rates expected to rise from 3.75% to 4.5% within two years.

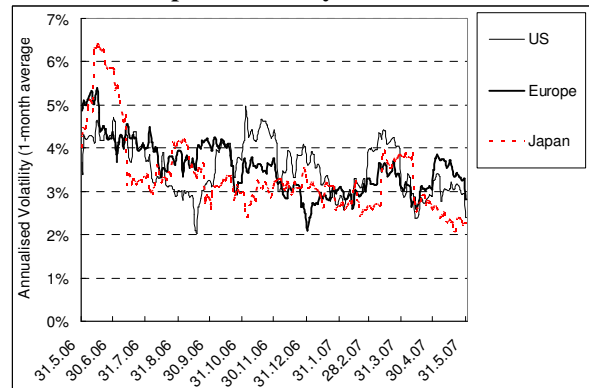
Euro and UK expected future rates are higher than today's (note these are not yield curves, but are future short term rates implied from yield curves)



Volatility

Bond price volatility remained relatively low at between 2.3% and 2.8%: well below 12-month average levels. Japan even touched a new 12-month low of 2.0%.

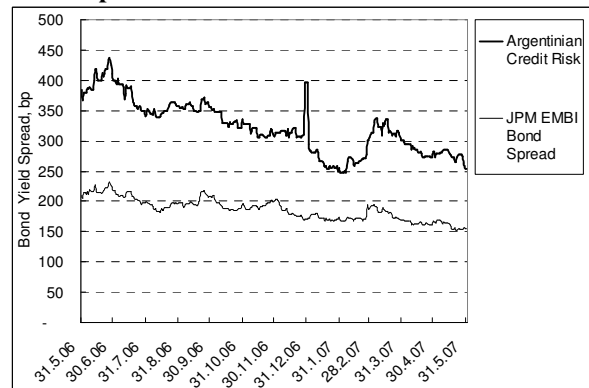
10-Year bond price volatility remained low



Spreads

Fear continued to evaporate and spreads continued their slide. Emerging Market bonds over Developed (JPMorgan EMBI index) fell to just 155bp. Argentinean spreads fell below 255bp.

Credit spreads continued to fall



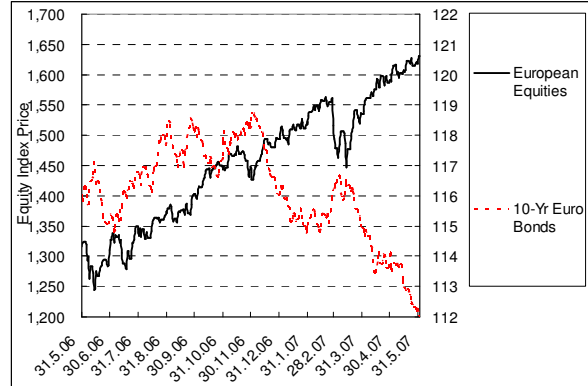


Correlation with Equities

Bonds and equity prices remain negatively correlated since the start of this year (when fears over a growth slowdown intensified), with an r^2 of 28% averaged over the last 6 months.

Equity markets appear to be viewing better economic figures as an indicator of higher profits rather than a prelude to rising rates leading to a slowdown.

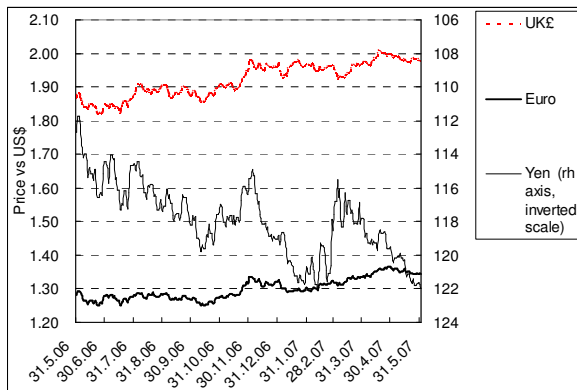
Bonds prices have been negatively correlated with equities since the start of 2007



Prices

Sterling and the Euro moved little against the Dollar during May. However, stronger US economic data helped the Yen to continue its slide, reaching close to the technical level of ¥122 to the Dollar, the weakest level since 2002. There was also speculation that better markets led to higher risk appetite, increasing the demand for the Yen carry trade, which would also push down the Yen.

The Euro and Sterling were flat. The Yen continued to weaken

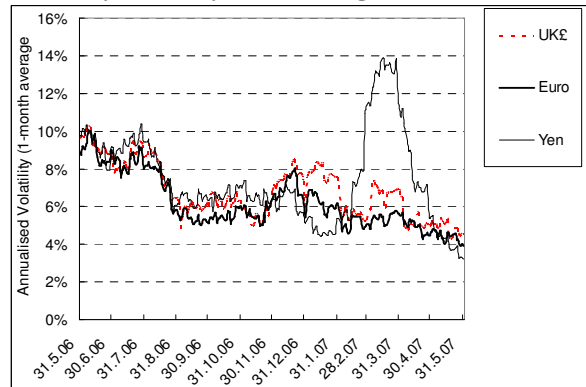


Volatility

FX volatility fell away sharply again in May, with all three major currencies against the dollar hitting 12-month lows.

Yen volatility has dropped sharply from a peak of 13.9% to just 3.4%.

Currency volatility has all but gone!



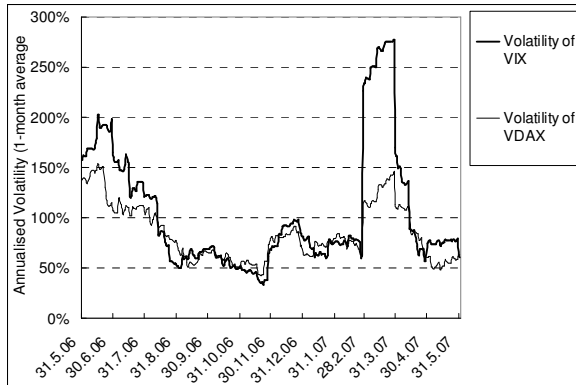
(Equity) Options

Volatility of Implied Volatility

Perhaps unsurprisingly, the chart of volatility of implied volatility looks similar to the VIX and VDAX, showing a peak in late June 2006 and a big spike in volatility in March 2007.

During May the volatility of volatility remained flat in both the US and Germany, both now being well below 12-month average levels, and in Germany not far above 12-month lows.

Volatility of volatility spiked to new 12-month highs in March, but fell sharply back in April and remained flat in May



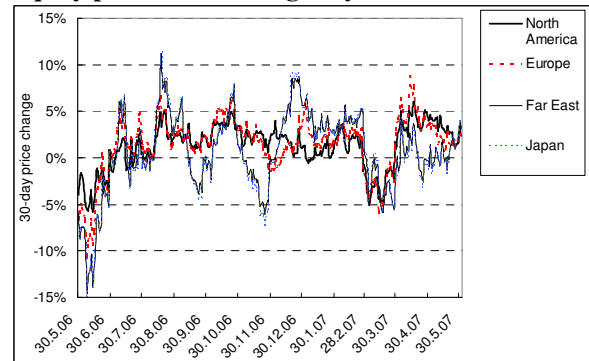
Unlike during March and April, these relatively low volatility of volatilities will have meant options prices were relatively stable.

(Equity) Price Swings

Equity price movements were in general quite positive during May across all regions, although the Asian markets were weaker at the start of the month.

This suggests that (equity) option deltas would have increased for calls and decreased for puts during May.

Equity prices rose during May



Note on Treatment

Options show more complex behaviour than the other instruments we look at in this report, so we make some simplifying assumptions. As Calls and Puts are in effect polar opposites and in and out of the money options behave very differently, it is hard to generalise all options' behaviour. However, we look at the two key drivers: volatility of implied volatility and major price movements of the underlying security.

Implied volatility (via the option Vega) drives option prices, so a big indicator of option price volatility is the "volatility of implied volatility".

Of course the biggest driver of individual option prices is the movement of the underlying (via the option Delta): a move in either direction will cause the option to go in or out of the money (and a corresponding change in the option Delta and price volatility). As a proxy for this, we look at the 30-day price swing of equity market indices; options on bonds or FX could of course behave differently. Calls and Puts will respond in opposite fashions: calls becoming more volatile as prices rise.

Note on Convertibles

Convertibles are in effect a combination of a bond and a call option, with the bond portion usually making little contribution to the instrument volatility unless the option is out of the money. As such, convertible portfolios volatilities will normally behave similarly to call option portfolios, and this commentary can be applied to convertibles as well as options.

Commodities

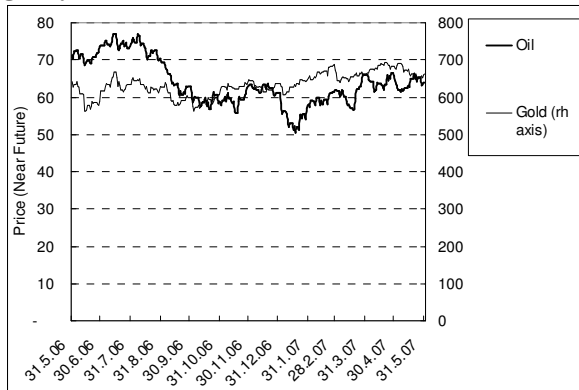
Prices

Oil prices remained at a high level during May despite a focus on worsening troubles in Nigeria and relatively buoyant economic growth.

However, the equity and bond markets' focus no longer appears to be on Oil, and the impact of its recent rise in price was not felt elsewhere.

Gold is still behaving like a safe-haven asset, but prices fell slightly during May to finish at \$660.

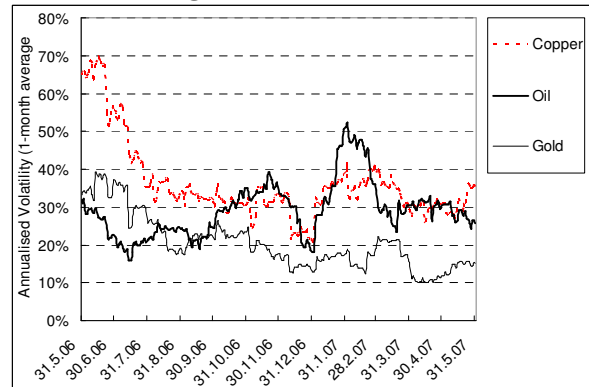
Oil prices rose again; Gold prices continue rising gently



Volatility

The volatility of commodities remained low during May, with all falling to slightly below 12-month averages. Copper volatility rose slightly while Oil volatility fell. Gold volatility remained especially low at just 15.1%.

Volatility levels for major commodities are below 12-month average levels

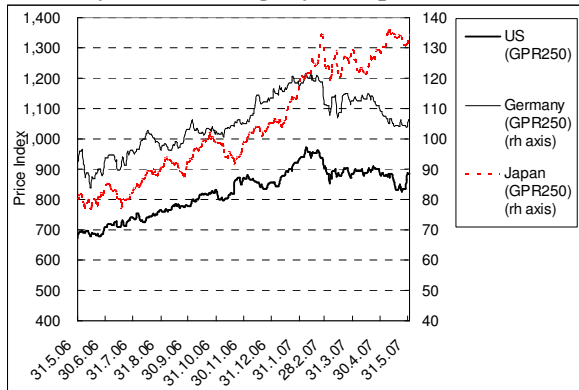


Real Estate (Real Estate Share Prices)

Prices

Property share prices have come off a long bull run which ended in February 2007. Whilst Japanese prices have recovered slightly, those in the US and Germany have fallen back to below the levels of the end of 2006. The weaknesses in US residential property data finally now appear to be denting the US listed property market.

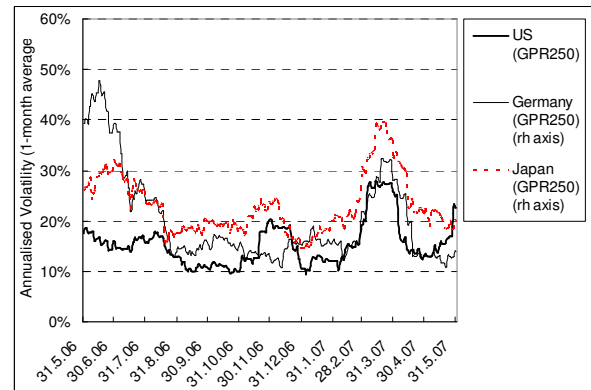
Real Estate prices have fallen in the US and Germany, but risen slightly in Japan



Volatility

Volatility was low but rose towards the end of the month in the US to 22%. In Japan and Europe volatility remained below 12-month averages.

Real Estate volatility levels returned to the low end of the 12-month range, but spiked up at the end of the month in the US



Note

Note that for property we just look at indices of the share prices of property companies, and not the underlying property directly, for which little good data is available. This is usually consistent with funds which tend to invest in property indirectly, e.g. via REIT's.

Notes

Definitions

To avoid repetitions, the term volatility refers to annualised, 30-day average realised volatility in local currency unless otherwise specified. As such it may be lower than, and lag, shorter-term market volatility in times of high market volatility.

Charts show data up until 1st June 2007 and the commentary was written on or before 4th June 2007.

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