

Market Risk Report

October 2006

Executive Summary

- Market sentiment has shifted significantly from fears of inflation to forecasts of slowing growth
- Volatility remained low as equity markets rose off the back of lower interest rate forecasts.
- Bonds saw a similar pattern: price rises with low volatility
- FX volatility remained particularly low during September
- Option price volatility is also very low
- Commodities and Real Estate volatilities remained stable but low
- **In summary: volatility continues to sit at low levels since the fall from their peak in June across all asset classes. In fact it's hard to find volatility in any market at present.**

Feature Article: What could drive volatility higher over the rest of the year?

Feature Article: Beware Rising cross-asset class correlations

In next month's issue:

Slowing growth or rising inflation. Or both?

Key News (Major Volatility-Driving Events)

Inflation last month, slowdown this month

Unlike last month, when rate rises and fears of inflation stalked the markets, September was notable for a strong shift in sentiment towards slowing growth. Institutions are busy revising down GDP growth forecasts across the world, US housing data weakened dramatically and Euro area production surveys looked weak, even if current growth rates are good by recent standards.

It wasn't all bad news, though. Corporate earnings reports were generally good and US consumer sentiment was surprisingly strong.

Europe is still expected to see two more rate rises, while in the US none are expected soon.

The net result was a good month for bonds, and also for equities, as the inflationary fears subsided.

Bull Market-Like Conditions

Bonds and equities moved upwards together in price during September: continuing to break the trend over the last couple of years of a negative correlation. Volatility has also remained low in almost all asset classes.

Oil prices continue to slide

Conflict around Israel and corrosion on an Alaskan pipeline put upward pressure on oil

prices in July, and they reached new nominal highs.

However, since then the price of crude has fallen from \$77 to just \$61 as a result of declining growth forecasts and unwinding of speculative positions.

Politics and the Weather!

After an eventful summer with conflict in the Middle East dominating headlines, the political scene in September has been much quieter, with no major political issues affecting markets. In addition, the start of the hurricane season has proved very quiet, putting downward pressure on oil prices and no doubt pleasing insurance executives!

Amaranth

Lack of hurricanes wasn't good for everyone. Amaranth, a US hedge fund reported losses of \$6bn or around 60% after going long natural gas futures, with gearing of over 5 times. However, the market seems to have rather shrugged off this issue, perhaps as the fund was regarded as too small to endanger the larger financial system.

What could drive volatility higher over the rest of the year?

The Current Situation

It looks like we're in bull market territory again: equity markets are rising, bond markets are calmer with the fears of inflation rapidly giving way to a market view of a slowdown in growth, and most significantly volatility is down in every single asset class we can find.

So what could change?

Well, most of the first half of 2006 looked like this, with low market volatility and rising equity markets (although bond markets didn't do as well). And then came the shock in April when the market panicked about being over-leveraged and sold off. The VIX index (an index of the implied volatility of the S&P 500) rose from 13% to 23%. Basically volatilities doubled.

What could trigger a change?

In general volatility is driven by uncertainty. And right now there is potentially lots of uncertainty in the macro outlook. Economists are divided as to whether the Fed and ECB are being too dovish and will miss their inflation targets (while GDP growth will continue to be globally strong by historic standards) or whether growth will slow sharply towards the end of the year, potentially forcing rate cuts. And some are even forecasting a combination of the two: slowing growth AND inflation. Clearly these are interesting times.

US indicators such as housing data, labour force growth and productivity data are being watched especially closely, and non-consensus reports could cause large swings in market sentiment and

hence volatility. For a theoretical background see for instance the BIS Paper #29 on the impact of slowing economic growth on financial market volatility.

By contrast, the oil price, which has been watched closely as a potentially inflationary factor over the last two years, is now seen as much less of a factor by the market than during the first half of the year as it rose. Unlike in the mid 70's when a rising oil price drove up inflation and triggered recession, it seems to have caused neither this time round. Those economists pointing to the fact oil is much less significant to the economy than it was 30 years ago seem to have been proven correct.

Finally, as a volatility risk factor we would point to the US current account and trade deficits. Markets seem to have focused on these each time other external factors (oil prices rising, Middle East conflicts) have receded. Clearly the large twin deficits would point towards a weakening dollar, particularly if accompanied by a slowing US economy and consequent dovishness by the Fed. This would not necessarily lead to higher volatility but could simply set up a trend of movement. However, as above, a significantly non-consensus report could easily trigger higher volatility.

Overall, risk managers should follow the advice given in the Hitchhikers' Guide to the Galaxy: "Expect the Unexpected."

Beware Rising Cross-Asset Class Correlations

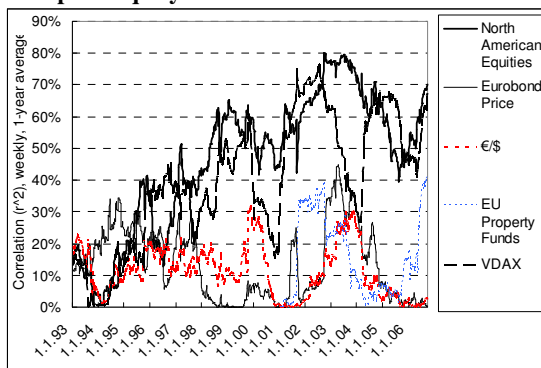
History

Modern portfolio theory, and indeed modern risk engines, work on the assumption that in the near-term future correlations will remain similar to the near-past. This may well be true within an asset class, for instance Deutsche Bank and Allianz remain better correlated than Deutsche Bank and SAP. 10 year and 5 year bonds also remain closely correlated in price. However, across assets classes (and also regions) correlations have been rising, and traditional concepts of portfolio diversification via investing in multiple asset classes are in danger of becoming outdated.

As an example, we look at how an investor in European equities could diversify their portfolio. The following chart shows the correlation coefficient (r^2) between the European equity index and various other indices.

As can be seen, North American equities provided a fantastic diversification in the mid 1990's, but are now highly correlated with European equities (it has widely been observed in academic research that country factors have given way to global industry factors). Other asset classes such as FX, bonds and property by contrast have seen relatively little correlation. Oil shows almost no correlation over the entire period. More disturbingly, even a relatively new asset class, implied volatility (here the VDAX), now shows very strong correlation to its underlying equity market.

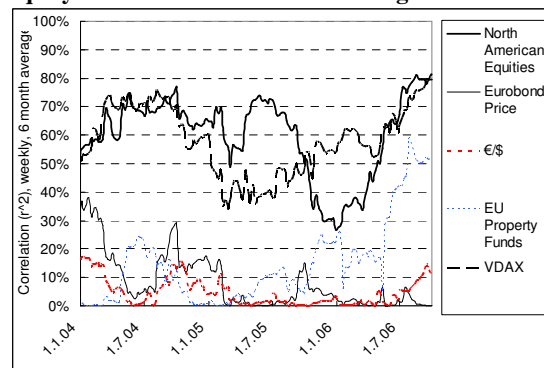
In general correlation coefficients between European equity index and other indices has risen



Recent Past

During 2006 correlations have become particularly high. North American equities have had an 80% correlation with European, as has the VDAX (although negatively correlated). Property is also up to 50% correlation. Only FX, bonds and oil remain good potential diversifiers.

High correlation coefficients between European equity index and other indices during 2006



Implications

The idea that buying into foreign equities provides diversification should be carefully reconsidered. In addition, property and even implied volatility appear to have become highly correlated with European equities. Diversification possibilities still remain, but a fund manager will now have to look to FX or even commodities to find statistically independent prices.

Some recent correlations are also much higher than the averages used in typical risk engine models. Portfolios that are managed with short time-horizons, e.g. hedge funds, should be careful to ensure that they are as diversified as they think. The recent example in the natural gas market shows the dangers of not knowing your risk profile!

Equities

Overview

September was quiet from a macro viewpoint: no hurricanes, no new wars, and no other shocks.

Fears of a slowdown in GDP growth in the US led to a sharp decline in rate rise expectations, leading to a rally in equity markets in the US and Europe. This was further fuelled by a raft of good earnings announcements and stronger than expected US consumer confidence.

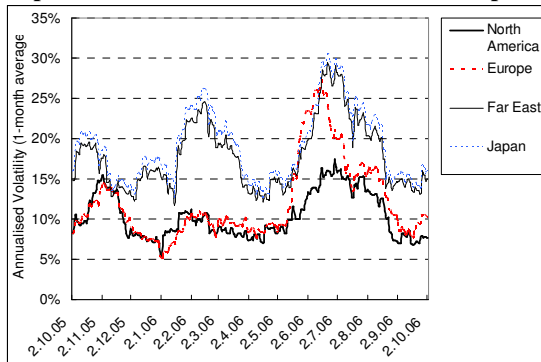
Japan and the Far East did not benefit from this effect, and both were down in September.

Volatility: Regions

Global equity market volatility continued to fall sharply, with all regions at or below 15%. North America is currently at just 8%.

The dispersion between regions also continues to drop. The more volatile regions of Japan and the Far East saw realised volatilities at close to a year-low.

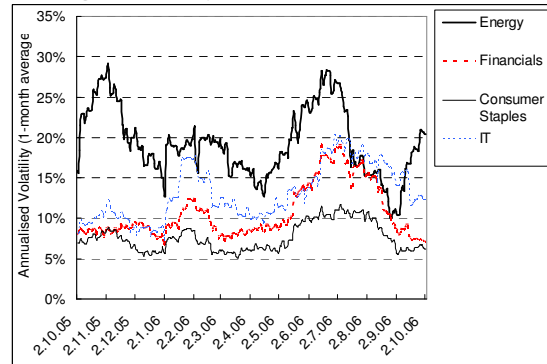
Whilst Japan and the Far East remain more volatile, all regions have seen lower volatilities and dispersion between countries continues to drop



Volatility: Sectors

Sector-wise, Energy saw a sharp rebound in volatility from 10% to 20% as the oil price plummeted. Other sectors saw lower and relatively stable volatilities.

Energy sector equity volatility had dropped significantly to be in line with other sectors, but has risen again recently.

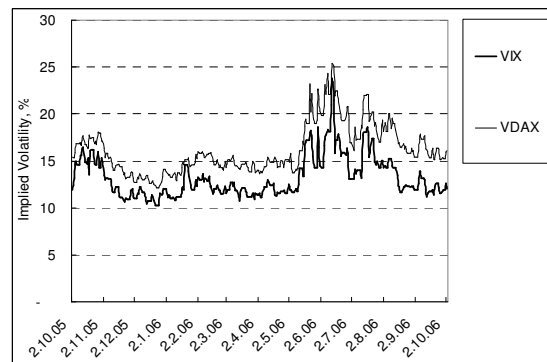


Implied Volatility (Market-Implied Near Term Outlook)

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 indices fell slightly during September with the VIX at around 12% and the VDAX around 15%, both suggests markets are expected to be relatively quiet in October.

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

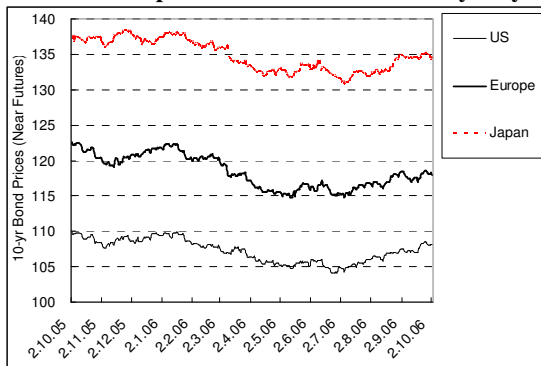


Fixed Income (10 Year Government Bonds)

Prices

A strong shift in sentiment away from rate rise expectations and the worry over inflation to more concern over slowing economies was very positive for the bond markets in September. 10-year bonds have continued to rally since July, although at the shorter end the markets were more mixed.

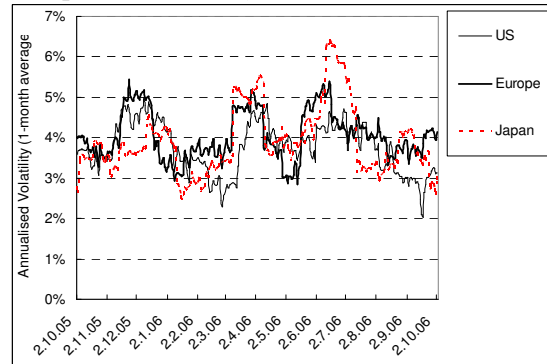
10-Year bond prices have rallied since early July



Volatility

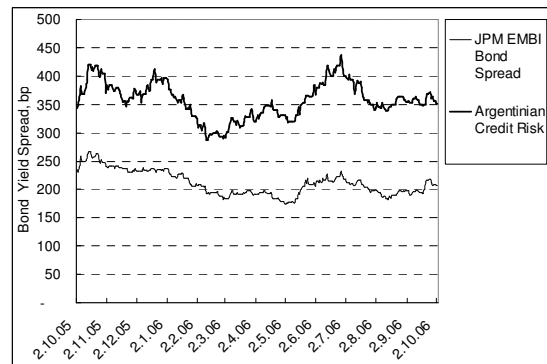
Volatilities trends were mixed in September with Japan falling to year-low levels, but Europe and the US rising, albeit from relatively low levels.

10-Year bond price volatility remains subdued. Japanese volatility fell again and is now lower than Europe and the US at just 2.9%



Spreads

After a long and continuous decline over the last 5 years, spreads of emerging market bonds over developed (JPMorgan EMBI index) have remained relatively flat over the year. Argentinean spreads for instance are still only 350bp. This suggests that the market is not pricing in significantly more volatility in 10-year bonds if they are emerging markets rather than developed.



FX

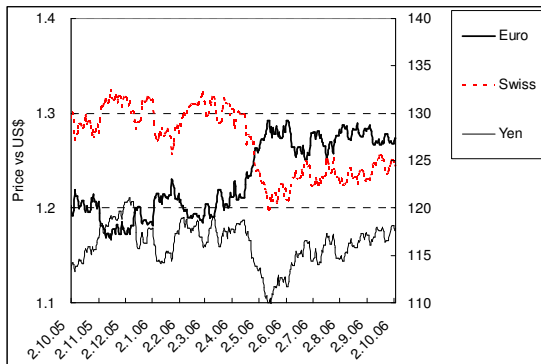
Prices

Despite plenty of macro data and M&A, both of which would be expected to move FX markets, currencies have remained effectively range-bound against the dollar since June.

For instance, while the UK and Europe are somewhat hawkish, slowing growth in the US is even leading to views of a rate cut there. This outlook would favour a strengthening pound and Euro.

Despite the apparent ending of US rate rises, the yield differential between the Yen and the Dollar appears to be fuelling renewed interest in the Yen carry trade (selling Yen to buy dollars), weakening the Yen.

Currencies have remained relatively range-bound relative to the dollar

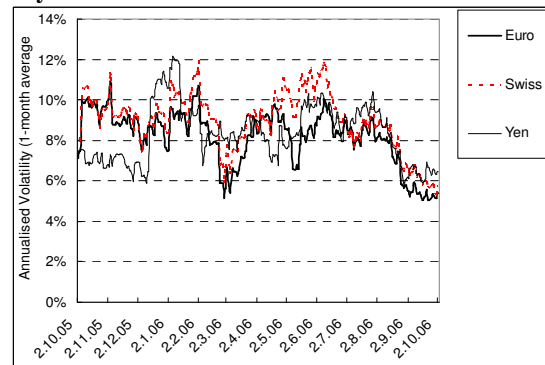


Volatility

As a direct result of their range-bound behaviour, FX volatility has continued to fall during September, albeit less sharply than in August.

Most major currencies are now at just 5-6% volatility, compared to one-year averages of 8-9%.

Currency volatility has continued to fall and is now at year-lows relative to the dollar



Equity Options

Note on Treatment

Options are complicated beasts, so we have to 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.

Implied volatility (via the option Vega) drives all 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 position volatility). As a proxy for this, we look at the 30-day price swing of various market indices. Note that Calls and Puts will respond in opposite fashions: calls becoming more volatile as prices rise.

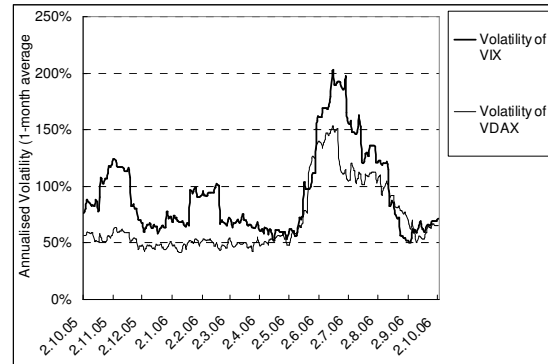
Note on Convertibles

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. As such, convertible portfolios volatilities will behave similarly to call option portfolios, and the above commentary applies to convertibles as well as options.

Volatility of Implied Volatility

Perhaps unsurprisingly, the chart of this looks similar to the VIX and VDAX themselves, showing a peak in late June and a large drop of volatility since then. September was stable. Levels are now close to a 12-month low, suggesting option volatility is low now.

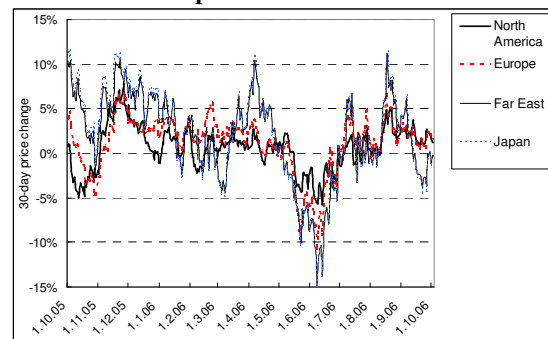
Option and convertible price volatility has fallen since June



Major Price Swings

After major downswings in June making most calls worthless but bringing puts into the money, prices are largely unchanged over the last two months, suggesting lower changes in option deltas and hence lower option volatility. The minor exception is in Japan and the Far East which had a bad month in September and calls will mostly be out of the money now.

Significant price swings during June gave way to relatively flat markets since. However Asian markets fell in September

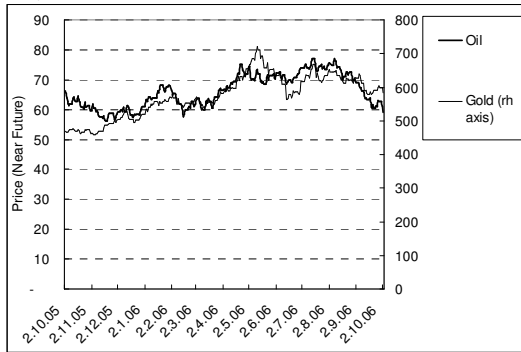


Commodities

Prices

Commodity prices dropped sharply in September, partly as a result of very benign weather conditions (i.e. no major land-falling hurricanes in the US) and partly put down to unwinding of speculative positions.

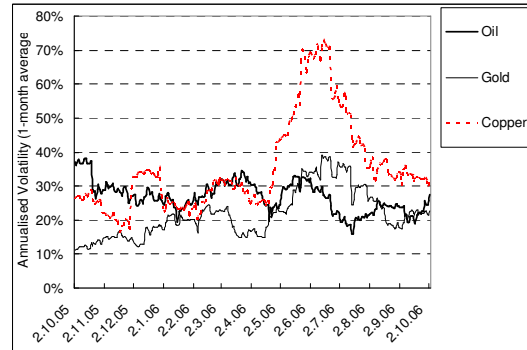
Oil and gold prices have been falling since mid-July



Volatility

The very high volatility levels at the peak of the market in June have now subsided, and volatility levels are back close to year-averages, or in some cases year-lows. Oil in particular has seen a big drop in prices since July, and volatility is now just 23% against a year-average of 27%.

Volatility levels for major commodities are now back to close to year-low levels





Real Estate (Real Estate Share Prices)

Note

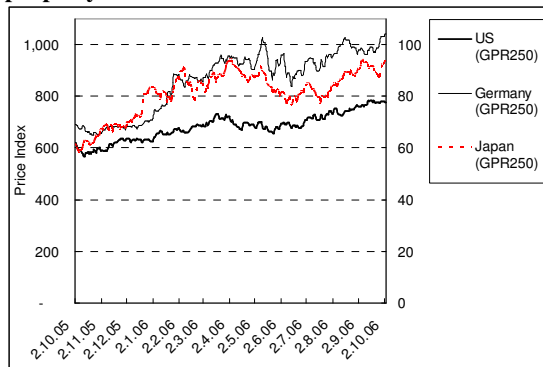
Note that for property we just look at indices of the share prices of property companies, and not the underlying property directly, for which little good data is available. This is usually consistent with funds which tend to invest in property indirectly, e.g. via REIT's.

Prices

Prices have continued to rise in September in the US and Germany, but fell back in Japan (in line with stockmarkets in each region).

Recent weakness in US residential property data did not seem to impact the listed property market.

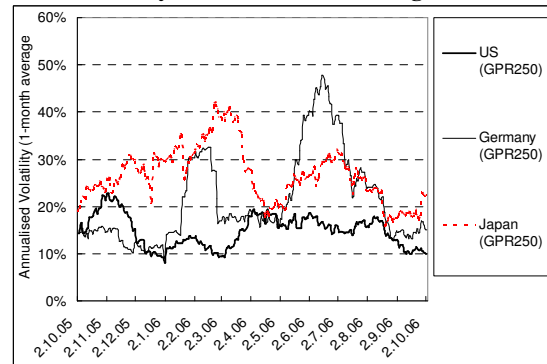
Real Estate prices in general continued to rise during September, despite weaker residential property data in the US



Volatility

Real Estate price volatility has continued to fall since the peak in June and is now at 12-month lows. Japanese volatility remains above US, as it has done for the last year.

Real Estate prices have plateaued this year and as a result volatility levels have been falling off





Notes

Definitions

To avoid repetitions, the term volatility refers to annualised, 30-day average realised volatility in local currency unless otherwise specified.

Charts show data up until 3rd October and the commentary was written on 29th September 2006.

Disclaimer

The commentary does not constitute and is not intended to constitute investment advice.

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