

Hybrids

Diversifying by unifying

Volatility is emerging as the norm for markets as analysts debate the interdependence of emerging markets and developed economies. Investors and risk managers who can gauge correlation between multiple asset classes correctly and unify them through hybrid products will find they are best prepared to hedge risks and enhance yield while other market participants stand on the sidelines

Since the start of the global financial crisis in 2008, an uncertain economic environment has emerged, with volatility and uncertainty encouraging market participants to increasingly diversify their exposures into multiple asset classes in order to capture yield-generating opportunities and/or put in place more efficient hedging strategies.

As a result, hybrid structures (derivatives linked to more than one asset class) are becoming increasingly effective at combating volatility, be it for investors or hedgers.

By nature, hybrids are versatile. This means that comprehensive and tailor-made solutions can be offered to satisfy any investment objective, with investors no longer having to invest in five products to capture five themes, but doing so in one structure. For corporates, exposures to currency, rates and commodities among others can be offset individually or, more simply, by hedging via a hybrid, managing all risks at once and making risk management more efficient and easier to monitor.

Demand for hybrids post-2008 has surged, particularly in Asia where companies are expanding operations into frontier economies and investors are looking for yield outside domestic or regional markets.

By entering into a multi-asset structure, hybrid pricing can use imperfect correlations between assets to generate yield.

Correlation is a statistical measure that quantifies the tendency (of two or more variables) to move in the same direction. The most popular correlation measure is Pearson's, which is obtained by dividing the covariance of the two variables by the product of their standard deviations, and it ranges between -1 and +1. A correlation of +1 means the two assets move together in the same direction, in

Figure 1

	Equity global	Emerging markets	Bond Europe	Precious metals	Commodity	Inflation	Foreign exchange
Equity global	1	0.82	-0.20	0.17	0.69	0.03	-0.50
Emerging markets	0.69	1	-0.29	0.15	0.62	-0.13	-0.19
Bond Europe	-0.33	-0.22	1	-0.09	-0.33	0.64	-0.05
Precious metals	0.10	0.18	0.09	1	0.41	-0.04	0.36
Commodity	0	0.14	0.08	0.35	1	-0.10	-0.46
Inflation	-0.36	-0.26	0.90	0.18	0.20	0.05	0.12
Foreign exchange	-0.25	-0.00	0.18	0.73	-0.29	1	1

Equity global: MSCI World Index; Emerging markets: MSCI, S&P BRIC 40; Bond Europe: iBoxx Eurozone; Precious metals: GSCI Precious Metals Index; Commodity: GSCI Commodity Index; Inflation: Global Inflation iBoxx Index; Foreign exchange: USDEUR

January 2002 (where available) – September 2008 September 2008–October 2011

a deterministic way. Highly positive/negative correlation means that two assets are very likely to move in the same/opposite direction. Figure 1 provides a sample of correlations. The numbers on the left-hand side (green) are taken before the 2008 crisis and, on the right-hand side, are those after 2008. In general, correlation post-crisis is very different than pre-crisis, in many cases higher.

Correlation for yield enhancement

Monitoring correlation is also a way of gauging in which direction the market for different asset classes might be heading.

During the middle of crises, when investors abandon fundamentals and trade on sentiment, various asset classes tend to have elevated levels of correlation because all asset classes trend down in what are considered 'doomsday scenarios'. The exceptions are 'safe haven' asset classes, which have the opposite trend.

Correlations between asset classes tend to be high during financial crises, whereas they tend to decrease when markets become more confident in the economic environment and refocus on fundamentals. The price of an asset can become separated from its fundamental value for many years, but fundamentals will

ultimately determine price. Differences in fundamentals, where they exist, will eventually cause correlations to decline.

Correlation can be used in a number of ways, one of which is strategic investment that allows the investor to capitalise on an economic theme in order to enhance a standard return via a single product. For instance, a bullish view on emerging markets can be seen in conjunction with a rise in commodities like copper and oil, which these economies tend to consume en masse.

A product that has proven popular during this economic climate, and more so in the Asian region, is the dual range accrual. A dual range accrual structure accrues a (high) coupon for each day that two underlyings are within a pre-determined range, and it gives the investor the opportunity to benefit from the behaviour of more than one asset class. Typically, indexing the range accrual to two underlyings instead of one allows the investor to get a potential yield pick-up of 1.5%–3% per annum over and above the equivalent single asset structures.

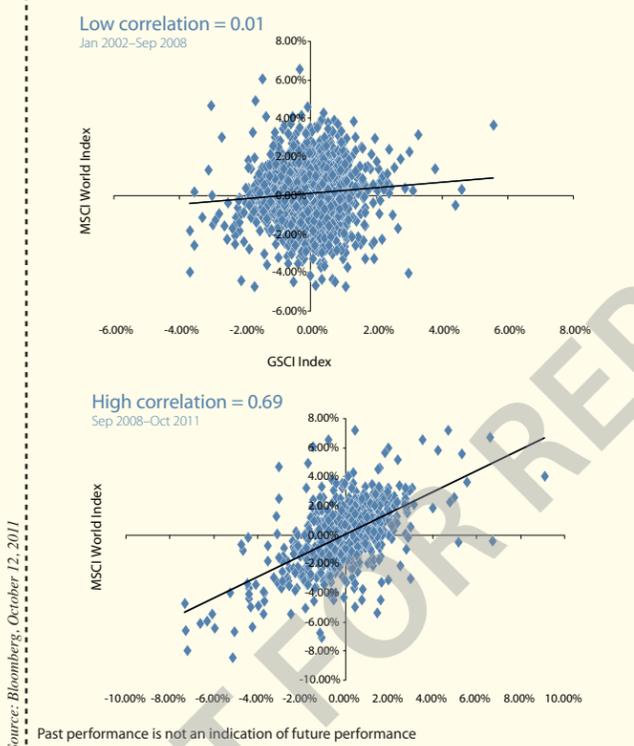
Hybrid products can allow the investor to 'exploit' correlation; in a basket product, one result is that correlation reduces the

basket volatility and makes it cheaper to buy an option providing an opportunity to enhance yield, with less risk. Figure 2 shows that, prior to the September 2008 crisis, the MSCI World Index and GSCI Commodity Index had almost no correlation (0.01), whereas post-September 2008 to date, the correlation has been 0.69, with the correlation soaring to 0.97 at the highest point. A best-of option offered on these two assets is an option where the investor receives a payout linked to the best performer of the underlying assets in a basket. Typical payout function is:

$$\text{Coupon} = \text{Max} [\text{Performance asset 1}, \text{Performance asset 2}, \dots, \text{Performance asset N}]$$

Best-of options are cheaper when the assets in the basket are highly correlated, which is often the case during financial crises. If, later on, the market stabilises and correlation decreases, the product will have been purchased relatively cheaply.

2. Correlation MSCI World and GSCI Commodity Indexes

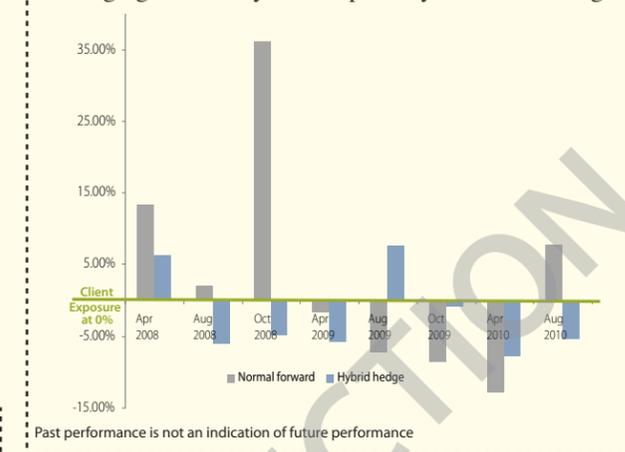


Improving hedge effectiveness through correlation

This is reflected well in one such case where the revenues and profitability of a commodity producer were directly related to the price volatility of the underlying commodity, in this case aluminium.

Aluminium prices are usually quoted in USD, but the producer's accounting base currency is EUR. Hedging the commodity risks only (ignoring the foreign exchange mismatch) will most likely lead to under/over-hedging outcomes, whereas hedging the commodity and forex risks separately may be inefficient and expensive. The producer may want to hedge the forex exposure selling USD versus EUR on a forward basis, setting the USD notional equal to the units of aluminium to hedge multiplied by the current aluminium price. If aluminium sells off, the producer will find itself over-hedged (as they will have traded a USD notional greater than what would have been needed) and face a loss or

3. Hedging – volatility creates partially ineffective hedges



gain on the hedge depending on the forex movement.

To address this issue, a potential solution is to adjust the forex hedging notional to the commodity price by entering into a hybrid hedge, taking into account forex and commodity movements in one instrument.

Figure 3 shows the client's exposure profile and plots the effectiveness of a standard forex forward versus a forex and commodity hybrid. The 0% line reflects a perfectly hedged position. It is evident that, with elevated volatility in 2008, the client was 37% over-hedged, whereas the hybrid hedge was 5% under-hedged.

Conclusion

During the last three years, the heightened level of uncertainty has generated a substantial growth in demand for hybrid products, which with their versatility offer the scope for comprehensive solutions to a wide array of investment issues. The distinctive characteristics of hybrid products provide a tailored and innovative response to any investor's needs, across the spectrum of requirements – from hedging and portfolio protection, to yield enhancement and diversification.

At times of distress, macro forces are dominant, and asset classes that have traditionally showed low levels of correlation have in fact behaved in an extremely correlated manner, generating market dislocations and opportunities to be captured via hybrid products.

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