

## How correlation between underlyings affect dual index product efficiency

Correlation is a statistical measurement of how 2 sets of assets move in relation to one and other. Assets that are perfectly correlated will have correlation coefficient of 1 and this means as one asset moves, the other asset will move in the exact same direction. Perfectly negative correlation will have a correlation coefficient of -1 and uncorrelated assets will have a correlation coefficient of 0 and it means that the movements of both assets are unrelated.

Typically dual index products with higher correlated underlyings have a better chance of delivering results because the performance and capital return is dependent on the positive performance of both underlyings.

If the chosen underlyings are lowly correlated it would mean that the movements of both indices are random. Since the performance of the product is dependent on the positive performance of both indices, the chance of payout not happening is higher compared to a product with a single index.

While a product with dual indices may have a lower probability of fulfilling its payoff, it is also cheaper. Thus products with highly correlated indices have the potential to achieve similar exposure as a straightforward single index product, but at a lower cost.

## Correlation statistics for 1 year performance

	FTSE® 100	EPRA	S&P GSCI	MSCI Emerging Market	Nikkei 225	S&P 500	DJ Euro Stoxx 50	Hang Seng China Ent	iShares MSCI Brazil
FTSE® 100	1.00	0.81	0.32	0.90	0.86	0.94	0.97	0.62	0.83
EPRA	0.81	1.00	0.27	0.70	0.82	0.79	0.82	0.45	0.53
S&P GSCI	0.32	0.27	1.00	0.45	0.32	0.40	0.30	0.31	0.50
MSCI Emerging Market	0.90	0.70	0.45	1.00	0.84	0.92	0.89	0.81	0.91
Nikkei 225	0.86	0.82	0.32	0.84	1.00	0.83	0.90	0.64	0.76
S&P 500	0.94	0.79	0.40	0.92	0.83	1.00	0.93	0.75	0.84
DJ Euro Stoxx 50	0.97	0.82	0.30	0.89	0.90	0.93	1.00	0.68	0.84
Hang Seng China Ent	0.62	0.45	0.31	0.81	0.64	0.75	0.68	1.00	0.77
iShares MSCI Brazil	0.83	0.53	0.50	0.91	0.76	0.84	0.84	0.77	1.00

## Key points

- \* FTSE 100 and S&P 500 are highly correlated at 0.94 and therefore at a good position to generate similar performance to either of the FTSE 100 or S&P 500 Index.

**Source: Bloomberg 1 November 2010. Daily closing values, capital movements only (dividends not included) 14/07/2000 to 01/11/2010.** This analysis compares the simulated returns for every 1 year period where each Index has a valid Start Date (i.e. the Start Date does not fall on a non-business day) from 14/07/2000 to 01/11/2010 and is based on full calendar years.

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