

File Note

The Cambridge Strategy (Asset Management) Limited

The Calculation of Global Volatility

"The Cambridge Strategy allocates capital to its Systematic Fundamental Strategy on the basis of an objective measure of global volatility based on the 1 month implied volatility for a basket of currencies since 1994. The risk exposure is adjusted weekly. The level of the volatility indicator implies a maximum allocation ranging from 0% to 80%. Capital allocated is a function of this allocation leveraged 5 times."

The Cambridge Strategy measures global volatility by using daily prices of one month implied volatility for EURUSD, USDJPY, USDCHF, GBPUSD, USDCAD and AUDUSD since 1 August 1994. We use weightings for each currency pair based on the latest Triennial Central Bank Survey of the global foreign exchange markets.

The current weightings used are;

Euro	38.7%
Japanese Yen	23.6%
British Pound	19.4%
Swiss Franc	5.0%
Canadian Dollar	5.0%
Australia Dollar	8.3%

Our global volatility measure, σ_g , is then the volatility of a currency basket with these weightings. The variance of this basket is calculated in the normal manner:

$$\sigma_g^2 = \text{Var}\left(\sum_{i=1}^n w_i X_i\right) = \sum_{i=1}^n w_i^2 \text{var}(X_i) + 2 \sum_{i \neq j}^n w_i w_j \text{cov}(X_i, X_j)$$

Where:

- each X_i represents the underlying exchange rates;
- w_i represents the weightings (from the Triennial Central Bank Survey);
- $\text{var}(X_i)$ is the variance of exchange rate i ; and
- $\text{cov}(X_i, X_j)$ is the covariance between exchange rate i and j .

We calculate the variances of the individual exchange rates from the implied option volatility of each exchange rate and use implied volatilities of cross rates to obtain the correlation coefficients $\rho_{i,j}$ between currency pairs i and j .

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This allows us to calculate the covariance because $\text{cov}(X_i, X_j) = \rho_{ij} \sigma_i \sigma_j$, where:

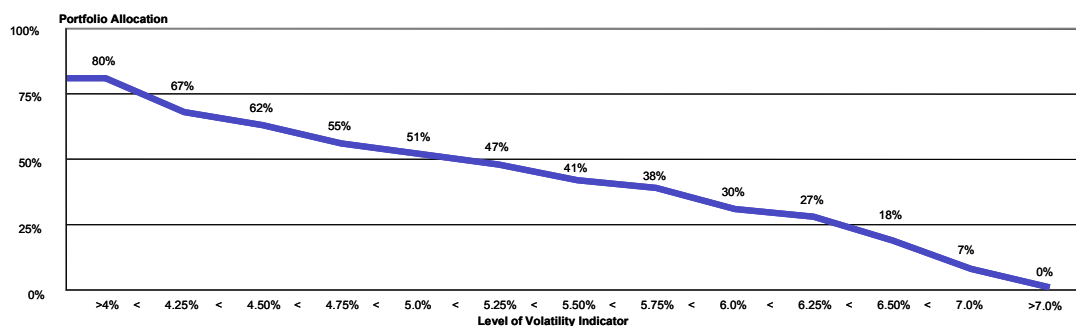
$$\sigma_i = \sqrt{\text{Var}(X_i)}$$

$$\sigma_g = \sqrt{\sigma_g^2}$$

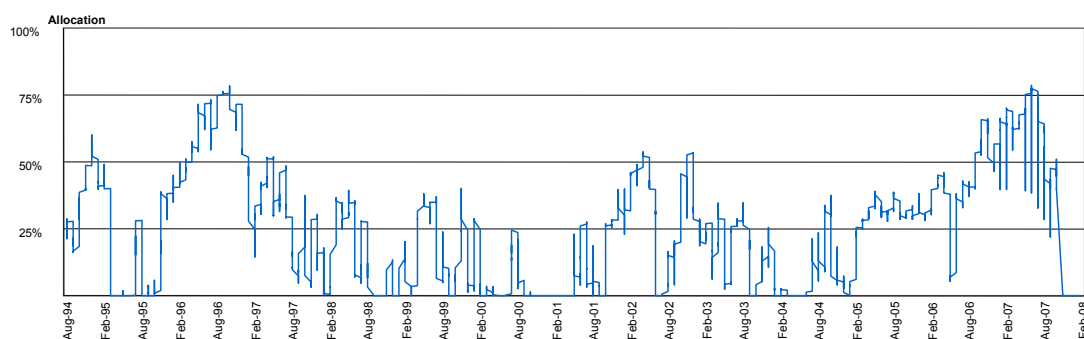
is then our estimate of global currency volatility.

The level of global volatility determines the size of the allocation to our Systematic Fundamental Strategy based on back-tested portfolio performance against historical levels of our global volatility indicator.

The allocation line calculated on the basis of this data is presented below:



The back tested allocation levels since 1994 are as follows:



Practical implications of the Global Volatility Measure

Based on our methodology, the following aspects of the Cambridge Strategy's global volatility measure are observable:

- High levels of global volatility result in lower allocations and visa versa.
- The highest allocation to the strategy is 80% and the lowest possible is 0%.