

'Magic formula' defies all the rules

The Big Picture

Minimum variance equity portfolios seem to be breaking the efficient market hypothesis asunder, says **Steve Johnson**

The efficient market hypothesis states that it is impossible to consistently outperform the market by using any information that the market already knows, except through outrageous serendipity.

The growing band of converts to the concept of "minimum variance" equity portfolios would beg to differ from this statement.

Geneva-based Unigestion, which was an early minimum variance pioneer, claims its European strategy has outperformed the wider market by more than 4 percentage points a year since 1999, with a five-year rolling per annum return of 13.36 per cent, against 8.90 per cent for the DJ Euro Stoxx 600 total return index and 8.66 per cent for the MSCI Europe on a total return basis.

The sister US strategy, launched on January 31 this year, has the unusual distinction of being in positive territory, returning 3.1 per cent as of the end of August, while the S&P 500 total return index fell 5.7 per cent.

Others are starting to take interest. State Street Global Advisors plans to launch a US minimum variance product later this month, joining adherents such as Acadian Asset Management, Axa Rosenberg and Robeco. In April, MSCI Barra launched a benchmark index.

So, have these houses stumbled on the holy grail of an investment technique that breaks the efficient market hypothesis asunder – fatally undermining passive strategies based on market capitalisation weighted indices in the process?

Interest in minimum variance portfolios

'We underperform in a market driven by one thing, such as the bubble in technology . . . We do well in a down market'

Jean-François Hirschel, Unigestion

was kick-started by research by Professor Robert Haugen, a US academic, who in 1995 claimed that a US equity portfolio designed to minimise total risk achieved an absolute return, as well as a risk-adjusted return, above that of the S&P 500.

More recent studies appear to confirm the persistence of this apparent anomaly. Andrew Ang, finance professor at New York's Columbia University, who in 2006 crunched US stock market data from the preceding 37 years, found that stocks with "low idiosyncratic volatility" tended to exhibit relatively high returns, a pattern that held in every decade.

Patrick Bloomfield, partner and actuary at consultant Hymans Robertson, says: "Simplistically, any product that can provide the same level of return with a lower risk exposure has to be attractive; it's a fund management equivalent of turning lead into gold."

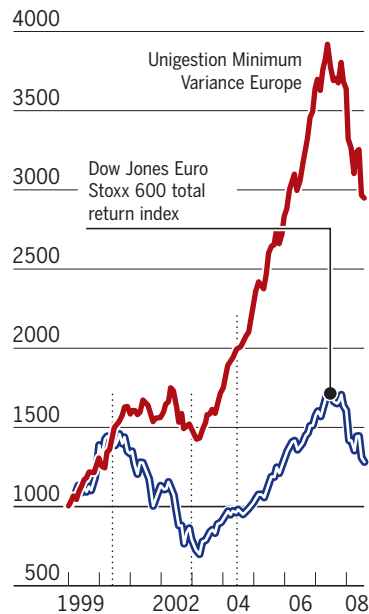
The minimum variance technique aims to construct portfolios of stocks that are uncorrelated to each other, just as much as being "low variance" or low beta in their own right.

In practice, managers will use filters to optimise their portfolios, although critics argue this layer of complexity is largely designed to justify their fees, which can be 1.5 per cent a year for retail investors, for what is essentially a passive strategy.

Unigestion, for instance, strips out illiquid stocks and those with credit difficulties.

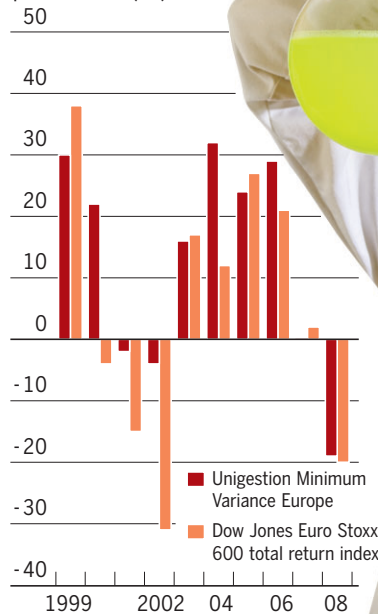
Minimum variance

Fund and index rebased



Source: Unigestion

Historical performance (%)



MSCI's Global Minimum Volatility index has constraints on the weighting of each stock, sector and country relative to benchmark.

Frank Nielsen, executive director of MSCI Barra, says the strategy, backtested to 1995, would have outperformed the MSCI World index in absolute terms, with 30 per cent lower volatility and a Sharpe ratio, a measure of risk-adjusted return, of 0.67, versus 0.45 for the index.

He envisages growing interest in such "managed volatility" strategies from pension funds and insurance companies, given the increasing need for mark-to-market accounting, and says MSCI Barra is "in discussions" with providers of exchange traded funds keen to replicate its new index.

"There's a lot of people talking about it," says Churchill Franklin, executive vice-president of Boston-based Acadian, which has \$233m (£133m, €167m) in two minimum variance-style strategies, who believes the market correction has made sophisticated investors think about risk as well as return.

Jean-François Hirschel of Unigestion, which manages \$3bn in its minimum variance strategies, says the concept is "gaining traction", with "a lot of money coming in" for its US fund. Unigestion has one UK pension fund on board and says it is in discussions with a large Middle Eastern sovereign wealth fund.

However, the uptake may be dependent on market conditions. Minimum variance strategies tend to outperform in relative terms in bear markets, but can undershoot in thematically driven bull markets.

"We underperform in a market driven by one thing, such as the bubble in technology. Because the model is looking for low correlation it will stay away from a sector where there is high correlation. 1999 was our worst year," says Mr Hirschel. "We will do well in a down market because there is usually a lot of diversification then. A good way to make money is not to lose money."

As a result minimum variance portfolios tend to have high tracking error, often as much as 8 to 10 per cent. Further, some critics dismiss minimum variance as just another fundamental strategy benefiting from the outperformance of value and small cap stocks noted by many studies.

Lionel Martellini, professor of finance at the Edhec Business School in Nice, believes the strategy has its merits. "We have a massive amount of evidence that minimum variance portfolios outperform market cap benchmarks on a risk-adjusted basis. In terms of raw performance they also perform

quite well compared to market-cap weighted portfolios."

However, according to Prof Martellini, even minimum variance can be beaten in terms of raw performance and Sharpe ratio in a disarmingly childlike manner – equally weighting every stock in a given universe.

"Naive diversification works better than

sophisticated diversification, it works better than modern portfolio theory. It's interesting and perhaps a little bit sad.

"But minimum variance portfolios have never been designed to have good Sharpe ratios. It's about minimising volatility," – the one area in which they trump naive equally weighted indices, says Prof Martellini.



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