

Diversification Update at 30/04/2011

<p>TOBAM's Diversification Ratio (DR)¹ measures how much a portfolio is diversified. The DR² (square of the diversification ratio) corresponds to the number of independent degrees of freedom in a particular portfolio – or the number of independent variables at work. As the chart shows, the “broad market” indices leave diversification on the table. In addition to a snapshot of each market's DR², the chart shows the DR² of a well-diversified portfolio, and the fraction of available diversification used by the index</p>		<i>DR² - Index diversification</i>	<i>DR² - Maximum diversification</i>	<i>% diversification used by index</i>
	MSCI EMU	1.85	4.71	39%
	MSCI US	2.10	5.48	38%
	MSCI UK	2.25	3.42	66%
	MSCI Japan	1.90	3.92	49%
	MSCI World	2.79	7.18	39%
	MSCI Australia	2.13	4.37	49%

Focus: How maximizing diversification reduces volatility, without betting on low-volatility stocks

Volatility reduction can have tangible value for investors, as it reduces the variability of outcomes. But are there any biases embedded in portfolios that exhibit low-volatility features? Notably, does a low-volatility portfolio necessarily hold a large number of low-volatility stocks?

We compare three portfolios below: the Benchmark, the Anti-Benchmark and the MSCI Minimum Volatility Index:

Portfolio volatility vs. single stock volatility and Diversification (DR²)

	2008*			2009*			2010*		
	BK ¹	AB ²	MV ³	BK	AB	MV	BK	AB	MV
Portfolio Volatility	17.3%	11.3%	13.3%	21.7%	14.1%	16.7%	24.1%	15.2%	17.5%
Weighted average single stock volatility	28.2%	29.9%	23.8%	35.5%	31.1%	25.5%	37.0%	29.9%	24.3%
DR²	2.66	6.97	3.20	2.66	4.88	2.31	2.37	3.84	1.93

*All periods as of 31.12. ¹ MSCI World Index; ² Most Diversified Portfolio; ³ MSCI World Minimum Volatility Index

The above data lead to the following observations:

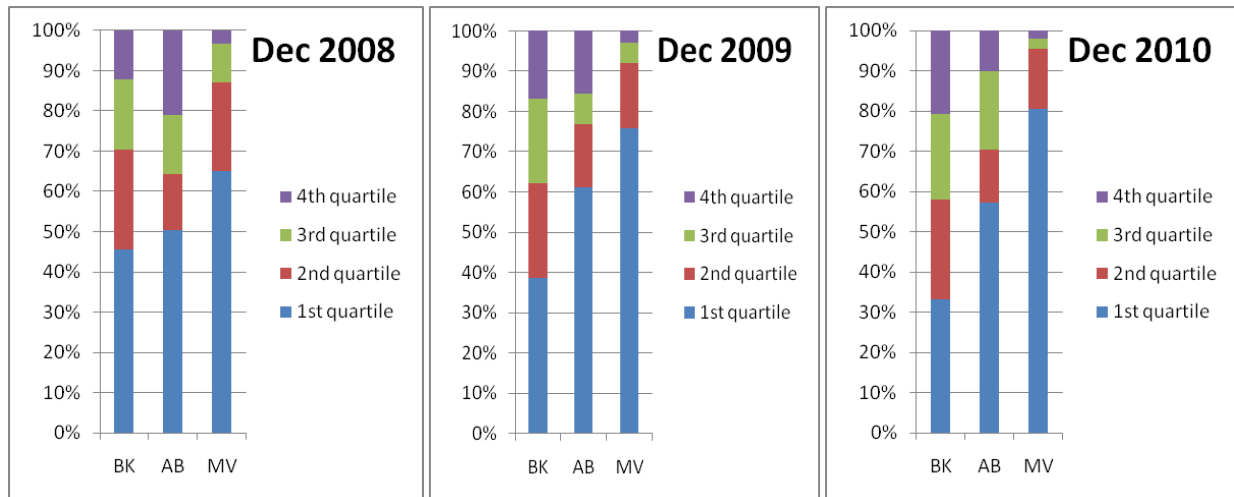
- A fully diversified portfolio (AB) does a better job of reducing outcome variability (volatility) than the cap-weighted index (BK) or the low-volatility index (MV);
- The AB's higher diversification translates to an ability to provide lower volatility, without limiting itself to low-volatility stocks; and
- The Minimum Volatility Index, a constrained-volatility version of the cap-weighted index, still comes out more volatile and less diversified than the Anti-Benchmark.

As such, the **Most Diversified AB portfolio is exposed to individual stocks with higher volatilities, and still achieves lower total portfolio volatility by construction.** A portfolio's total risk is truly greater, or in this case less than, the sum of its parts!

Exposure to volatility quartiles

From a different angle, below, after ranking the universe of stocks into risk quartiles (according to annualized volatility) and comparing each portfolio's exposure across quartiles, we note that the AB maintains healthy exposure to third and fourth quartile stocks with higher volatilities, but these are almost absent from the MV portfolio:

Portfolio composition by volatility ranking*



BK=MSCI World Index; AB=Most Diversified Portfolio; MV= Minimum Volatility Index

The bottom line is that merely selecting stocks based on their volatility ranking circumvents one of the crucial questions investors, or the models they apply, should ask: "Does this security complement the other securities in the portfolio (will it diversify)?" not "Will this security lower portfolio volatility?" Answering the first question affirmatively takes care of the second as well.

Reducing volatility per se is thus not an end in and of itself. Instead, investors who seek to manage risk via the complementarity of diversification can see stronger performance and reduce volatility along the way. The Most Diversified Portfolio is thus "volatility-aware" by virtue of diversification – which makes the question "are low volatility stocks overpriced?" only rhetorical.

For more information:

TOBAM's Diversification Ratio® measures a portfolio's or index's diversification. It is supported by original research and is based on a mathematical definition of diversification. TOBAM's "Anti-Benchmark" Most Diversified Portfolio® maximizes this Diversification Ratio®. Maximizing diversification within a universe of securities provides a result closer to the true market risk premium from that universe. "Maximum Diversification®" and "MaxDiv®" are registered trademarks of TOBAM.

Christophe Roehri
Head of Business Development
+33 1 53 23 41 60
Christophe.Roehri@tobam.fr

Steve Sapra
TOBAM North America
+1 646 240 4660
Steve.Sapra@tobam.fr

Morella Hessels
Benelux Sales Officer
+31 203 012 106
Morella.Hessels@tobam.fr

Laura Vu Thien
UK Sales Officer
+33 1 53 23 41 65
Laura.VuThien@tobam.fr

Read more:
www.tobam.fr

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