

## Diversification Dashboard – 28/02/2013

<p>TOBAM's Diversification Ratio (DR)<sup>1</sup> measures to what extent a portfolio is diversified. The DR<sup>2</sup> (square of the diversification ratio) measures the number of effective degrees of freedom to which a portfolio is exposed. As the table shows, the "broad market" indices leave diversification on the table. In addition to a snapshot of each market's DR<sup>2</sup>, the table shows the DR<sup>2</sup> of a well-diversified portfolio, and the fraction of available diversification used by the index.</p>		<b>DR<sup>2</sup> - Index diversification</b>	<b>DR<sup>2</sup> - Maximum diversification</b>	<b>% diversification used by index</b>
	<b>MSCI EMU</b>	2.09	6.70	31%
	<b>MSCI US</b>	2.83	8.66	33%
	<b>MSCI UK</b>	2.36	3.78	63%
	<b>MSCI Japan</b>	2.53	8.77	29%
	<b>MSCI World</b>	3.33	13.29	25%
	<b>MSCI Australia</b>	2.70	6.01	45%
	<b>MSCI Pacific ex-Japan</b>	2.40	6.97	34%
	<b>MSCI Canada</b>	3.42	7.54	45%
	<b>MSCI Emerging</b>	4.19	8.17	51%

## The benefits of maximum diversification in US equities: low volatility without a low-volatility bias

Year to date through January 31, 2013, some of the best performing stocks in the US market were also the riskiest. This Dashboard takes a closer look at how maximizing diversification across all volatility ranges enhanced performance through January 2013, while still lowering overall portfolio volatility, even in this type of market environment.

### 1. Outperformance and Volatility Reduction

#### AB US vs. the MSCI USA cap-weighted index – three months ended January 31, 2013

	3M Performance	Delta	Volatility
AB US	7.58%	+0.82% vs. MSCI	10.98%
MSCI USA	6.76%		12.33%
MSCI USA Min Vol	4.19%	-2.57% vs. MSCI	9.47%

As detailed above, the AB US portfolio outperformed both the cap-weighted index and the MSCI Minimum Volatility index in an up market. Over the same period, the MSCI MinVol underperformed the cap-weighted MSCI.

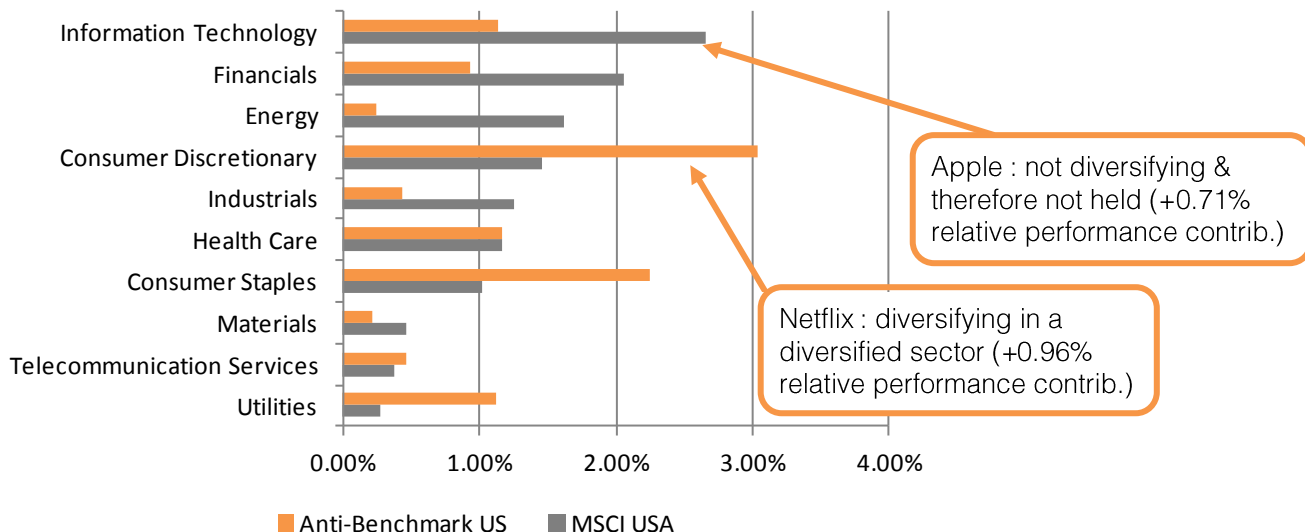
<sup>1</sup>TOBAM's Diversification Ratio measures a portfolio's or index's diversification. It is supported by original research and is based on a mathematical definition of diversification. TOBAM's "Anti-Benchmark" Most Diversified Portfolio<sup>®</sup> maximizes this Diversification Ratio. Maximizing diversification within a universe of securities provides a result closer to the true market risk premium from that universe. "Maximum Diversification<sup>®</sup>" and "MaxDiv<sup>®</sup>" are registered trademarks of TOBAM.

## 2. Portfolio Performance Drivers

For the period above, the AB US remained diversified across the risk factors underlying each sector, which led to outperformance across both low- and high-volatility sectors.

### Anti-Benchmark US Equity: sources of volatility compared to the MSCI USA index

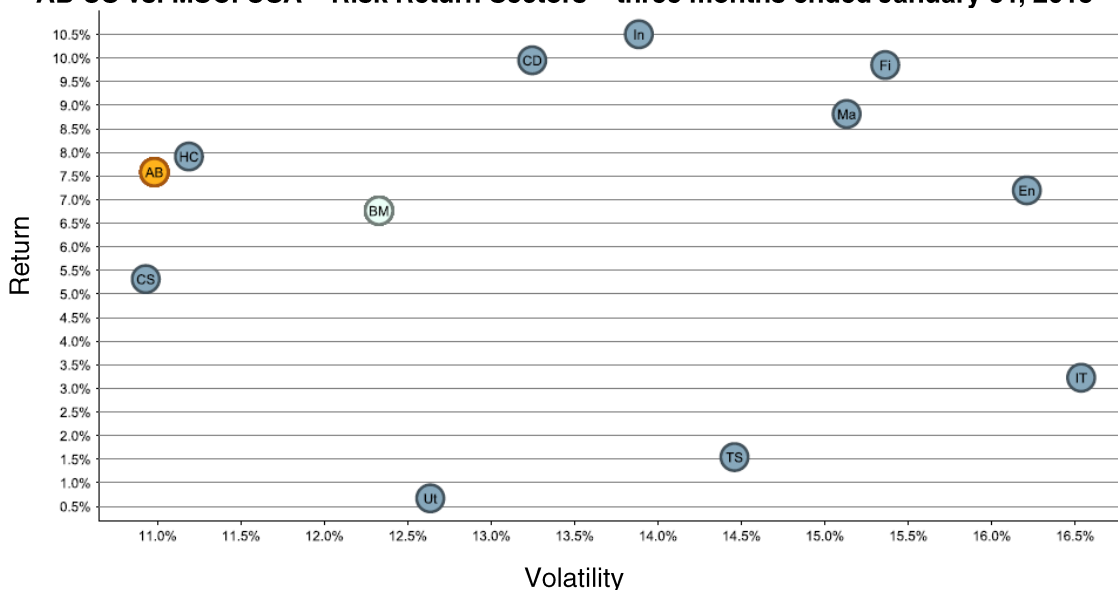
Year to date through January 31, 2013



When it comes to stock selection, the AB portfolio is style-blind: risk and performance may be driven by “all or nothing” (high volatility or growth) stocks, but also by “boring” (low-volatility or value) stocks. For example, *not holding* Apple (IT) contributed +0.71% to performance year to date through January 31. On the flip side, holding Netflix (Consumer Discretionary) added +0.96% over the same period.

## 3. Market Performance Drivers

### AB US vs. MSCI USA – Risk Return Sectors – three months ended January 31, 2013



In the context of the above graph, what stands out is that the volatility of AB US, a portfolio exposed to stocks across all risk levels, is lower than that of the market cap portfolio, and also compared to all but one benchmark sectors.

**4. Single-stock Volatility vs. Portfolio Volatility**

In order to explain the above paradox longer-term, we compare the AB US's single stock volatility distribution to that of the MSCI USA index and also a pure Minimum Variance portfolio on the MSCI USA investment universe ("MV").

**Portfolio volatility vs. single stock volatility and Diversification (DR<sup>2</sup>)**

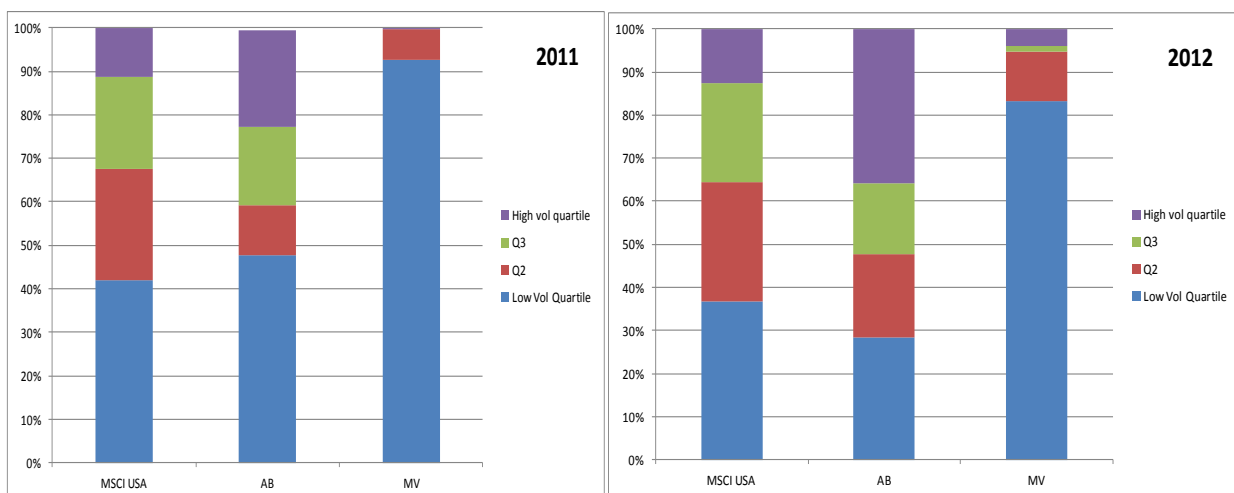
	2011			2012		
	BK	AB	MV	BK	AB	MV
<b>Portfolio Volatility</b>	23.1%	17.4%	11.7%	12.8%	9.5%	6.6%
<b>Weighted average single stock volatility</b>	30.1%	32.6%	18.7%	22.0%	29.2%	15.3%
<b>DR squared</b>	1.71	3.53	2.53	2.95	9.41	5.36

\*All periods as of 31.12. BK = MSCI USA Index; AB = Anti-Benchmark US Most Diversified Portfolio; <sup>3</sup> MV = Minimum Variance

Looking at these portfolios from the angle of their weighted average single stock volatility, the MinVar portfolio consistently shows a number significantly lower than the one of the benchmark. One could understand this as a bias towards low volatility stocks. On the other hand, the AB's average single stock volatility is higher than that of the benchmark; however, the AB reduces volatility by 25% and 26% vs. the benchmark in 2011 and 2012, respectively. This is explained by the AB's focus on selecting the most diversified, i.e., least correlated, mix of stocks.

**Portfolio composition by volatility ranking\***

BK=MSCI USA Index; AB=US Most Diversified Portfolio; MV= Minimum Variance



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 a "minimum variance" portfolio:

In conclusion, the AB's higher diversification translates to an ability to provide lower volatility, without being limited to low-volatility stocks. Moreover, the Anti-Benchmark's absence of bias toward low-volatility stocks has an impact on its ability to outperform in a rising market.

## For more information

TOBAM is an asset management company offering innovative investment capabilities whose aim is to maximize diversification. TOBAM's flagship Anti-Benchmark® strategies, supported by original research and a mathematical definition of diversification, provide clients with diversified core equity exposure, both globally and in domestic markets. FTSE also publishes the FTSE TOBAM Maximum Diversification Index Series based on the Anti-Benchmark equity portfolio construction methodology. The company manages more than \$3 billion via its Anti-Benchmark strategies for institutional clients worldwide. Its team includes eighteen financial professionals.

## Contacts:

### Head of Business Development

Christophe Roehri  
+33 1 53 23 41 60  
[Christophe.Roehri@tobam.fr](mailto:Christophe.Roehri@tobam.fr)

### Business Development

Laura Vu Thien  
+33 1 53 23 41 65  
[Laura.VuThien@tobam.fr](mailto:Laura.VuThien@tobam.fr)

### Client Service

Elizabeth Breaden  
+33 1 53 23 41 56  
[ClientService@tobam.fr](mailto:ClientService@tobam.fr)

### TOBAM Marketing Partners

#### Global Distribution - Amundi

Jan Vormoor  
+33 1 76 37 11 09  
[jan.vormoor@amundi.com](mailto:jan.vormoor@amundi.com)

#### Nordics - Paxstone Capital LLP

Kasper Kemp Hansen  
+45 36 95 97 00  
[kasper.hansen@paxstone.com](mailto:kasper.hansen@paxstone.com)

#### Canada - Investeam

Nancy Nightingale  
+1 416 860 9490  
[nancy.nightingale@investeam.ca](mailto:nancy.nightingale@investeam.ca)

#### Australia & NZ - Phoenix Capital Advisory Ltd.

Mark Jackson [mark.jackson@phoenixcap.com.au](mailto:mark.jackson@phoenixcap.com.au)  
Matt Wormald [matt.wormald@phoenixcap.com.au](mailto:matt.wormald@phoenixcap.com.au)  
+61287055474

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