

UBS ETF *Market Matters*

De-risking Your Equity Portfolio

- This newsletter discusses the features of lower risk strategies accessible through MSCI investible equity indices.
- All discussed strategies provide access to broad equity, with lower long-term risk than the standard benchmark.
- The Risk Weighted index performed best over analysed period, whilst the Minimum Volatility index had the lowest realized risk level.

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While standard, market capitalisation-weighted indices represent the market return, many investors seek exposure to global equities at a lower systematic risk level than the standard benchmark. Risk-on/risk-off considerations are particularly important when *bad* volatility emerges with downside risk. This newsletter discusses the main de-risking (or volatility-adapted) passive equity strategies, providing access to broad equity with a lower *ex post* risk.

Risk Treatment

Total risk (or volatility) of a portfolio is determined by the covariance matrix, with individual variances on the diagonal and covariances as off-diagonal entries. Treatment of total risk creates three major approaches of constructing a lower risk portfolio:

Method	Inputs
Construct a portfolio by outweighing lower volatility securities.	Computation of individual volatilities (standard deviations).
Construct a portfolio by minimizing the total volatility of the portfolio (mean-variance).	Computation of individual volatilities as well as all pair-wise correlations.
Construct a portfolio by targeting the total volatility of the portfolio.	Computation of signal for (de)leveraging equity exposure and going cash; and vice versa. Determination of leverage.

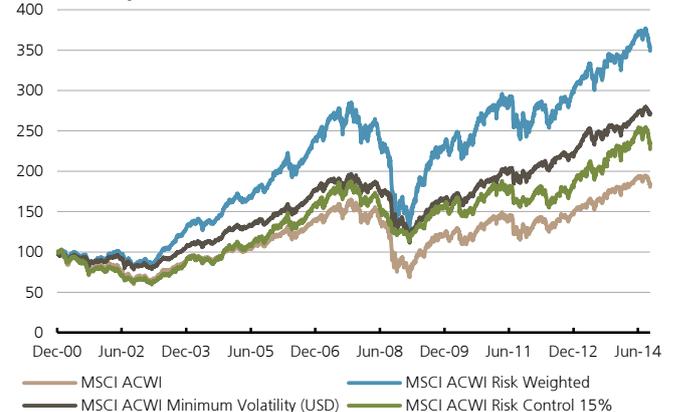
Source: MSCI.

All of these strategies are available through investible indices: MSCI Risk Weighted, MSCI Minimum Volatility and MSCI Risk Control, respectively. While the MSCI Risk Weighted index weights each security inversely related to its volatility, the other two strategies are either model-based (MSCI Minimum Volatility) or leverage-based (MSCI Risk Control). **Figure 1** shows past performance for the All Country World Index (ACWI), which highlights superior performance of the Risk Weighted index.

Risk Weighting

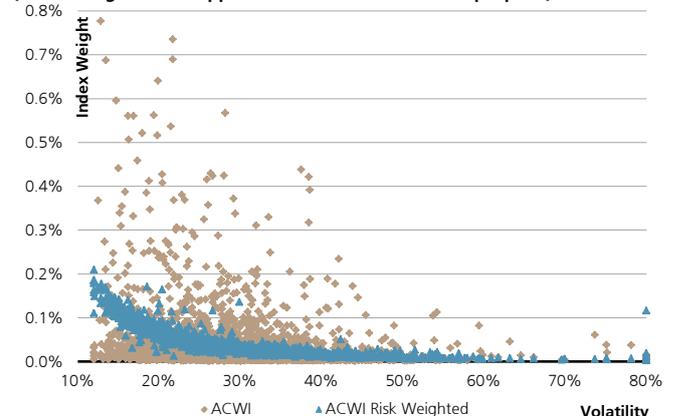
The MSCI Risk Weighted index re-weights all underlying securities of the cap-weighted parent index, such that names with lower historical volatility (computed using weekly returns over a three year period at rebalancing and capped between 12%-80%) get higher index weights (cf. *MSCI Risk Weighted Indexes Methodology*, June 2014). **Figure 2** shows a scatterplot of volatility vs. index weight for ACWI. The weights of underlying securities in the Risk Weighted index indeed decay with increasing volatility, whilst no functional dependency between the weight and volatility is observed for the standard benchmark (apart from weights being centred on mean volatility). This inverse volatility scheme - as opposed to cap-weighting - tilts global portfolios towards lower historical risk. The weights in the Minimum Volatility index additionally depend on pair-wise correlations, hence more complex dependency arises. Finally, weights in the Risk Control index correspond to the standard parent index, with a (de)leverage multiplier applied.

Figure 1: Indices performance
(indexed daily since December 2000, Total Return Net USD)



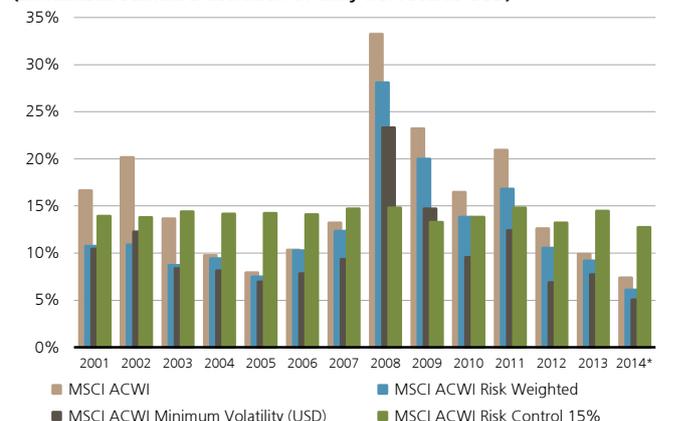
Source: MSCI, UBS Global Asset Management, as of 10 October 2014
MSCI ACWI Risk Control 15% is constructed combining 95% of the MSCI World Risk Control 15% with 5% of the MSCI EM Risk Control 15%.

Figure 2: Scatterplot of volatility vs. index weight
(index weight scale capped to 0.80% for illustration purpose)



Source: MSCI, UBS Global Asset Management, as of 10 October 2014

Figure 3: Realised volatility
(annualized standard deviation of daily net returns USD)



Source: MSCI, UBS Global Asset Management. *as of 10 October 2014
For all charts/tables: Past performance is not a reliable indicator for the future.

Volatility of risk-adapted strategies

Figure 3 shows realised volatilities for the de-risked strategies and the cap-weighted benchmark, based on daily net return data. Overall the results can be summarized as follows:

- The Risk Control index has flat volatility corresponding to the pre-defined target, resulting in above-average market volatility during low volatility periods (e.g. 2003-2007) and below-average market volatility during high volatility periods (e.g. 2008-2011).
- The Minimum Volatility index generally has the lowest level of risk (by construction) except when markets experience extreme tail risk (e.g. 2008-2009), where Risk Control enjoys lower risk due to deleveraged exposure to equity.
- The Risk Weighted index generally has a lower level of risk compared to the cap-weighted benchmark, but higher than the Minimum Volatility index.

Realised volatilities result directly from the methodologies applied. While Risk Control can target total risk by varying the weights of the underlying parent index and a cash component (equity vs. cash allocation), other strategies hold equities with the aim to construct portfolios with less systematic risk. The Minimum Volatility index has the least total realized risk, at the cost of inferior performance as compared to the Risk Weighted index (cf. Figure 1).

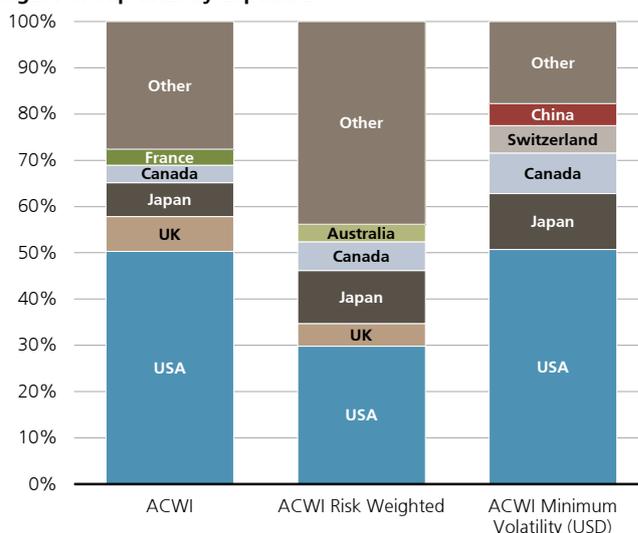
Exposure allocation

Figure 4 and Figure 5 exhibit current country and sector allocations, respectively (Risk Control has this same allocation structure as the parent index), and can be summarized as follows:

- The cap-weighted benchmark as well as the Minimum Volatility index, are both concentrated towards the United States, with exposure reaching or exceeding 50%, compared to 30% in the Risk Weighted index.
- The Minimum Volatility index has more than 82% of its exposure allocated to 5 countries, compared to 72% in the standard cap-weighted benchmark and 56% in the Risk Weighted strategy.
- The Risk Weighted index has 44% of its exposure allocated to Other countries, whilst individual exposure is less than 3.7% (Australia), implying the highest country diversification amongst the strategies considered.
- Sector exposure has fewer differentiating characteristics with overall decent diversification; higher-than-average exposure to Financials, Staples and Utilities in the Risk Weighted index, and considerably higher exposure to Health Care in the Minimum Volatility index.

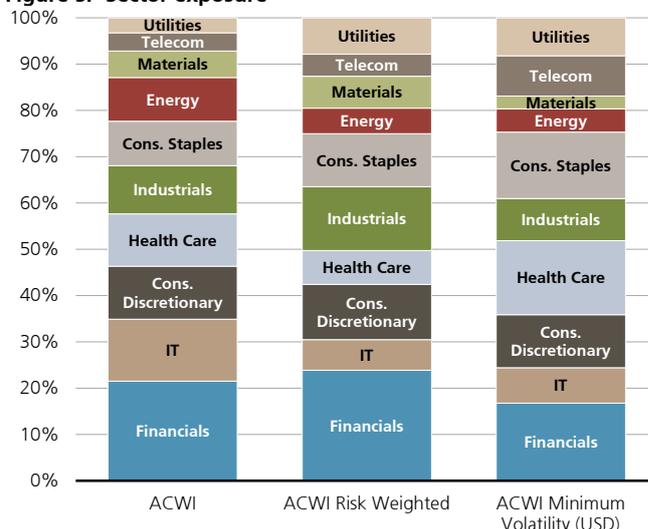
This brief analysis has reviewed features of risk-adapted strategies accessible through investible indices, ranging from tilting towards low volatility stocks (Risk Weighted), minimizing total risk (Minimum Volatility) and targeting total risk (Risk Control). These strategies provide access to broad equity exposure with less long-term risk than standard cap-weighted benchmark (Table 1). These strategies focus on volatility, but none of them eliminates downside risk (drawdown). The Risk Weighted strategy performed best, whilst the Minimum Volatility strategy featured the lowest risk. Finally, while the Risk Weighted strategy consists of all ACWI underlyings (alternatively weighted), the Minimum Volatility approach typically reduces the total number of holdings, cf. Table 1.

Figure 4: Top country exposure



Source: MSCI, UBS Global Asset Management, as of 10 October 2014

Figure 5: Sector exposure



Source: MSCI, UBS Global Asset Management, as of 10 October 2014

Table 1: Risk and Return Characteristics (since 29 December 2000)

Strategy	Ann. Return	Ann. Volatility*	Max Drawdown	Sharpe Ratio**	Beta	# Stocks
ACWI	4.7	16.6	58.4	0.24	1.0	2449
ACWI Risk Weighted	9.7	16.1	55.2	0.55	0.9	2449
ACWI Minimum Volatility (USD)	7.6	11.2	43.4	0.55	0.6	336

Source: MSCI, UBS Global Asset Management, as of 30 September 2014

* 2 Based on monthly net returns data; ** Based on BBA LIBOR 1M

For all charts/tables: Past performance is not a reliable indicator for the future

Table 2: UBS ETF MSCI ACWI Risk Weighted

Fund name	Drag Level	AuM	Base Ccy.	Replication	Domicile	Distribution	Incept. date	ISIN	Bloomberg
UBS ETF (IE) MSCI ACWI Risk Weighted SF UCITS ETF	0.58%	5	USD	Synthetic	Ireland	accumulating	19.08.2011	IE00B6V58T94	UC22 LN

AuM in GBP, million

Synthetically-replicated UBS ETFs have a unique and fully transparent fee model based on the concept of a 'Drag Level' - the total expense ratio (TER) plus all additional costs applied to the fund (including swap costs). In absolute terms, the Drag Level reflects the future performance differential of the ETF versus the index it replicates.

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