

MSCI MINIMUM VOLATILITY INDEXES

TRACK BROAD MARKET RETURNS WITH LOWER RISK

- The MSCI Minimum Volatility Indexes are uniquely designed to capture the low volatility effect.
- The MSCI Minimum Volatility Indexes are constructed to (1) experience the lowest total risk, (2) avoid unintended bets on countries, sectors and styles, and (3) provide superior risk-adjusted performance while maintaining the investability and replicability features of the parent cap weighted indexes.
- Uses for MSCI Minimum Volatility Indexes include cost-effective replication, benchmarking of low volatility managers, and creating combinations of MSCI Minimum Volatility with other MSCI Factor Indexes.

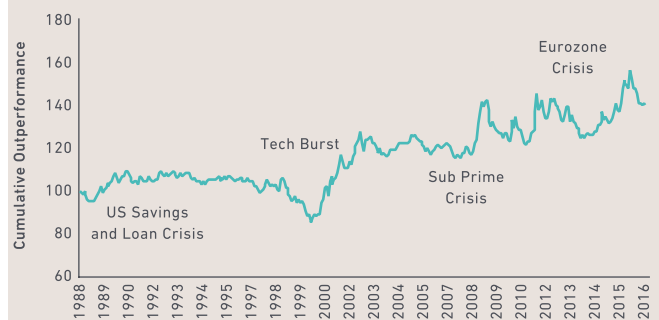
WHY DO INVESTORS USE MINIMUM VOLATILITY STRATEGIES?

- Reduction of portfolio volatility—on average by 25% to 30%—and lower drawdown compared to the broad market
- De-risking the portfolio while keeping an exposure to equity markets
- One of few strategies that aims to outperform the broad market in adverse market conditions

KEY BENEFITS OF THE MSCI MINIMUM VOLATILITY INDEXES

- Accounts for multiple risk sources and has achieved effective risk reduction via high level of diversification
- Longest industry live history—beginning in April 2008
- Designed to avoid unintended country, sector and style bets
- Low annual index turnover of 20% to reduce replication cost
- High investability and replicability

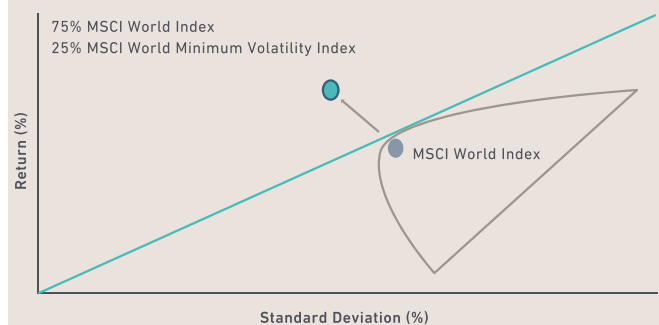
PERFORMANCE OF MSCI WORLD MINIMUM VOLATILITY INDEX RELATIVE TO MSCI WORLD INDEX



Historical Gross Performance, USD	MSCI World	MSCI World Minimum Volatility
Total Return* (%)	7.44	8.68
Total Risk* (%)	14.8	11.2
Risk Adjusted Return	0.50	0.78
Active Return* (%)	N/A	1.25
Tracking Error* (%)	N/A	6.67
Information Ratio	N/A	0.19

* Annualized from May 1988 to March 2017

THE ADDITION OF MSCI MINIMUM VOLATILITY INDEXES HAS HISTORICALLY MAINTAINED RETURN WITH LESS RISK



METHODOLOGY HIGHLIGHTS

PARAMETER	METHODOLOGY	COMMENTS
Universe	Parent index constituents	Derived indexes benefit from parent index construction rules
Optimization	MSCI's market leading <i>Barra</i> Global Equity Model (GEM2)	Accounts for factor volatility and correlation
Weighting	Minimize index volatility subject to constraints	Comprehensive and robust risk measures
Constraints	<ul style="list-style-type: none"> Stocks: Maximum = lower of 1.5% or 20x the parent index cap weight; Minimum = 5bps Sectors: +/- 5% relative to the parent index Countries: +/- 5% (capped at 3x relative to the parent index, if weight in parent < 2.5%) Style: +/- 0.25 relative to <i>Barra</i> factor exposure of the parent index (except for Volatility) Turnover: Maximum 10% one-way turnover per rebalancing 	<p>Stock weight cap ensures adequate capacity and replicability</p> <p>Style and Sector caps ensure no unintended exposure</p> <p>Turnover limit ensures low cost replication</p>
Number of Constituents	<ul style="list-style-type: none"> Subset of parent index, number will vary 	High level of diversification achieved by a subset of parent index
Rebalancing	<ul style="list-style-type: none"> Semi-annual Buffer zones are applied 	Timely data updates, consistent with MSCI rebalancing calendar

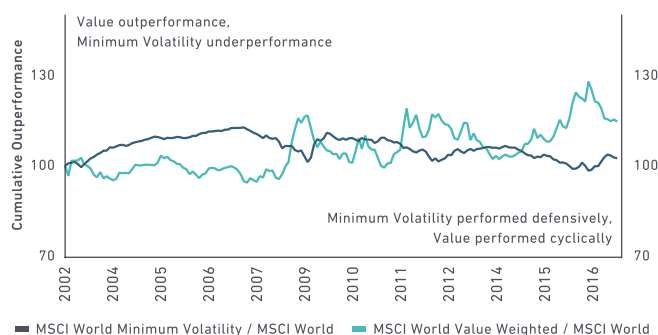
ILLUSTRATIVE USE CASE

- A G8 national pension fund used the MSCI World Minimum Volatility Index to de-risk its equity portfolio
- Instead of moving from equity to fixed income, the fund allocated 25% of its developed market equity to the MSCI World Minimum Volatility Index
- Historically, the MSCI Minimum Volatility Indexes have effectively reduced risk in comparison to their parent indexes

COMBINING MSCI FACTOR INDEXES

- MSCI Minimum Volatility, Value Weighted, Quality and other MSCI Factor Indexes outperformed their cap weighted parent indexes over long periods
- However, performance is cyclical: any factor index can underperform for long periods
- Therefore, a higher level of diversification may be achieved by combining two or more of these MSCI Factor Indexes
- Combinations may also reduce overall cost by exploiting natural internal "cross opportunities" at each rebalancing

COMBINING MSCI MINIMUM VOLATILITY AND MSCI VALUE WEIGHTED INDEXES (USD)



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