

# THE MSCI MOMENTUM INDEXES

HIGHLY INVESTABLE WITH INNOVATIVE FEATURES TO REDUCE DRAWDOWNS

- The MSCI Momentum Indexes aim to reflect the performance of an equity momentum strategy by identifying stocks with high price performance in recent history, up to 12-months.
- Innovative features aim to deliver reasonable turnover and reduced drawdowns during periods of extreme market volatility. A combination of different momentum signals reduces turnover.
- More frequent reviews during periods of high market volatility aim to reduce extreme market drawdowns.
- The MSCI Momentum Indexes complement other MSCI Factor Indexes. Combining the MSCI Momentum Indexes with the MSCI Value Weighted and MSCI Minimum Volatility Indexes has historically created diversification benefits.

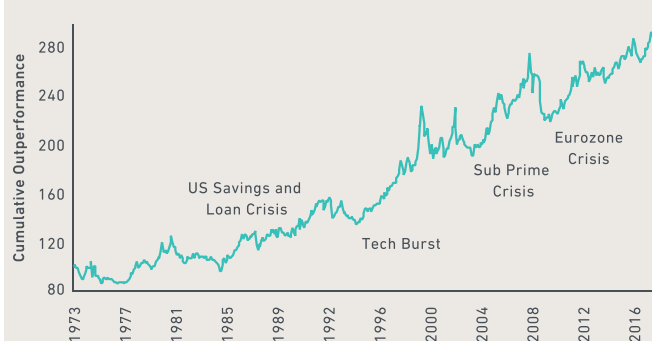
## WHY DO INVESTORS USE MOMENTUM STRATEGIES?

- Numerous academic studies suggest that portfolios tilted towards stocks with high momentum have outperformed market cap weighted indexes over the long run. However, momentum portfolios resulting from empirical studies are often difficult to replicate due to illiquidity of constituents and high turnover
- Momentum strategies tend to outperform in upward trending markets, making them good complements to value or low volatility strategies

## KEY BENEFITS OF THE MSCI MOMENTUM INDEXES

- Strong theoretical and empirical foundations
- Simple and transparent index methodology
- Low correlation with other MSCI Factor Indexes
- Moderate annual index turnover to reduce replication cost
- High investability and replicability
- Seamless integration with MSCI index-based portfolios

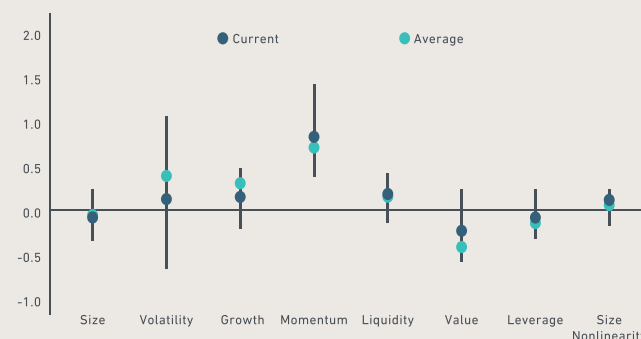
## MSCI WORLD MOMENTUM INDEX RELATIVE TO MSCI WORLD INDEX



Historical Gross Performance, USD	MSCI World	MSCI World Momentum
Total Return* (%)	9.58	12.3
Total Risk* (%)	14.7	15.7
Risk Adjusted Return	0.65	0.79
Active Return* (%)	N/A	2.76
Tracking Error* (%)	N/A	8.49
Information Ratio	N/A	0.33

\* Annualized from May 1973 to May 2018

## ACTIVE FACTOR EXPOSURES OF THE MSCI WORLD MOMENTUM INDEX



## METHODOLOGY HIGHLIGHTS

PARAMETER	METHODOLOGY	COMMENTS
Universe	Parent index constituents	Objective approach capturing the standard opportunity set and ensuring indexes have high investability and liquidity
Variables	Risk-adjusted excess returns over 6-month and 12-month horizons	Combining 6-month and 12-month risk-adjusted signals has historically provided performance characteristics similar to that of the 6-month risk-adjusted signal but with lower turnover
Selection	Security-level Momentum Score is an average of the 12-month and 6-month risk-adjusted Momentum Score, where: <ul style="list-style-type: none"> <li>Risk-Adjusted Momentum Score = (Excess Return) / (Annualized Volatility)</li> <li>Excess Return = Security local price return – Local risk free rate</li> </ul>	Historically, risk-adjusted signal has lower risk than the simple 6-month and 12-month signals The use of Excess Return addresses issues with countries with high inflation
Weighting	Momentum Score* Market cap weight Maximum weight is capped	Maintains high investability and liquidity and avoids concentration risk
Number of Constituents	Fixed number of constituents—e.g., the MSCI ACWI Momentum Index has 500 constituents with buffers at 50%	High level of diversification achieved by a subset of the parent index
Rebalancing	Semi-annual + conditional rebalancing	Conditional rebalancing has lowered drawdowns during regime shifts with a spike in volatility

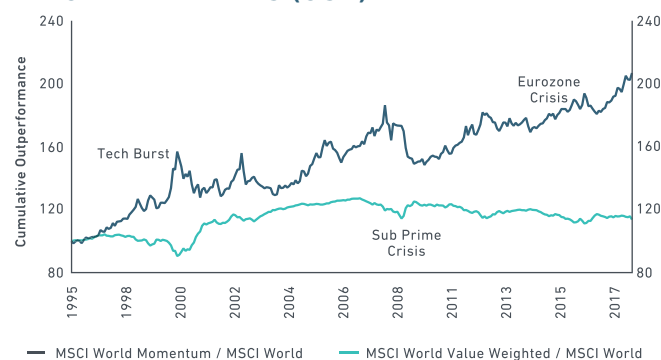
## ILLUSTRATIVE USE CASE

- A US pension fund was seeking systematic exposure to the value, low size, quality and momentum factors
- The fund decided to combine the MSCI USA Risk Weighted, MSCI USA Quality, MSCI USA Value Weighted and MSCI USA Momentum Indexes in an equal weight allocation
- In addition, the plan will tactically overweight or underweight the various factors based on its macroeconomic and market views

## COMBINING MSCI FACTOR INDEXES

- Momentum, value and low volatility have outperformed over long horizons. However, the performance of these strategies is cyclical; any factor can underperform for long time periods
- A portfolio based on combining MSCI Momentum Indexes with MSCI Value Weighted and MSCI Minimum Volatility Indexes created diversification benefits, which were particularly significant during volatile market conditions
- Combining MSCI Factor Indexes in a single custom index may reduce turnover by exploiting natural internal “crossing” opportunities at each rebalancing

## COMBINING MSCI MOMENTUM AND MSCI VALUE WEIGHTED INDEXES (USD)



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