RESEARCH SPOTLIGHT

# Foundations of Factor Investing

This paper discusses the rationale for factor investing and how indexes can be constructed to reflect factor returns in cost-effective and transparent ways. We currently identify six equity risk factors that have historically earned a long-term risk premium and represent exposure to systematic sources of risk: Value, Low Size, Low Volatility, High Yield, Quality and Momentum.

MSCI has created a family of factor indexes that are designed to reflect the performance of those six equity risk premia factors. This paper is the first of a series of papers on factor indexes published by MSCI.

## KEY FINDINGS

- Factors have their roots in the academic literature and empirical studies show that factors have exhibited excess returns above the market.
- Factor index investing is not a replacement for market-cap index investing, but represents an active decision away from the market capitalization-weighted index.
- All factor indexes have experienced periods of underperformance and some factor indexes have been highly cyclical.
- Factor indexes allow institutional investors to create passive factor allocations within a transparent and cost efficient framework.

# FOUNDATIONS OF FACTOR INVESTING

### What are Factors?

Factors have their roots in the academic literature. In general, a factor can be thought of as any characteristic relating a group of securities that is important in explaining their returns and risk. As noted in the early finance literature, the market can be viewed as the first and most important equity factor. Beyond the market factor, researchers generally look for factors that are persistent over time and have strong explanatory power over a broad range of stocks.

The most popular factors today – Value, Growth, Size and Momentum – have been studied for decades as part of the academic asset pricing literature and the practitioner risk factor modelling research. More recently, Low Volatility, Yield and Quality factors have become increasingly well-accepted in the academic literature. Exhibit 1 summarizes six of the most widely studied factors.

### Will Excess Returns Persist?

A question that comes up repeatedly from institutional investors is: "Will the factors' excess returns persist in the future?" In general, there are two main camps in the debate over what drives factor returns — one based on the view that markets are efficient and that factors reflect "systematic" sources of risk, and one based on the view that investors either exhibit behavioral biases or are subject to different constraints (e.g., time horizons, ability to use leverage, etc.).

For institutional investors who subscribe to the "systematic risk" perspective, a factor can potentially persist indefinitely if it is actually compensation for bearing undiversifiable risk. For those who subscribe to the "behavioral bias" perspective, a factor can potentially persist as long as there are strong reasons why investors will continue to exhibit the behavioral biases in question and their actions are too costly to be arbitraged away by rational investors (or those who recognize these biases as such). Lastly, for those who subscribe to the "constraint-based" view, a factor can potentially persist only as long as those constraints remain in place.

## EXHIBIT ONE

WELL-KNOWN SYSTEMATIC FACTORS FROM THE ACADEMIC RESEARCH

| SYSTEMATIC FACTORS | HISTORICAL RISK | HISTORICAL CORRELATION |
|---|---|---|
| VALUE | Captures excess returns to stocks that have low prices relative to their fundamental value | Book to price, earnings to price, book value, sales, earnings, cash earnings, net profit, dividends, cash flow |
| LOW SIZE (SMALL CAP) | Captures excess returns of smaller firms (by market capitalization) relative to their larger counterparts | Market capitalization (full or free float) |
| MOMENTUM | Reflects excess returns to stocks with stronger past performance | Relative returns (3-mth, 6-mth, 12-mth, sometimes with last 1 mth excluded), historical alpha |
| LOW VOLATILITY | Captures excess returns to stocks with lower than average volatility, beta, and/or idiosyncratic risk | Standard deviations (1-yr, 2-yrs, 3-yrs), Downside standard deviation, standard deviation of idiosyncratic returns, Beta |
| DIVIDEND YIELD | Captures excess returns to stocks that have higher-than-average dividend yields | Dividend yield |
| QUALITY | Captures excess returns to stocks that are characterized by low debt, stable earnings growth, and other "quality" metrics | ROE, earnings stability, dividend growth stability, strength of balance sheet, financial leverage, accounting policies, strength of management, accruals, cash flows |

## Factor Index Investing vs Market-Cap Index Investing

Some researchers have argued that market-capitalization weighting is inherently flawed and have advocated replacing market cap allocations with factor allocations. We disagree. A market-cap weighted index reflects the available opportunity set of equity investments as well as the aggregate holdings of all investors. Factor indexes do not reflect the full equity opportunity set and they are not macro consistent. Instead, they represent strategic tilts away from market-cap weighted benchmarks.

Factors performed differently during various phases of the business cycle. Some factors such as Value, Momentum and Size have historically been pro-cyclical, performing well when growth, inflation and interest rates are rising. Quality and Low Volatility have historically been defensive, performing well when the macro environment was weak. Investors may seek factors that perform well under different types of market cycles to diversify risk. Diversification across factors has historically led to:

- Lower volatility and higher Sharpe Ratios
- Higher information ratios and lower tracking errors
- Less regime dependency over business cycles.

## The Importance of Factor Cyclicality

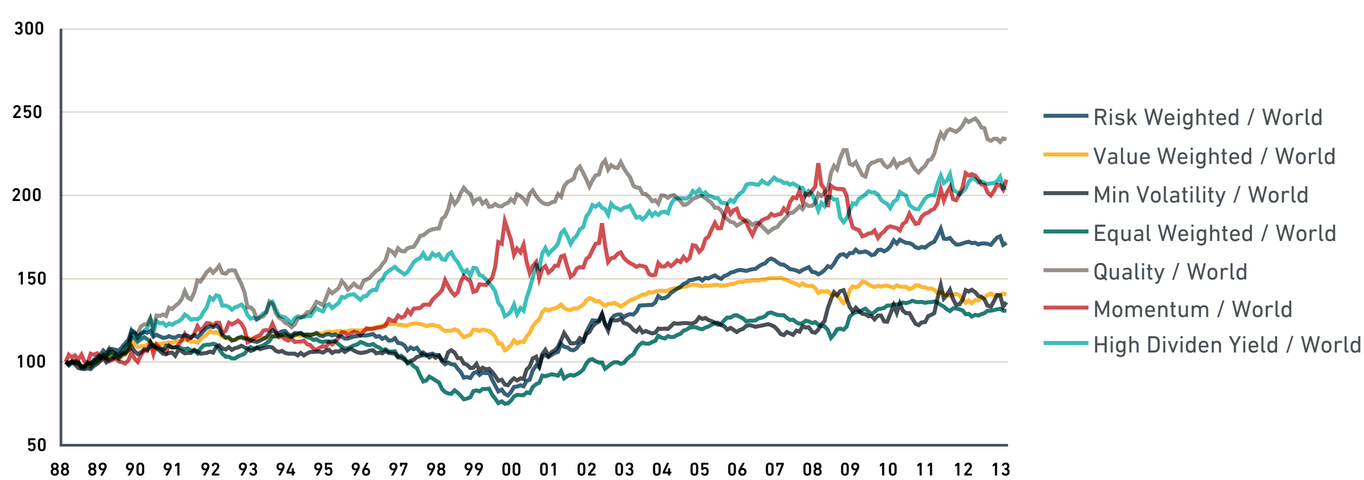
A key element of factor investing is factor cyclicality. While factor indexes have exhibited excess risk-adjusted returns over long time periods, over short horizons factors exhibit significant cyclicality, including periods of underperformance relative to market-cap weighted indexes. Exhibit 2 shows that each of the factor indexes has experienced at a minimum a consecutive two-to-three year period of underperformance. Some factors historically have undergone even longer periods; the Small Cap or Low Size factor (captured by the MSCI World Equal Weighted Index in the exhibit) went through a six-year period of underperformance in the 1990s.Thus, there is no free lunch attached to factor investing. Given strong anecdotal evidence that the majority of investors have relatively shorter horizons, their cyclicality may in fact be one of the reasons they have not been arbitraged away. Investors with shorter horizons would not be able to benefit from the full cycle required for factor investing. Some may argue the premia exist to reward long-horizon investors for bearing that risk.

A key part of the decision process for institutional investors implementing factor allocations is what to do about the cyclicality. Possible approaches include the following:

- Setting an appropriately long time horizon
- Establishing an explicit timing mechanism for the initial investment; and
- Adopting a multiple factor approach that offers diversification effects.

## EXHIBIT TWO

SYSTEMATIC FACTORS ARE CYCLICAL (CUMULATIVE RELATIVE RETURNS, JUNE 1988 TO JUNE 2013)



### Capturing Factors Through Investable Indexes

Until recently, the ability to capitalize on factors could reasonably be done only by active managers. Value investing and small-cap investing have been staples of active management for decades. But over the last decade, index providers recognized that factors could be captured in transparent rules-based ways. Investors realized that factor strategies could outperform the market similar to their theoretical factor counterparts while having strong liquidity and investability characteristics. Today, these indexes go by a number of names — alternative beta, smart beta, advanced beta, etc.

MSCI's family of factor indexes, comprising the six key factors — Value, Low Size, Low Volatility, High Yield, Quality and Momentum are constructed for flagship global indexes like the MSCI ACWI, MSCI World, MSCI Emerging Markets, and MSCI EAFE indexes, as well as many individual country indexes.

Generally, there is a tradeoff between the exposure to the factor (and potential returns) and the investability of a factor index. One can generally only achieve purer factor exposure by sacrificing investability and being willing to take on greater amounts of active risk. Detailed discussion about different index choices is discussed later in the second paper of this series "Deploying Multi-Factor Index Allocations in Institutional Portfolios."

"Now, investors can access factors through passive vehicles that replicate factor indexes."

## CONCLUSION

Factor investing is based on the existence of factors that have earned a premium over long periods, reflect exposure to systematic ris, and are grounded in the academic literature. Factors such as Value, Low Size, and Momentum historically have produced excess long-term returns and enjoy strong theoretical foundations. Until recently, the only way institutional investors could get access to factors was through active management. Now, investors can access factors through passive vehicles that replicate factor indexes. MSCI Factor Indexes provide access to six solidly grounded factors — Value, Low Size, Low Volatility, High Yield, Quality and Momentum.

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Dimitris Melas is Managing Director and Global Head of New Product Research at MSCI. Dr Melas and his team are responsible for all research efforts to enhance existing MSCI indexes and to develop new index methodologies. The team is also responsible for conducting research, publishing articles, and giving client and conference presentations to promote the use of MSCI indexes in the institutional investment process.


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Raman has been with MSCI in a variety of research roles for over 14 years. In particular, he pioneered the role of Index Applied Research, which focuses on working closely with clients — asset owners, managers, brokers, and investment consultants — to ascertain their needs with respect to MSCI products, conduct research on MSCI product applications, and present the results in interactive sessions with clients.

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## About MSCI

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