Factors in Focus

FACTOR

VOLATILITY  QUALITY  MOMENTUM  VALUE
In the realm of investing, a factor is any characteristic that helps explain the long-term risk and return performance of an asset. MSCI factor indexes are designed to capture the return of factors which have historically demonstrated excess market returns over the long run.

MSCI factor indexes are rules-based, transparent indexes targeting stocks with favorable factor characteristics, backed by robust academic findings and empirical results — and are designed for simple implementation, replicability and use for both traditional passive and active mandates.

The MSCI Minimum Volatility, Sector Neutral Quality, Momentum and Enhanced Value Indexes represent four of MSCI’s flagship factor indexes. Each is designed to capture well-documented, persistent factors — low volatility, quality, momentum and value.

<table>
<thead>
<tr>
<th>Factor</th>
<th>MSCI factor index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower risk stocks</td>
<td>MSCI Minimum Volatility Indexes aim to reflect the performance characteristics of</td>
</tr>
<tr>
<td></td>
<td>a minimum volatility strategy by optimizing towards the lowest absolute risk within</td>
</tr>
<tr>
<td></td>
<td>a given set of constraints to minimize unintended risks and exposures</td>
</tr>
<tr>
<td>Sound balance sheet stocks</td>
<td>MSCI Sector Neutral Quality Indexes aim to reflect the performance of high</td>
</tr>
<tr>
<td></td>
<td>quality stocks by weighting based on debt-to-equity, return-on-equity and</td>
</tr>
<tr>
<td></td>
<td>earnings variability. They are designed to reflect the performance of a quality</td>
</tr>
<tr>
<td></td>
<td>growth investment strategy, and control for sector weights relative to the market</td>
</tr>
<tr>
<td>Rising stocks</td>
<td>MSCI Momentum Indexes are designed to target securities based on risk-adjusted</td>
</tr>
<tr>
<td></td>
<td>performance, with the goal of mitigating momentum crashes and reducing unnecessary</td>
</tr>
<tr>
<td></td>
<td>turnover</td>
</tr>
<tr>
<td>Relatively inexpensive stocks</td>
<td>MSCI Enhanced Value Indexes are based on research that has found that</td>
</tr>
<tr>
<td></td>
<td>combining value ratio descriptors has captured the value factor better than using</td>
</tr>
<tr>
<td></td>
<td>any individual ratio descriptor alone</td>
</tr>
</tbody>
</table>
Defining minimum volatility

A minimum volatility strategy involves buying stocks based on the estimate of their volatility and correlations with other stocks. Minimum volatility is categorized as a “defensive” factor, meaning it has tended to benefit during periods of economic contraction. This type of strategy is more concerned with volatility management than with maximizing gains.

Paradoxically, the strategy has produced a premium over the market for long periods, contravening the principle that investors should not be rewarded with higher risk-adjusted returns for taking less than market risk.

The key objective of a minimum volatility strategy is to capture regional and global exposure to stocks with potentially less risk. Historically, the MSCI Minimum Volatility Indexes, for example, have realized lower volatility and lower drawdowns (peak-to-trough declines) relative to their parent index during significant market downturns.

Why institutional investors have used minimum volatility strategies

Tactical investors have used MSCI Minimum Volatility Indexes to reduce risk during market downturns, while retaining equity exposure. Strategic investors have recognized (1) the benefits of minimum volatility strategies in asset allocation and (2) that minimum volatility strategies have tended to outperform high volatility strategies on a risk-adjusted basis in the long run.

There are several behavioral explanations for the minimum volatility premium, which was identified in the early 1970s by economist Fischer Black and elaborated on by others since then. One theory posits that investors underpay for low volatility stocks, viewing them as less rewarding, and overpay for high volatility stocks that are seen as long shot opportunities for higher returns.

In terms of methodology, the main approaches to implementing a minimum volatility strategy fall into two groups: (1) simple rank and selection and (2) optimization-based solutions.

A simple approach ranks the universe of stocks by their expected volatility, selects a subset of the constituents from the universe and then applies a weighting method. These approaches generally ignore the correlation between stock returns, which can have a significant impact on the overall volatility strategy.

Optimization-based approaches account for both volatility and correlation effects, i.e., the magnitude and the degree to which stocks move in tandem.

The MSCI Minimum Volatility Indexes are calculated using an optimization based approach, and are designed to produce an index with the minimum overall volatility, while controlling for sector, country and non-target factor exposures, in addition to ensuring index replicability and investability.

Rolling performance and factor exposure

As mentioned above, minimum volatility strategies have demonstrated a premium over longer periods. Figure 1 below illustrates the rolling performance of the MSCI USA Minimum Volatility Index (CAD) over 1, 3, 5 and 10 year periods between the years 2000 and 2019. As seen below, the index outperformed the market cap parent index a majority of the time, and at a higher percentage over longer time horizons. Figure 2 on the right, illustrates the current factor exposure of the index, as measured by MSCI FaCS. As seen, the index has a large exposure to Low Volatility, in line with its objective.

![Figure 1: Percentage of periods the MSCI USA Minimum Volatility Index (CAD) out/underperformed the MSCI USA Index (CAD) on a 1, 3, 5 and 10 year rolling basis, between Dec 2000 and June 2019](image)

![Figure 2: MSCI FaCS exposure of the MSCI USA Minimum Volatility Index (CAD), as of June 2019](image)
Defining quality

The quality factor is described in academic literature as capturing companies with durable business models and sustainable competitive advantages. Quality is categorized as a “defensive” factor, meaning it has tended to benefit during periods of economic contraction.

The quality factor has helped explain the movement of stocks that have low leverage, stable earnings and high profitability.

The MSCI Sector Neutral Quality Indexes employ three fundamental variables to capture the quality factor:

- Return on equity - which shows how effectively a company uses investments to generate earnings growth
- Debt to equity - a measure of company leverage; and
- Earnings variability - how smooth earnings growth has been

Why institutional investors have used quality strategies

The long-term outperformance of the quality factor against the market is well documented in financial literature. Nobel laureates Eugene Fama and Kenneth French, economists known for their ground breaking work in explaining stock returns, recently revised their signature three factor model (company size, company value and market risk) to add two quality-related factors (profitability and asset growth). Many active strategies have emphasized quality growth as an important factor in their security selection and portfolio construction. In 2012, Robert Noy-Marr published a pioneering paper that found profitability and stability were just as useful for explaining returns as traditional value measures.

Rolling performance and factor exposure

Figure 3 below illustrates the rolling performance of the MSCI USA Sector Neutral Quality Index (CAD) over 1, 3, 5 and 10 year periods between the years 2000 and 2019. The index outperformed the market cap parent index a majority of the time and at a higher percentage over longer time horizons. Figure 4, on the right, illustrates the current factor exposure of the index, as measured by MSCI FaCS. As seen, the index has a large exposure to quality, in line with its objective, and its exposure to quality is significantly greater than the benchmark (the MSCI USA Index (CAD)).

Figure 3: Percentage of periods the MSCI USA Sector Neutral Quality Index (CAD) out/underperformed the MSCI USA Index (CAD) on a 1, 3, 5 and 10 year rolling basis, between Dec 2000 and June 2019

Figure 4: MSCI FaCS exposure of the MSCI USA Sector Neutral Quality Index (CAD), as of June 2019
The momentum factor refers to the tendency of winning stocks to continue performing well in the near term. Momentum is categorized as a “persistence” factor i.e., it tends to benefit from continued trends in markets.

The MSCI Momentum Indexes measure:

- Risk-adjusted price momentum for 6 and 12 month periods
- This measures the excess return over 6 and 12 months divided by the 3 year annualized standard deviation

Why institutional investors have used momentum strategies

Academics first identified the momentum premium in 1993, when UCLA scholars Narasimhan Jegadeesh and Sheridan Titman demonstrated that the strategy of buying stocks that have done well and selling stocks that have done poorly generated significant positive returns over 3 to 12-month holding periods.

Many studies since then have found the momentum factor present across equity sectors, countries, and more broadly, asset classes. Momentum may not be as well understood as other factors, although various theories attempt to explain it.

Some postulate that it is compensation for bearing high risk; others believe it may be a consequence of market inefficiencies produced by delayed price reactions to firm-specific information.

MSCI research shows, on a historical basis, the momentum factor has been one of the strongest generators of excess returns.

The momentum factor has typically outperformed in a macro environment characterized by a long cycle in underlying market trends.

Rolling performance and factor exposure

Figure 5 below illustrates the rolling performance of the MSCI USA Momentum Index (CAD) over 1, 3, 5 and 10 year periods between the years 2000 and 2019. The index outperformed the market cap parent index a majority of the time and at a higher percentage over longer time horizons.

Figure 6, on the right, illustrates the current factor exposure of the index, as measured by MSCI FaCS. As seen, the index has a large exposure to momentum, in line with its objective. It's exposure to momentum is significantly greater than the benchmark (the MSCI USA Index (CAD)).

Figure 5: Percentage of periods the MSCI USA Momentum Index (CAD) out/underperformed the MSCI USA Index (CAD) on a 1, 3, 5 and 10 year rolling basis, between Dec 2000 and June 2019

Figure 6: MSCI FaCS exposure of the MSCI USA Momentum Index (CAD), as of June 2019
The foundation of value investing is the notion that cheaply priced stocks outperform pricier stocks in the long term. Value is categorized as a “pro-cyclical” factor, meaning it has tended to benefit during periods of economic expansion.

Value has several dimensions: the stock price as a multiple of company earnings, price as a multiple of dividends paid, price as a multiple of book value and other such “ratio descriptors.” Academics and investors differ on which best represents a value company, creating opportunity in the marketplace for a variety of investment products.

The MSCI Enhanced Value Indexes apply three valuation ratio descriptors on a sector relative basis:

- Forward price to earnings (Fwd P/E);
- Enterprise value/operating cash flows (EV/CFO); and
- Price to book value (P/B).

The index aims to address the pitfalls of value investing, among them “value traps” — stocks that appear cheap but in fact do not appreciate. MSCI analysis shows that using forward earnings has helped provide protection against value traps and that whole-firm valuation measures, such as enterprise value, have reduced concentration in highly leveraged companies, meaning those that have borrowed heavily.

Why institutional investors have used value strategies

Many investors use this approach to identify assets that they expect the market to revalue. The concept of value was first popularized in the 1930s by economists Benjamin Graham and David Dodd, who advocated owning companies that provide a “margin of safety” — meaning the current stock price is less than it is expected to be under conservative projections of the firm’s future earnings.

Rolling performance and factor exposure

Figure 7 below illustrates the rolling performance of the MSCI USA Enhanced Value Index (CAD) over 1, 3, 5 and 10 year periods between the years 2000 and 2019. The index outperformed the market cap parent index a majority of the time and at a higher percentage over longer time horizons. Figure 8, on the right, illustrates the current factor exposure of the index, as measured by MSCI FaCS. As seen, the index has a large exposure to Value, in line with its objective. It's exposure to Value is significantly greater than the benchmark (the MSCI USA Index (CAD)).
Examining performance

In the short-term, factor performance has been cyclical. As seen in the figure below, the MSCI factor indexes have generated periods of underperformance.

Figure 9: How the four factor indexes have performed relative to each other

That said, over a long time horizon, the MSCI USA Sector Neutral Quality, Enhanced Value, Momentum and Minimum Volatility Indexes have all delivered outperformance relative to the market (see chart below).

Figure 10: Performance of MSCI USA factor indexes compared to the MSCI USA Index (2000-2019)

The chart below illustrates the MSCI factor indexes’ long term performance along the dimensions of risk and return. As seen, all the factor indexes have outperformed the parent index (MSCI USA) on a risk-adjusted basis. Minimum Volatility and Quality both exhibit lower risk than the parent index, which is expected, given both are defensive factors. Enhanced Value and Momentum, being more pro-cyclical, have demonstrated higher risk, as well as higher returns.

Figure 11: Long term risk and return (December 2000 - June 2019)
Conclusion

The MSCI Sector Neutral Quality, Momentum, Enhanced Value and Minimum Volatility Indexes provide rules-based, transparent methods for capturing four well known factors - quality, momentum, value, and minimum volatility – all of which have demonstrated long term outperformance relative to the broader market. These factor’s persistence are grounded in both academic theory and empirical evidence.

Footnotes & references
5 Exceptions are Financials: Forward P/E and P/B, Real Estate: EV/CFO
MSCI is a leading provider of critical decision support tools and services for the global investment community. With over 45 years of expertise in research, data and technology, we power better investment decisions by enabling clients to understand and analyze key drivers of risk and return and confidently build more effective portfolios. We create industry-leading research-enhanced solutions that clients use to gain insight into and improve transparency across the investment process.

To learn more, please visit www.msci.com.

The information contained herein (the “Information”) may not be reproduced or disseminated in whole or in part without prior written permission from MSCI. The Information may not be used to verify or correct other data, to create indexes, risk models, or analytics, or in connection with issuing, offering, sponsoring, managing or marketing any securities, portfolios, financial products or other investment vehicles. Historical data and analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. None of the Information or MSCI index or other product or service constitutes an offer to buy or sell, or a promotion or recommendation of, any security, financial instrument or product or trading strategy. Further, none of the Information or any MSCI index is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such. The Information is provided “as is” and the user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. NONE OF MSCI INC. OR ANY OF ITS SUBSIDIARIES OR ITS OR THEIR DIRECT OR INDIRECT SUPPLIERS OR ANY THIRD PARTY INVOLVED IN THE MAKING OR COMPILING OF THE INFORMATION (EACH, AN “MSCI PARTY”) MAKES ANY WARRANTIES OR REPRESENTATIONS AND, TO THE MAXIMUM EXTENT PERMITTED BY LAW, EACH MSCI PARTY HEREBY EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITHOUT LIMITING ANY OF THE FOREGOING AND TO THE MAXIMUM EXTENT PERMITTED BY LAW, IN NO EVENT SHALL ANY OF THE MSCI PARTIES HAVE ANY LIABILITY REGARDING ANY OF THE INFORMATION FOR ANY DIRECT, INDIRECT, SPECIAL, PUNITIVE, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR ANY OTHER DAMAGES EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited.

©2019 MSCI Inc. All rights reserved | CBR0419