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# Dynamic Multifactor Case Study

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Combining and dynamically rotating factor exposures to help enhance index risk/reward characteristics through changing economic cycles.

# Indexing Case Study

**1** Five factors  
integrated into  
one index

## Taking factor investing to the next level

Invesco has been helping investors effectively tap into the potential benefits of factor investing for more than 35 years. Our recent 2021 annual factor study identified growing demand for multifactor strategies and more active management of individual exposures.

In this case study, we highlight custom dynamic multifactor Index solutions. This transparent, rules-based approach recalibrates a parent index, such as the Russell 1000 Index, using factor weights and then dynamically adjusts these exposures to help systematically optimize risk/reward characteristics based on evolving economic conditions.

Each FTSE Invesco Dynamic Multifactor Index starts by ranking every stock in the parent index by five broadly recognized equity factor characteristics. These five factors have historically offered complementary investment characteristics and provided meaningful opportunities to help increase risk-adjusted return potential during various market environments. Individual stocks are sorted using FTSE Russell factor definitions and consistently applied across market segments and regions.

### Factor-based investing using FTSE Russell equity factor definitions

Factor	Potential additive characteristics	Criteria
<b>Value</b>	Stocks that appear cheap tend to perform better than stocks that appear expensive.	Cash flow yield, earnings yield, and price-to-sales ratio.
<b>Quality</b>	Higher-quality companies tend to perform better than lower-quality companies.	Profitability, efficiency, earnings quality, and leverage.
<b>Size</b>	Smaller companies tend to perform better than larger companies.	Inverse of full market capitalization index weights.
<b>Low volatility</b>	Stocks that exhibit low volatility tend to perform better than stocks with higher volatility.	Standard deviation of five years of weekly total returns.
<b>Momentum</b>	Stocks that rise or fall in price tend to continue rising or falling in price.	Cumulative 11-month return (past 12 months excluding most recent month).

On average, these five factors have historically exhibited low to negative correlations to one another. Because of this, combining them into a single index can help provide added layers of diversification to pursue excess returns. (The hypothetical factor-based performance presented in this case study draws from the historical performance of the Russell 1000 Factor Indices, which are benchmarked to the Russell 1000 Index and recalibrate its individual stock weightings using FTSE Russell equity factor definitions.)

### Individual factor returns have tended to be lower or negatively correlated to one another

Correlations of monthly excess returns, June 2001—March 2023

	Size	Value	Momentum	Low Volatility	Quality
Size					
Value	0.50				
Momentum	-0.24	-0.48			
Low Volatility	-0.66	-0.12	0.09		
Quality	-0.57	-0.54	0.41	0.41	

Source: FTSE Russell, as of 3/31/2023. Correlation using trailing 22-year monthly excess returns calculated against Russell 1000 Index. Data presented is provided for illustrative purposes and includes hypothetical performance. An investor cannot invest directly in an index. All Russell 1000 single factor indices were inception on September 28, 2015 and back-tested data is available from June 29, 2001. All information presented prior to the inception dates is back-tested. Back-tested performance is not actual performance but is hypothetical. Although back-tested data may be prepared with the benefit of hindsight, these calculations are based on the same methodology that was in effect when the index was officially launched. Index returns do not reflect payment of any sales charges or fees. Past performance is not a guarantee of future results. See the appendix for additional back-tested performance notes.

## 2 Dynamic exposure tilts adapt to changing macro regimes

Single-factor excess returns have also exhibited strong cyclicity as market conditions evolve. As shown below, the top-performing factor in any given year has historically changed over time, with periods of significant dispersion between best and worst performers.

### Factor performance leadership has been cyclical

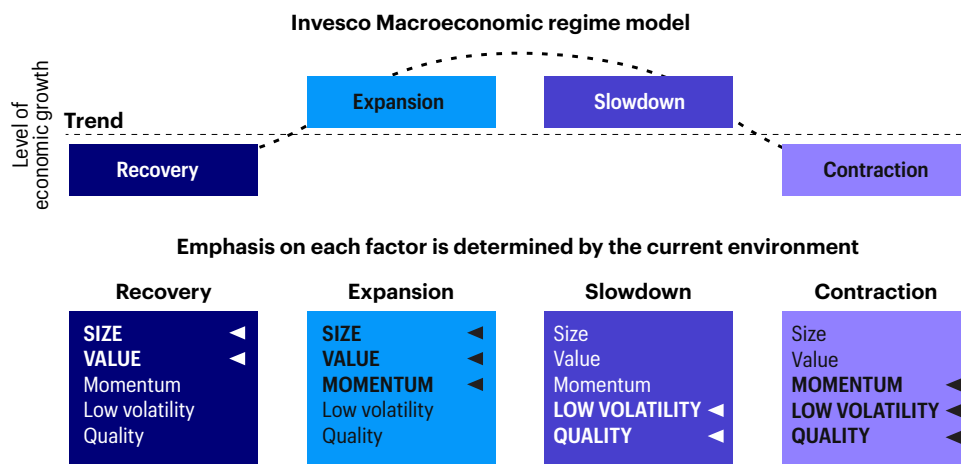
Calendar year returns, 2008–2022

Calendar year returns (%) 2008-2022							Dispersion (best factor - worst factor)
2008	Low vol -31.10	Quality -31.14	Momentum -36.66	Value -36.74	Size -37.57	Market -37.60	+6.50
2009	Size 41.73	Market 28.43	Quality 26.72	Value 24.90	Momentum 22.44	Low vol 17.85	+23.89
2010	Size 27.76	Value 20.13	Momentum 17.07	Market 16.10	Quality 14.55	Low vol 11.83	+15.93
2011	Low vol 8.46	Quality 8.46	Momentum 2.28	Value 1.80	Market 1.50	Size -1.17	+9.63
2012	Size 19.18	Value 18.82	Market 16.42	Quality 15.87	Momentum 15.23	Low vol 13.04	+5.93
2013	Size 36.60	Value 36.38	Momentum 33.58	Market 33.11	Quality 31.66	Low vol 29.61	+6.99
2014	Low vol 15.85	Market 13.33	Quality 13.24	Value 12.88	Momentum 12.65	Size 11.32	+4.53
2015	Low vol 3.06	Momentum 2.69	Quality 2.11	Market 0.92	Size -2.26	Value -3.34	+6.40
2016	Value 18.66	Size 15.99	Market 12.05	Low vol 11.56	Quality 10.71	Momentum 7.94	+10.72
2017	Quality 28.07	Momentum 22.83	Market 21.69	Low vol 20.00	Value 19.74	Size 18.25	+9.82
2018	Low vol -2.43	Quality -2.68	Momentum -4.39	Market -4.78	Value -8.09	Size -8.34	+5.90
2019	Quality 32.19	Low vol 32.16	Market 31.43	Momentum 30.92	Value 29.78	Size 29.03	+3.17
2020	Quality 26.32	Momentum 24.65	Market 20.96	Size 16.39	Low vol 13.65	Value 7.06	+19.26
2021	Value 31.73	Quality 30.21	Low vol 26.86	Market 26.45	Momentum 25.20	Size 22.80	+8.93
2022	Value -8.74	Low vol -16.15	Size -17.97	Momentum -18.20	Market -19.13	Quality -21.42	+12.68

Source: FTSE Russell, as of 12/31/2022. Data presented is provided for illustrative purposes and includes hypothetical performance of the last 15 years of returns. All Russell 1000 single factor indexes (size, value, momentum, low volatility, quality and yield) were inception on 9/28/2015. The Russell 1000 Index (Market) was inception 1/1/1984. All information presented prior to the inception dates is back-tested. Although back-tested data may be prepared with the benefit of hindsight, these calculations are based on the same methodology that was in effect when the index was officially launched. Index returns do not reflect payment of any sales charges or fees. An investment cannot be made in an index. Past performance is not a guarantee of future results. See the appendix for additional back-tested performance notes.

Analyzing these changes in return leadership reveals repeatable patterns of how factors have tended to perform under different macroeconomic regimes. For example, size and value have usually outperformed in periods of recovery and expansion, given these stocks' generally higher operating leverage and greater reliance on external funding. In contrast, quality and low volatility have typically led during periods of slowdown and contraction, based on these stocks' generally stronger defensive characteristics from lower operating leverage and higher reliance on internal cashflows. Momentum has tended to perform well in later stages of cyclical upturns and downturns.

Different factors have tended to lead as the macroeconomic regime evolves



Factor cyclicality

- **Size** and **value** tend to be cyclical, with higher operating leverage and more reliance on external funding
- **Quality** and **low volatility** tend to be defensive, with lower operating leverage and more reliance on internal cash flows
- **Momentum** is more transient and tends to perform well in later stages of cyclical upturns and downturns

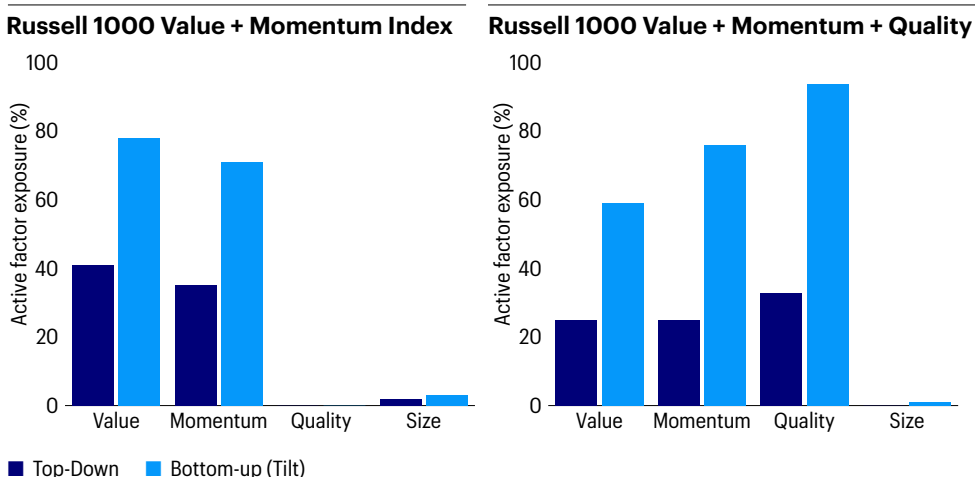
Source: Invesco Investment Solutions. For illustrative purposes only.

FTSE Invesco Dynamic Multifactor Indices seek to take advantage of this rotation by systematically tilting toward favored factor exposures based on a monthly regime signal produced through economic and market sentiment indicators. This proprietary macro regime framework provides a transparent, intuitive and actionable methodology for tactical factor allocation based on a short-to medium-term economic outlook.

In our index construction approach, stocks in the parent index are systematically rebalanced to one of four regime portfolios (recovery, expansion, slowdown, and contraction) using this macro regime framework in conjunction with FTSE Russell equity factor rankings. This empowers a bottom-up construction methodology that considers how each stock scores for each factor. Compare this to top-down construction, which instead typically combines single-factor allocation sleeves at the overall portfolio level. While a top-down approach is usually easier to implement, it often results in factor dilution that may reduce the desired exposure due to offsetting characteristics.

Capturing more active factor exposure

Factor exposures in top-down vs. bottom-up multifactor indices as a percentage of single-factor index exposure



Source: Invesco. For illustrative purposes only.

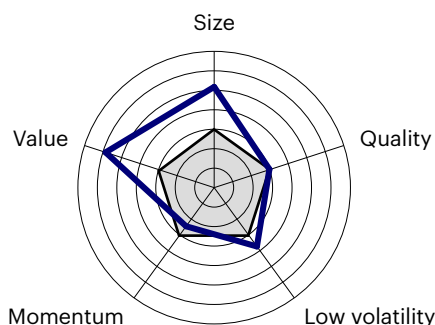
3 Bottom-up construction offers purer factor exposure

The combination of this bottom-up construction with dynamic factor exposure tilts naturally results in more precise targeting of specific drivers of risk and return. Over time, these methodical style shifts are designed to help position the index to capture stronger risk-adjusted performance.

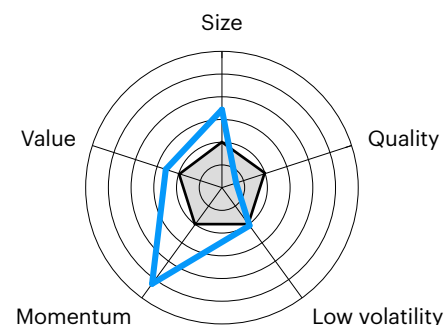
### Style shifts help dynamically position the index for different macro regimes

Russell 1000 Invesco Dynamic Multifactor Index vs. Russell 1000 Index returns, July 2001–December 2022

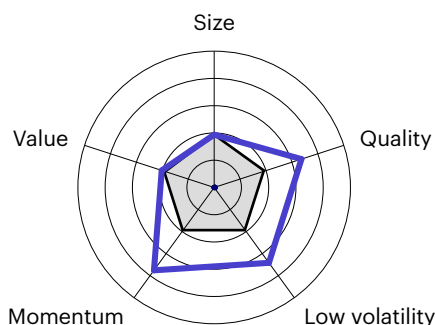
#### Recovery



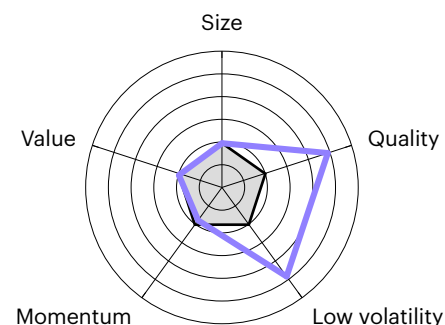
#### Expansion



#### Contraction



#### Slowdown



\*Spider plots reflect factor exposures of strategy's excess returns in each macro regime.

Source: Invesco Investment Solutions, Benchmark (Russell 1000 Index), Dynamic (Russell 1000 Invesco Dynamic Multifactor Index), weekly returns, July 2001 to December 2022. Sample period chosen based on index data availability.

**4** Flexible applications

Invesco Dynamic Multifactor Indexing can be applied to a range of FTSE broad market indices, as well as to specific market segments and/or regions. It also can be customized by ESG considerations, tracking error and/or turnover to meet specific investor objectives and needs.

**5** Transparent, rules-based, and cost-efficient

By employing a fully transparent, rules-based construction methodology, this Index methodology combines the attractive attributes of passive investing with more active, enhanced factor exposure management based on systematic macro analysis. Investors can gain access to a cost-efficient, potentially unique return source that dynamically adapts to changing market environments. Plus, this time-tested process benefits from active inputs from FTSE Russell's leading index capabilities, including factor research, construction, maintenance and index governance.

# 6 Value Proposition

## Invesco institutional indexing

Utilizing a variety of replication methodologies, Invesco currently manages \$478<sup>2</sup> billion across 400+ index-based solutions spanning traditional and alternative asset classes, regions, sectors, and factors. This industry-leading platform provides strong governance and oversight, with a disciplined focus on performance, risk controls, process automation and segregation of duties. Investors can choose from a wide array of access points, including direct licensing, separate accounts and pooled funds and many more. Direct licensing is available through an Invesco Advisers, Inc. affiliate.

**Value proposition:** Innovative core equity strategy provides differentiated source of alpha through a rules-based approach

### Proprietary macro regime indicators

**Forward-looking signals** guide dynamic factor allocations given their cyclical properties



### Systematic, transparent process

**Rules-based investment process** allows for transparency – no “black box” construction



### Diversified, strong factor exposure

Leverage **FTSE Russell's leading index capabilities:** factor research, security weighting and index governance



### Cost-effective

Complementary to passive and active management, delivering an **innovative and cost-effective** solution in the marketplace



For more information about this and other custom index solutions, please visit [invesco.com/institutional-indexing](https://invesco.com/institutional-indexing) ([invesco.ca/ institutional-indexing](https://invesco.ca/institutional-indexing)) or speak with your Invesco representative.

1. Statistics calculated against Russell 1000 Index.  
2. As of March 31, 2023.

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