

Implementation considerations for factor investing

Navigating the complexities of factor investing can be challenging. Some institutional investors may feel unsure on how to go about it or whether they should consider factor investing in their overall asset-allocation process in the first place. The purpose of this Q&A is to help institutional investors pose the right questions and develop a further understanding of the role of factor investing¹, thereby facilitating the decision-making process.

Should institutional investors think about factors, and if so why?

Institutional investors should care about factors. They are systematic drivers of portfolio risk and return and at the heart of risk management tools. A more recent offering is the introduction of smart beta or factor-investing techniques to the allocation decision of many institutions.² An investor looking to enhance risk-adjusted returns may seek a certain risk profile, and factor-investing can build relevant, outcome-oriented solutions.

What is the purpose of using factors in a portfolio?

Factor investing can target different outcomes. Investors can combine individual factors to target different outcomes with the appropriate expected risk/return profiles. Factors may be categorized into Cyclical and Defensive types, depending on their sensitivity to the economic cycle.

- Value, Momentum and Size are considered cyclical as they are more sensitive to economic growth and investor risk appetite.
- Low Volatility and Quality are typically considered defensive that do well as investors become increasingly risk averse.
- Yield factor exposure can enhance portfolio income.

Depending on the investment objective, Cyclical and Defensive factors may be combined to create more diversified portfolios that can perform relatively well during a range of market conditions: A Defensive portfolio will focus on providing a degree of downside protection; a Diversified portfolio will aim to achieve a modest risk-adjusted relative performance; and a Dynamic portfolio will target a higher active return with potentially higher drawdowns.

¹ ["Implementation considerations for factor investing"](#) FTSE Russell (March 2018)

² ["Smart Beta: 2017 Global Survey Findings From Asset Owners"](#) FTSE Russell (May 2017)

Table 1. Targeted Multi-Factor Solutions

| Strategy | Objective | Selected Factor Candidates | | | | |
|-------------|-----------------------------------|----------------------------|---------|-------|------|----------|
| Defensive | Moderate Return and Lower Risk | Low Volatility | Quality | | | |
| Diversified | Moderate Return and Moderate Risk | Low Volatility | Quality | Value | Size | |
| Dynamic | Higher Return and Higher Risk | | | Value | Size | Momentum |

Table 2 shows the risk versus return trade-off for the FTSE All-World Index multi-factor combinations.

Typically, an investor seeking to improve risk-adjusted returns with downside protection would favor the **Defensive solution**. The up (down) capture ratio shows the fraction of positive (negative) returns captured by the strategy. The Defensive factor combination typically offers relative capital protection during market downturns, but also tends to capture less of the market upside. It has the lowest absolute risk of the three multi-factor combinations. Maximum drawdown (MDD) is the maximum loss from peak to trough, before a new peak is attained. The Defensive solution has a relatively small drawdown. In short, its focus is on wealth preservation.

The **Diversified solution** seeks modest outperformance at market levels of absolute risk. On average, it has outperformed in both up and down markets as a result of its diversified properties. The beta of the Diversified strategy is 0.96 relative to 0.85 for the Defensive solution; in other words, it is more sensitive to market direction. The MDD is higher relative to the Defensive solution, but slightly lower than the benchmark index.

The **Dynamic solution** is more aggressive, with a higher return (and risk) objective. Its higher level of volatility results in larger drawdowns. A long-term investment horizon and strong governance are essential to realize the potential of more risky factor combinations.

Table 2. FTSE All World multi factor indexes

| Index | Annualized Return | Standard Deviation | Sharpe Ratio | Maximum Drawdown | Beta | Up-Capture Ratio | Down-Capture Ratio |
|----------------|-------------------|--------------------|--------------|------------------|------|------------------|--------------------|
| Defensive | 9.6% | 15.1% | 0.55 | -42.0% | 0.85 | 91.6% | 83.1% |
| Diversified | 12.9% | 17.1% | 0.67 | -50.0% | 0.96 | 102.7% | 82.8% |
| Dynamic | 13.1% | 18.6% | 0.63 | -54.3% | 1.04 | 112.1% | 94.9% |
| FTSE All-World | 8.5% | 17.4% | 0.41 | -51.6% | | | |

Source: FTSE Russell. Data from October 2001 to October 2017. Factor Indexes are hypothetical and for illustrative purposes only. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

What are the investment objectives and constraints that drive a desired factor combination?

An organization's investment objectives and constraints will typically drive the factor allocation decision. The investment objective associated with a given allocation to factors needs to be clearly defined. A pension fund may wish to use factors to target improvements in risk-adjusted performance relative to their current passive allocation or seek a degree of downside risk. An important constraint is a plan's governance structure. A plan with strong governance can often tolerate more downside risk and weather periods of underperformance in the belief that factor risks will ultimately be rewarded. The funding ratio of a pension fund will also impact its risk tolerance. A fund in deficit will require a more conservative factor allocation than a well-funded pension scheme.

Which product evaluation criteria are important to address to achieve an efficient implementation?

Once the set of desired factors has been determined, the final question for investors is how to implement the factors into an investment strategy in the most efficient way. There are important trade-offs (Graph 1) to be made during the implementation phase in order to achieve a diversified exposure to the target set of factors and to diversify away idiosyncratic risk.

Graph 1. Product Evaluation Criteria



Graph 1. Once the factor mix is decided, the multi-factor construction methodology needs to be evaluated. The product evaluation criteria highlight the trade-offs an investor needs to take into consideration.

Investors need to find the right balance between **Capacity, Turnover and Diversification**. Portfolio concentration can become a problem for institutional investors allocating a considerable amount to factor strategies. Intentional exposure to the Size factor can be incorporated to enhance diversification. It is important to be aware of the difference between unintentional Size exposure, often observed in top-down models due to the weighting scheme employed in the underlying single factor indexes, and integrating a Size component directly and intentionally in a bottom-up approach.

A large fund may also want to limit **turnover**. This will impact the choice of factors. Momentum, driven by a stock's price, typically has less stable exposure and needs to be rebalanced more often, increasing the turnover. Factors calculated using balance-sheet data in combination with stock price will show an intermediate speed of decay, while a pure financial statement-based factor, like Quality, will need less rebalancing to preserve factor exposure and capture any associated risk premium.

There is a direct relationship between the level of **factor exposure, expected tracking error and expected performance**. Increasing levels of factor exposure will lead to more active risk in a portfolio. For a well-diversified portfolio, the relationship between active factor exposure, expected return and tracking error is approximately

linear. It is crucial to achieve the desired factor exposure, while maintaining appropriate levels of stock-weight diversification to ensure factor pay-offs are not subsumed by idiosyncratic risk. Therefore, portfolio construction techniques that efficiently incorporate the factor exposure versus diversification trade-off are critical.

Having navigated the process of selecting a set of factors that complements the asset allocation decision and investment objectives, it is particularly important to limit or avoid exposure to **off-target factors**. Top-down approaches, especially those employing diversified weighting schemes, typically introduce a substantial and unspecified size bias. Proponents of a top-down approach often claim the resulting portfolio is more diversified compared to a portfolio constructed using a bottom-up approach. It is important to note this diversification is a result of unintentional Size exposure, which reduces portfolio concentration. A bottom-up approach can incorporate a Size component directly and intentionally, leaving the investor with the choice and the flexibility to determine the desired trade-offs between exposure and diversification.

A common misconception with a bottom-up portfolio is that it is concentrated relative to a top-down portfolio. However, if we compare on a like-for-like basis by matching factor exposures, bottom-up approaches show greater levels of diversification compared to top-down approaches.³

It is important the construction approach leaves investors with **precise** and **efficient** control over the target exposure, off-target exposure, diversification and implementation considerations (capacity, turnover etc.) and be easily extendable to include other characteristics, like ESG and Carbon reduction.

What should investors look for when integrating ESG and Carbon Objectives?

There is an increased focus on climate change and ESG considerations. When integrating ESG, carbon and factor considerations, each objective may pull the portfolio in a different direction. A good approach should be flexible and be able to incorporate the desired trade-offs and investor preferences including ESG considerations, in a transparent, consistent and robust manner.

What is the overall consideration for factor investing?

A firm's investment objectives and constraints in terms of risk tolerance, investment horizon and investment board governance are unique. This will lead to different preferences over factors, levels of exposure and sensitivity to investment capacity, concentration and turnover. The specific set of objectives and constraints will determine the appropriate factor allocation. An investor looking to enhance risk-adjusted returns may seek a certain risk profile, and factor-investing can build relevant, outcome-oriented solutions.

³ ["Factor Exposure and Portfolio Concentration"](#) FTSE Russell (April 2017); ["Top-down or Bottom-up"](#) FTSE Russell (March 2018)

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