Rocaton

INSIGHTS

The Factor Landscape

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EXECUTIVE SUMMARY

- Institutional investors have shown an increased interest in factor investing. Much of the marketing focus has been on so-called "smart beta" strategies which represent a subset of the broader factor investing landscape[1].
- We segment factor investing into two components; top-down (macro) factors and bottom-up (style) factors.
- Top-down factor investing describes broad asset class exposure to various factors such as duration, growth and inflation.
- Bottom-up factor investing is focused on describing sources of performance within asset classes such as value, size and momentum within equity markets.
- Institutional investors and asset managers have been utilizing various forms of factor investing for many years.
- The recent expansion of research and product development has made factor investing available and interesting to a broader set of investors. Specifically, investors have access to more efficient implementation options than ever before (greater transparency, lower fees and low minimum investment requirements).
- Among the many possible applications of factor investing, we believe the most effective uses include filling "gaps" that exist in equity or fixed income portfolios and replacing more costly active strategies.

Introduction

As often seems to be the case in investing, what's old is new again. This expression is particularly applicable to the "new" concept of factor investing. While the financial media and asset managers would lead investors to believe that factor investing is a new approach to building portfolios, institutional investors have been practicing various forms of factor investing for many years. We would submit, however, that what is new in factor investing is the availability of products, the ease of implementation and the reduction in costs. Given these changes, we believe there are several practical ways in which investors can make use of the expanding set of factor strategies. Specifically, we believe factors can be used in two ways: 1) top-down asset allocation portfolio construction and 2) bottom-up manager/strategy selection. The balance of this paper seeks to define factor investing at a high level and provide a framework which investors can use to incorporate factor strategies into portfolios.

How should investors define factor investing?

Despite the expanding interest in factor investing, there is no generally agreed upon definition among institutional investors. Although investors might be tempted to use "factor investing" and "smart beta" investing interchangeably, we would caution against using these terms in tandem. Instead, we would characterize smart beta as being a subset of the broader factor investing landscape. In its most basic form, we define factor investing as allocating capital to a specific set of exposures which will impact asset class and/or portfolio return and risk outcomes. To more easily define factor investing, we have divided factors into two categories, 1) top-down and 2) bottom-up.

Top-down factors, sometimes referred to as "macro" factors, can include economic growth, inflation, interest rates (nominal and real), credit, currency and illiquidity or geopolitical. These factors tend to be shared across asset classes and, in our opinion, a significant majority of an asset class' or portfolio's return and risk can be explained by some combination of these factors. For example, public equities are largely driven by

[1] We would define smart beta as transparent, rules-based strategies that closely replicate an index, but are weighted on some factor other than market capitalization (in the case of public equity) or issuance (in the case of fixed income).

Figure 1:

Examples of Top-Down and Bottom-Up Factors

Top-Down (Macro) Factors	Bottom-Up (Style) Factors
Economic Growth	Value
Inflation	Momentum
Interest Rates (nominal and real)	Quality
Credit	Size
Currency	Carry
Illiquidity	Volatility

exposure to the economic growth factor, but also have exposure to the inflation and credit factors. Similarly, investment grade fixed income exposures will largely be influenced by the interest rate, inflation and credit factors.

Bottom-up factors, sometimes referred to as "style" factors, can include value, momentum, quality, size and carry, among others. These factors often help explain return and risk within certain asset classes, particularly public equity and traditional fixed income. A large cap U.S. equity strategy, for example, will have varying exposures to many of these factors, such as value, quality and momentum. Similarly, a core fixed income strategy will have exposure to quality (e.g. credit quality) and carry. Dispersion in return across certain benchmarks (e.g. Russell 2000 Growth versus Russell 2000 Value) is often explained by the performance of the bottom-up factors while performance of an asset class (e.g. U.S. equities) is often explained by top-down factors. Further, relative performance of actively managed strategies is often explained by tilts towards or away from bottom-up factors, a concept we explore in greater detail later in the paper. Finally, it is important to note that many of the bottom-up factors we have identified have been the subject of decades of academic study and many have been shown to have positive return premia associated with them over the long-term.

While the terms we have outlined may be new to some investors, the concept of factor investing should not be viewed as innovative. Historically, investors simply bought "packages" of factors by owning different asset classes and strategies, rather than making targeted allocations to individual factors. In actively managed equity strategies, for example, quantitative managers have tilted portfolios to favor a combination of factors. Some investors, most notably liability-driven investors (such as defined benefit plans or insurance general accounts), have been practicing factor investing for many years by targeting specific duration and credit quality profiles within their fixed income portfolios. Investors who chose to own "risk parity" strategies are, in some ways, also making use of factor investing. Today, due to expanding product availability, investors of all types can target specific factors.

Top-Down Asset Allocation

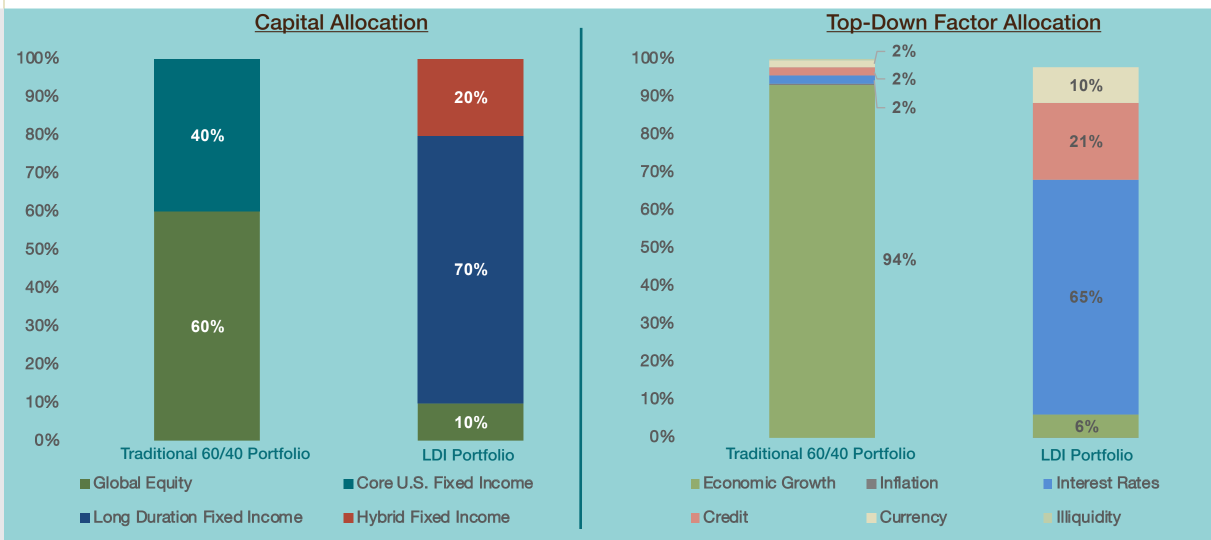
As mentioned, investors have historically made top-down asset allocation decisions by allocating capital among asset classes rather than among macro factors. That approach is unlikely to change anytime soon as much of the product development in factor investing has been focused on bottom-up factors. The top-down approach is made even more difficult by the fact that it is challenging for investors to know exactly how much of each factor they should own. For example, how much of the "growth" factor should an endowment (or any other investor) own? The use of traditional asset class allocations (e.g. equities, fixed income, alternatives, etc.) is familiar to nearly all investors and allows for easy comparisons of allocations across peers. We would therefore not advocate for a radical shift in the way investors construct portfolios from a top-down perspective. However, Rocaton's capital market forecasts are built using the top-down factors we have described above and, therefore, asset classes may be thought of as combinations of factors. As clients are reviewing asset allocation, we encourage them to include an evaluation of the top-down factor exposure resulting from various portfolio mixes.

With that said, some investors, such as defined benefit plans or insurance general accounts, have been practicing a form of factor investing for many years by targeting specific duration and credit quality profiles. We would also argue that all investors have been making these types of decisions for many years. For example, a defined benefit plan that chooses to invest in core fixed income is implicitly deciding to have a smaller allocation to the interest rate factor by having a shorter-duration bond portfolio. Across fixed income portfolios, we believe investors should be more explicit about the amount of interest rate exposure (duration) and credit exposure desired, rather than allocating to broad indexes, such as the Bloomberg Barclays Aggregate, which can have varying duration and credit quality profiles through time.

Figure 2:

Capital and Top-Down Factor Allocations for Traditional 60/40 and LDI Portfolios

Analysis based on Rocaton's Capital Market Forecasts. Global Equity includes U.S., Non-U.S. Developed and Emerging markets. Long duration fixed income is Long Government/Credit. Hybrid fixed income includes Emerging Market Debt and High Yield.



While the concept of allocating capital to asset classes is not likely to go away, we believe investors should understand the top-down factor allocations within their portfolios. Understanding the top-down factor exposure in a portfolio can help investors better explain performance outcomes during various market environments. For example, during periods of rising rates, understanding the amount of interest rate exposure in a portfolio should help investors better understand their portfolio performance. As we show in Figure 2, a traditional 60/40 portfolio has significant exposure to the economic growth factor, but has limited exposure to the interest rate factor. As such, an investor with this portfolio should expect return and risk to be largely driven by changes in economic growth. Alternatively, a pension portfolio with a liability driven investing ("LDI") approach which has large allocations to long duration fixed income has meaningful exposure to the interest rate and credit factors and low exposure to the economic growth factor. In this case, we would expect changes in interest rates to be the dominate driver of performance. By understanding the factor composition of a portfolio, investors are less likely to be surprised about their portfolio performance during certain market events such as a rising interest rate environment, credit market sell-off or economic slowdown.

Bottom-Up Factor Selection

In our view, factor investing on a bottom-up basis may be more easily achieved today given the strategies which are available to investors. More specifically, we believe bottom-up factor strategies should be considered alongside traditional active and passive strategies. While we have highlighted practical ways in which investors can target macro exposures with their fixed income portfolios, there are fewer applications for fixed income investors in the bottom-up factor space. Rather, most of the product development in the bottom-up factor market has been focused on public equities. By our estimation, the top ten factor exchange traded funds ("ETFs") by assets are all equity-focused. These top ten ETFs have grown dramatically in recent years and now have approximately $250 billion in assets. Given the dominance of equity-focused products, many of our comments on bottom-up factor investing will be more applicable to public equity portfolios.

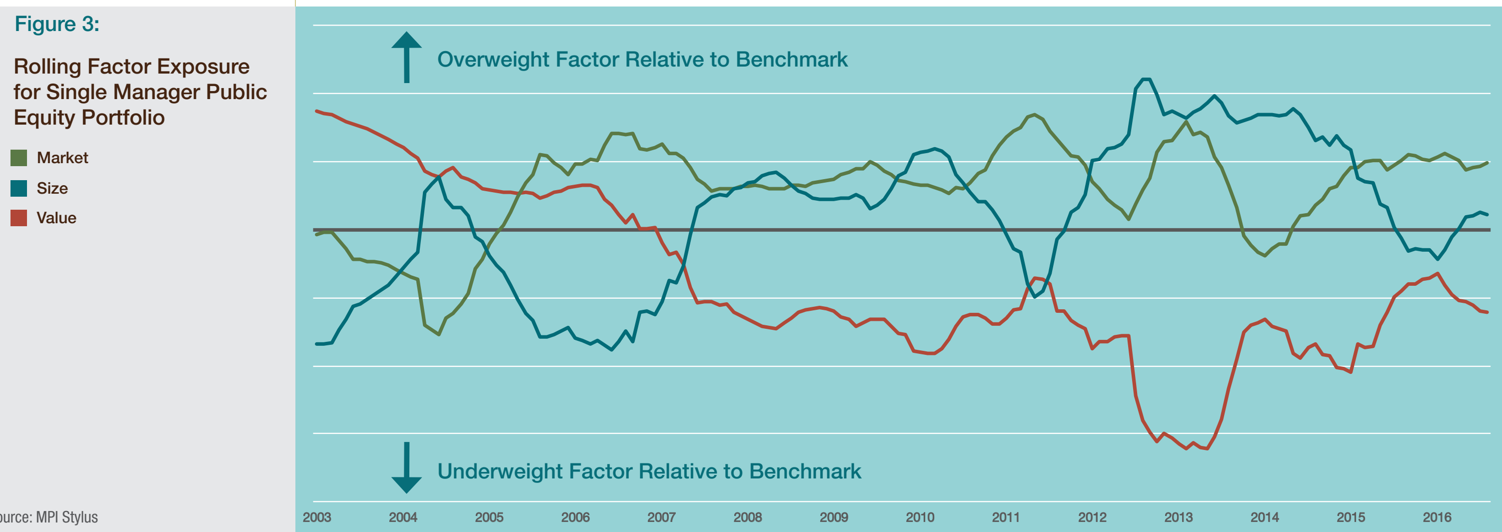
In many cases, active managers have systematic exposures to certain bottom-up factors that often explain much of their relative performance. Various academic studies make similar findings about the level of excess return explained by factor exposure, although it should be noted that results may vary widely across types of strategies[2]. For example, some actively managed public equity strategies may have systematic size (small/large cap) or style (value/growth/quality/momentum) biases which drive a large portion of their absolute and relative returns. There are certainly skilled active managers who have true alpha generating capabilities which cannot be replicated with exposure to factor strategies. However, in cases where factors explain a significant portion of a strategy's return, investors may want to consider replacing some active managers with lower cost factor strategies. Rocaton has, for many years, provided clients with factor exposures as a way to assess risk within public equity portfolios. In addition to the multi-factor risk attribution analysis Rocaton has done since the inception of the firm, we are actively working to include additional factor based analysis to portfolio reporting and manager monitoring and we look forward to providing this analysis to clients in the future.

[2] See Ang, Goetzmann and Schaefer (2009) and Bender, Hammond and Mok (2014).

One practical way for investors to make use of bottom-up factor strategies is to "fill gaps" or adjust for unwanted biases that might exist in portfolios. For example, an investor might own a portfolio of actively managed public equity strategies. In sum, these managers may exhibit a bias towards growth stocks, which may or may not be intentional on the part of the investor. In this case, that investor could purchase a value factor strategy (in an appropriate weight) so that the resulting portfolio had a more even balance between growth and value styles. Similarly, an investor with a small cap bias in their portfolio could chose to own a mega-cap factor strategy to remove the size bias. We prefer that investors maintain size and style neutrality across their public equity portfolios[3]. As a result, factor strategies can help investors achieve this balance without the need to sell their actively managed strategies.

Figure 3:

Rolling Factor Exposure for Single Manager Public Equity Portfolio



Source: MPI Stylus

Another potential way for investors to take advantage of bottom-up factor strategies is through a "smart beta" approach designed to make targeted tilts in their portfolios to factors they believe will outperform market cap weighted benchmarks. For example, investors who have a long-time horizon may choose to overweight "value" or "small cap" factors (relative to a cap weighted benchmark). Various academic literature suggests that these two factors are likely to outperform their growth and large cap counterparts, respectively, over the long-term. As a result, investors may want to have a systematic exposure to these factors in the hopes of generating long-term excess returns. We would point out, however, that empirical data shows that these factors can take a long time to "work" (i.e. generate excess returns) and having exposure to these factors does not guarantee outperformance over the short- or long-term. Of course, this is also true of traditional active management which may go through multi-year periods of underperformance. Any potential tilts towards factors should be carefully evaluated prior to implementation and should be kept in place for a sufficiently long period of time. Investors who decide to make tilts should be prepared for periods of underperformance.

[3] The primary reason we suggest size and style neutrality in public equity portfolios is due to the mismatch between a typical investor's time horizon and the time necessary for factors to reliably add value.

Conclusion

As discussed, factor investing is not entirely new, and while we've always worked with our clients to understand and construct portfolios with an eye toward their exposures to various factors, interest among the broader investment community has grown significantly in recent years. No doubt, the proliferation of product and research into both top-down and bottom up factors has driven this growing interest. Today, more than ever, investors of all types have access to products and applications which can facilitate greater portfolio diversification, elimination of unintended biases and improved understanding of manager/portfolio returns and risks. In addition, newer forms of factor strategies may augment more traditional actively managed strategies which rely heavily on factors for generating return.

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