White Paper
Multi-Asset Solutions

December 2022

Stand United or Divide and Conquer?

What is the Best Approach to Factor Investing?

Altaf Kassam, CFA
Head of Investment Strategy and Research, EMEA

Kamal Gupta, CFA, FRM
Senior Research Analyst

STATE STREET GLOBAL ADVISORS

Contents

Executive Summary

There are pros and cons to the various approaches to factor investing. We believe that investor interests are best served through a multifactor investing process.

Factors such as Value, Size, Momentum, Quality or Volatility are employed to identify stocks with specific characteristics. Such stocks are then used as part of an investment strategy to generate potential returns above a specific benchmark. For instance, stocks that exhibit lower volatility are thought to provide higher risk-adjusted returns to investors due to behavioral effects. Similarly, Value stocks are understood to be cheaper relative to their intrinsic value, and eventually provide higher returns when this intrinsic value is realized. As far as the factor investing process is concerned, single-factor exposure and factor-timing processes are among the most popular approaches. We analyze the pros and cons of both of these approaches and suggest that a multifactor bottom-up blending process combines the benefits of both and offers the best risk-adjusted returns.

Factor Investing

Factor investing is a style of investing that takes advantage of certain characteristics of securities with the express purpose of driving higher risk-adjusted returns over a market cycle. These characteristics could be macro or fundamental in nature and could include attributes such as Growth, Momentum, Value or Size, among others, which can be used to select securities.

Factors were first employed by equity portfolio analysts to make analyses more tractable: Factor decomposition made it possible to break down the risk and return drivers of equity securities into a smaller set of key factors, such that the dimensionality problem of data, caused by the often vast amounts of variables, could be managed better.

Over time, certain fundamental factors were empirically identified as offering long-term return premia, justified by behavioral and/or risk-based arguments and supported by economic intuition. These factors then became part of portfolio managers' strategic asset allocation (SAA), which is typically the portfolio allocation that is long-term in nature.[1]

Recognizing the cyclical nature of these factors, the next step was to employ such factors as part of the tactical asset allocation (TAA) process as well. TAA typically encompasses temporary portfolio adjustments that seek to take advantage of external dynamics or short-term market anomalies. This process of taking advantage of the cyclicality of factors, known as factor timing, is used to earn alpha, which is the excess return generated above a benchmark.

In the ensuing sections, we highlight the pros and cons of both these approaches in light of their inherent challenges and recommend that investor interests are best served through a multifactor investing process.

No single factor has consistently outperformed the market through history. Over the past two decades, different factors have gained ascendance at varying points in time, based on some combination of market regime, macroeconomic conditions, and market cycle. Indeed, over the past five calendar years, no single factor has topped the charts for two consecutive years.

The key takeaway here is that the performance of each factor varies over time and that factor performances differ from each other in terms of frequencies and amplitudes. This also means that while factor returns can show great relative variability in the short-to-medium term, individual factors can also outperform a capitalization-weighted index over several business cycles, particularly on a risk-adjusted basis.

Consequently for investors, sticking with an individual factor over a long period of time may mean a prolonged and unpredictable underperformance of their portfolio.[2] For instance, consider Value, one of the most popular factors — it has underperformed capitalization-weighted index returns in all but three calendar years since 2007 (see Figure 1).

Figure 1

No Single Factor Outperforms Consistently

1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD
45.3	0.7	0.8	-10.1	57.8	28.1	27.8	30.4	19.4	-29.7	44.1	26.1	7.3	17.5	32.4	11.4	5.2	12.7	32.1	-2.0	36.1	33.8	25.7	-18.0
39.6	-1.8	-5.0	-14.8	56.1	24.3	16.8	20.5	16.2	-33.8	41.1	16.1	4.2	16.1	31.9	8.4	4.1	8.1	28.0	-2.8	33.7	28.3	21.8	-22.4
32.7	-2.6	-10.5	-15.6	33.1	20.9	15.7	20.1	14.8	-40.2	33.3	14.5	3.8	15.8	29.7	6.5	3.7	7.5	26.0	-5.5	27.7	22.2	21.2	-25.4
27.0	-10.4	-12.4	-16.0	28.1	20.0	9.5	18.7	9.8	-40.7	32.6	12.0	-5.5	14.3	27.1	6.1	3.1	7.5	22.7	-6.7	27.7	16.0	20.0	-26.6
24.9	-13.2	-16.8	-16.8	25.4	14.7	9.4	17.2	9.0	-41.1	30.0	11.8	-5.5	14.1	26.7	4.9	-0.3	4.6	22.4	-8.7	26.2	15.9	15.8	-27.2
20.2	-19.0	-19.4	-19.9	25.2	12.2	7.7	16.2	5.5	-41.9	16.4	10.7	-9.1	13.0	26.7	4.0	-0.9	4.2	22.2	-13.9	23.2	2.6	14.6	-29.4
8.1	-25.7	-20.9	-19.9	21.4	10.9	5.5	15.1	0.8	-43.0	14.2	8.6	-11.6	8.1	18.6	1.9	-3.3	2.8	17.3	-13.9	19.0	-4.0	14.3	-32.4
World				Growth				Volatility			Momentum			Quality			Size			Value			

Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

Given the challenges of sticking with a single factor, investors might be tempted to rotate into favorable factors in search of the best possible returns. However, while seemingly intuitive, factor timing is a notoriously challenging and expensive affair.[3] This is because, oftentimes, factor-timing strategies are highly sensitive to certain top-performing periods, which means a few missteps could drastically jeopardize portfolio returns.

Single-Factor Approach: Pros and Cons

As mentioned before, factors tend to outperform capitalization-weighted benchmarks over long periods of time. For this reason, they are considered to be key drivers of risk and return in equity portfolios.

We examined the performance of the five "classic" premium factors, namely Volatility, Momentum, Quality, Size, and Value, as well as Growth, which is generally not considered as a premium factor, over several business cycles. Growth was added to the group in the context of the factor coming into sharp focus recently given its strong performance since the Global Financial Crisis.

The factors considered in our sample all individually outperformed the capitalization-weighted benchmark over a period of 23 years either in terms of return or risk or both (see Figure 2).

Figure 2
Single Factors Typically Outperform Over the Long Term

December 1998–September 2022	World	Growth	Volatility	Momentum	Quality	Size	Value
Annualized Return	4.98	5.04	5.89	7.36	6.59	8.10	7.15
Annualized Standard Deviation	17.50	18.90	12.20	18.10	16.00	20.90	19.90
Return/Risk	0.28	0.27	0.48	0.41	0.41	0.39	0.36
Max Drawdown Quarter	-49.00	-56.50	-39.90	-49.70	-40.40	-52.50	-53.30

Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

To be sure, a two-decade long holding period is likely too long a period for many investors to wait for a single factor to outperform. Taking this into account, we calculated the historical success rate for each individual factor over a range of holding periods to estimate the necessary holding period required for a single factor to outperform the market (see Figure 3).

Figure 3
Single Factors May Take a Decade or Longer to Reliably Outperform

50 100

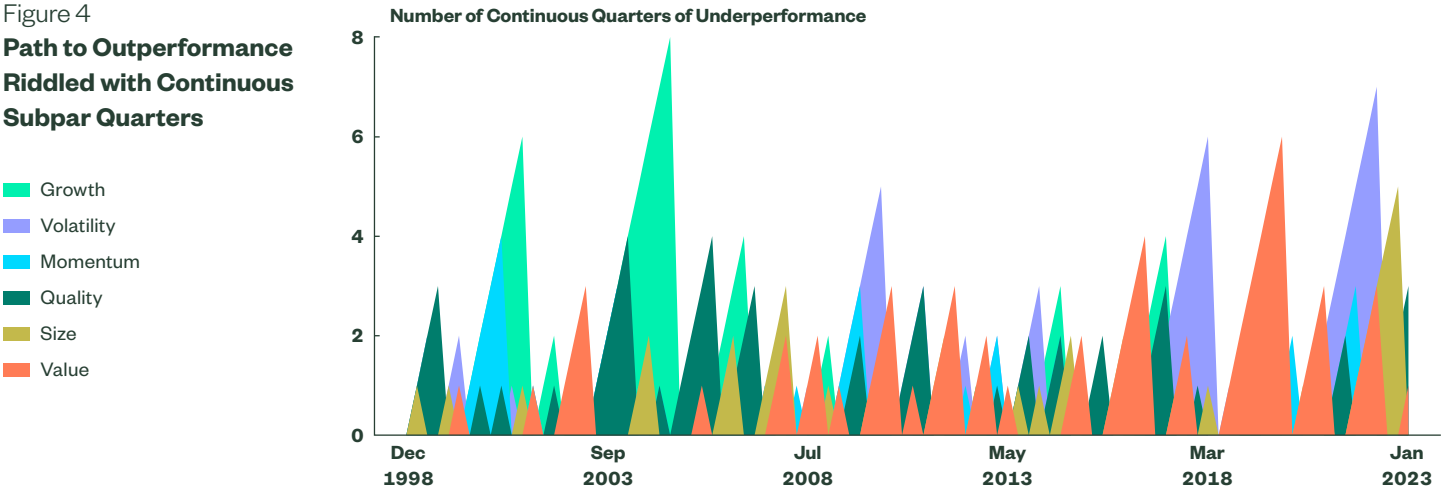
December 1998–September 2022	Rolling 1-Year (%)	Rolling 2-Year (%)	Rolling 3-Year (%)	Rolling 5-Year (%)	Rolling 10-Year (%)	Rolling 15-Year (%)	Rolling 20-Year (%)
Growth	57	59	69	71	73	75	63
Volatility	50	56	63	66	86	86	88
Momentum	61	77	81	93	100	100	100
Quality	60	66	80	79	100	100	100
Size	65	72	71	76	84	100	100
Value	55	59	54	50	52	64	100

Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; outperformance is defined as a performance that is better than that of the MSCI World Index; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as at 30 September 2022.

What we see here is that historical success rates have varied a great deal by factor and that it may take up to 10 years or longer for factors to reliably realize their premia. The crucial element to consider here is the fact that this path to outperformance is not a straight line but is dotted with continuous quarters of underperformance that investors would have to brave (see Figure 4).

Figure 4

Path to Outperformance Riddled with Continuous Subpar Quarters

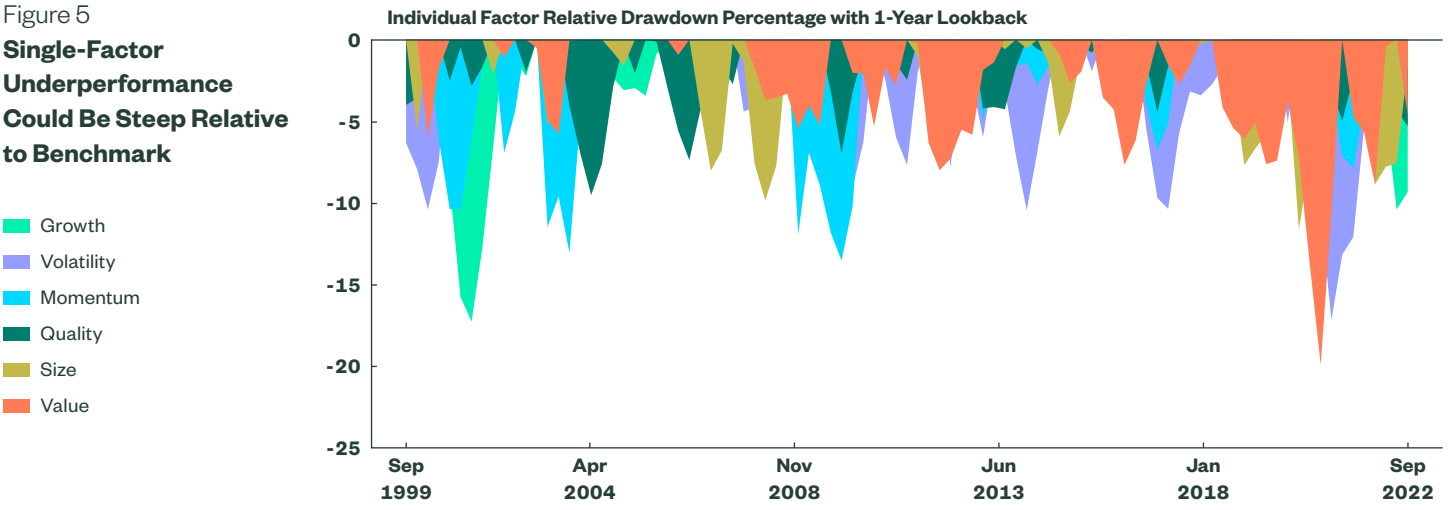


Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; underperformance is defined as a performance that is poorer than that of the MSCI World Index; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

This, of course, reveals that no factor is immune to periods of underperformance, but most importantly, these periods of underperformance can also be severe relative to benchmark returns. Indeed, the resulting underperformance can test the resolve of the most determined investors, which puts into perspective the (im)practicality of adopting the "single-factor buy-and-hold" approach as a viable investment strategy (see Figure 5).

Figure 5

Single-Factor Underperformance Could Be Steep Relative to Benchmark



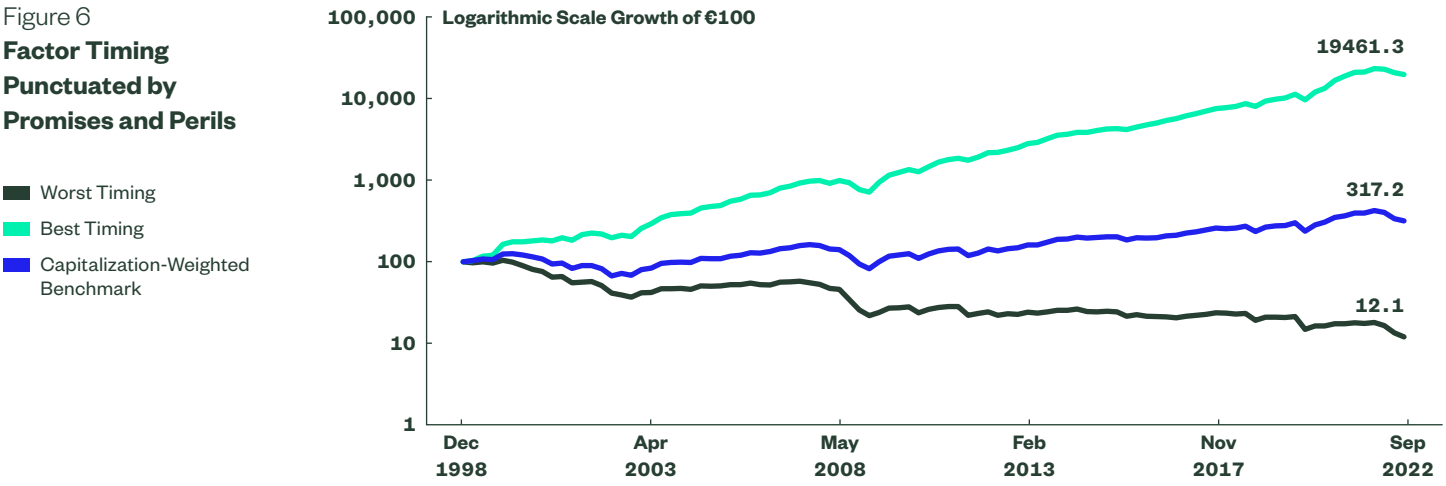
Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; quarterly net total returns of MSCI style indices were used to calculate performance drawdowns; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

Factor-Timing Approach: Pros and Cons

In theory, factor timing is the answer to the challenges that are inherent in single-factor investing. A perfect factor-timing strategy with quarterly rebalancing between the major MSCI factor indices would have compounded €100 invested in end-December 1998 to nearly €20,000 by end-September 2022.

The annualized return of this strategy would be 24.8% versus just 5.0% for the capitalization-weighted benchmark. As mentioned before, this promise is not without its perils: The worst factor-timing strategy reduced €100 to €12, a painful -8.5% annualized return over the same period (see Figure 6).

Figure 6
Factor Timing Punctuated by Promises and Perils



Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

Where do investors need to place themselves on the spectrum of best to worst factor timers to make this timing strategy worthwhile? Our calculations show that a successful factor-timing strategy needs a prediction accuracy between 50% to 60% to outperform an equal-weighted factor allocation.[4] While this accuracy may appear only marginally better than the result of a random coin flip, such low prediction accuracy would require a high tracking error to generate meaningful alpha as suggested by the Fundamental Law of Active Management (FLAM) developed by Richard Grinold and Ronald Kahn.[5]

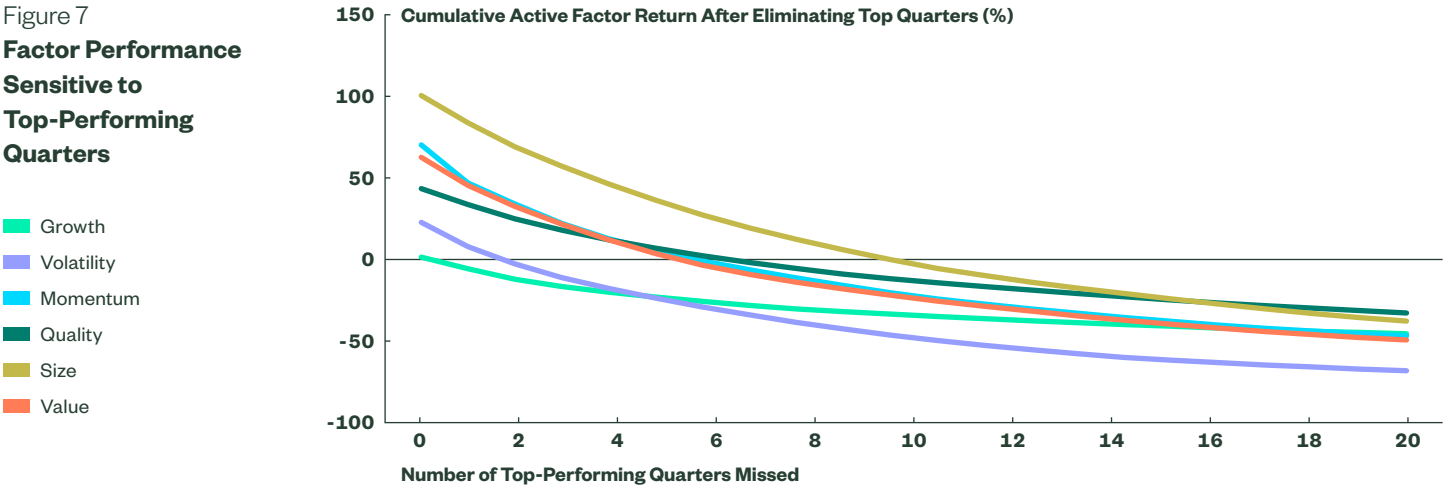
As stated in the equation below, FLAM asserts that the information ratio (IR), which is the ratio of benchmark-relative excess performance to tracking error, is approximately proportional to the product of the information coefficient (IC), which is a measure of a manager's forecasting skill or prediction accuracy, and the square root of the Breadth (BR), which is used to measure the number of independent forecasts.

$$\textit{Equation: } IR \approx IC \times \sqrt{BR}$$

Given the high success rates of individual factors, using factors in a timing strategy has the advantage of increasing IC, but this comes at the expense of reducing Breadth. Remember that the initial motivation for factor analysis was Breadth reduction to address the dimensionality problem. Given the constraint on Breadth, a high IR, or risk-adjusted performance, is hard to achieve without near-perfect predictive power or high relative risk.

As we have shown, high prediction accuracy may not be easily possible given the time-varying relationship between factor premia and external indicators. Additionally, the distribution of factor performance is far from uniform, which means that factor outperformance can be squeezed into just a few periods. The implication is that missing any of these key periods could adversely affect the factor-timing strategy (see Figure 7).

Figure 7
Factor Performance Sensitive to Top-Performing Quarters



Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

Missing the best 7 out of the 95 quarters of factor outperformance in our sample negated the alpha from the factor rotation process across all factors except for Size, which had three more quarters left to end up below water. In principle, a factor-timing strategy aims to benefit from exceptional periods, but in this process, the strategy exposes investors to greater risk. Add turnover costs to this greater risk exposure, and the risk-return trade-off may appear unappetizing to investors.

United We Stand: Multifactor Approach

It is clear from the above illustrations that although factors in general offer meaningful alpha generation capabilities, single-factor as well as factor-timing strategies are fraught with risks that may dissuade even a seasoned investor from adopting such strategies. On the one hand, a simple and relatively inexpensive approach of sticking with a single factor may turn out to be ineffective owing to the unrealistic time periods involved in achieving outperformance. On the other, a seemingly rewarding factor-timing strategy could prove challenging due to the high accuracy requirements and increased turnover.

Is there a way out of this predicament where investors could reap the benefits of factor investing without having to choose between the options of single-factor or factor-timing strategies? To put it differently, as far as investors are concerned, the question should not be whether to employ factors as such, but how to employ them successfully by avoiding the risks inherent in both single-factor and factor-timing strategies.

One solution to this problem, in our view, is to diversify across a variety of factors taking into consideration their less-than-perfect correlations. Take the Momentum factor for instance, which has historically exhibited a moderately positive correlation with Volatility and Quality, but a negative correlation with Size and Value (see Figure 8). By blending these factors, which are less than perfectly correlated, it should be possible to improve the risk-return profile from a single-factor strategy, which could in turn cushion the impact of drawdowns.

Figure 8

Correlation Imperfect for Active Factor Returns

-0.55 0.48

December 1998–September 2022 (Quarterly)	Volatility	Momentum	Quality	Size	Value
Volatility	—	0.14	0.36	-0.25	-0.08
Momentum	0.14	—	0.35	-0.24	-0.23
Quality	0.36	0.35	—	-0.54	-0.55
Size	-0.25	-0.24	-0.54	—	0.48
Value	-0.08	-0.23	-0.55	0.48	—

Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; quarterly net total return series for the indices were used; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

The potential diversification benefit of such an approach is shown in Figure 9, where we use the stylized "top-down" approach of a simple equal-weighted combination of factors, rebalanced quarterly. What we see is that this simple approach finds a happy medium in risk and return, leading to strong risk-adjusted outperformance relative to the capitalization-weighted benchmark.

Figure 9

Risk-Adjusted Performance of Multifactor Approach

December 1998–September 2022	World	Multifactor Strategy	Volatility	Momentum	Quality	Size	Value
Annualized Return	4.98	7.25	5.89	7.36	6.59	8.10	7.15
Annualized Standard Deviation	17.50	16.36	12.24	18.09	16.04	20.87	19.90
Return/Risk	0.28	0.44	0.48	0.41	0.41	0.39	0.36
Max Drawdown in a Quarter	-49.05	-46.14	-39.93	-49.67	-40.40	-52.53	-53.32

Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

Another advantage of combining multiple factors is a reduction in length of the required holding period to reap the benefits of factor premia. This "top-down" approach achieved outperformance over each holding period versus all other factors (see Figure 10).

Figure 10

Risk-Adjusted Performance of Multifactor Approach over Varying Periods

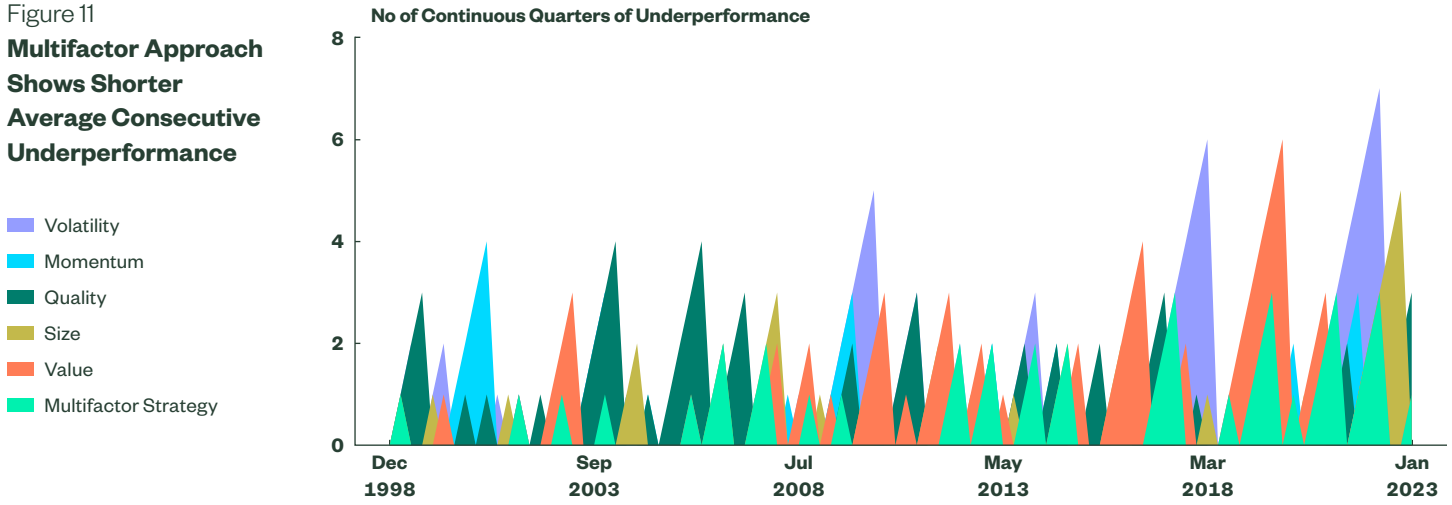
50 100

December 1998–September 2022	Rolling 1-Year (%)	Rolling 2-Year (%)	Rolling 3-Year (%)	Rolling 5-Year (%)	Rolling 10-Year (%)	Rolling 15-Year (%)	Rolling 20-Year (%)
Volatility	50	56	63	66	86	86	88
Momentum	61	77	81	93	100	100	100
Quality	60	66	80	79	100	100	100
Size	65	72	71	76	84	100	100
Value	55	59	54	50	52	64	100
Multifactor Strategy	68	83	87	88	98	100	100

Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

In addition to improving the "hold-to-maturity" outperformance probability, the multifactor approach also smooths this journey to eventual outperformance, exposing the investor to shorter average consecutive periods of underperformance (see Figure 11).

Figure 11
Multifactor Approach Shows Shorter Average Consecutive Underperformance



Note: Please refer to endnotes for a full description of the MSCI indices used in this figure; underperformance is defined as a performance that is poorer than that of the MSCI World Index; index returns are unmanaged and do not reflect the deduction of any fees or expenses; index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable; **past performance is not a reliable indicator of future performance.** Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

Top-Down or Bottom-Up?

While the simple equal-weighted scheme that follows a "top-down" approach (i.e., no explicit security selection outside the composition of factors) to combine factors can be seen as effective, historically it has been more than matched by a "bottom-up" approach, followed, for example, by the MSCI World Select 5-Factor ESG Low Carbon Target Index, where securities are selected based on a combination of individual scores by stock across the targeted factors.

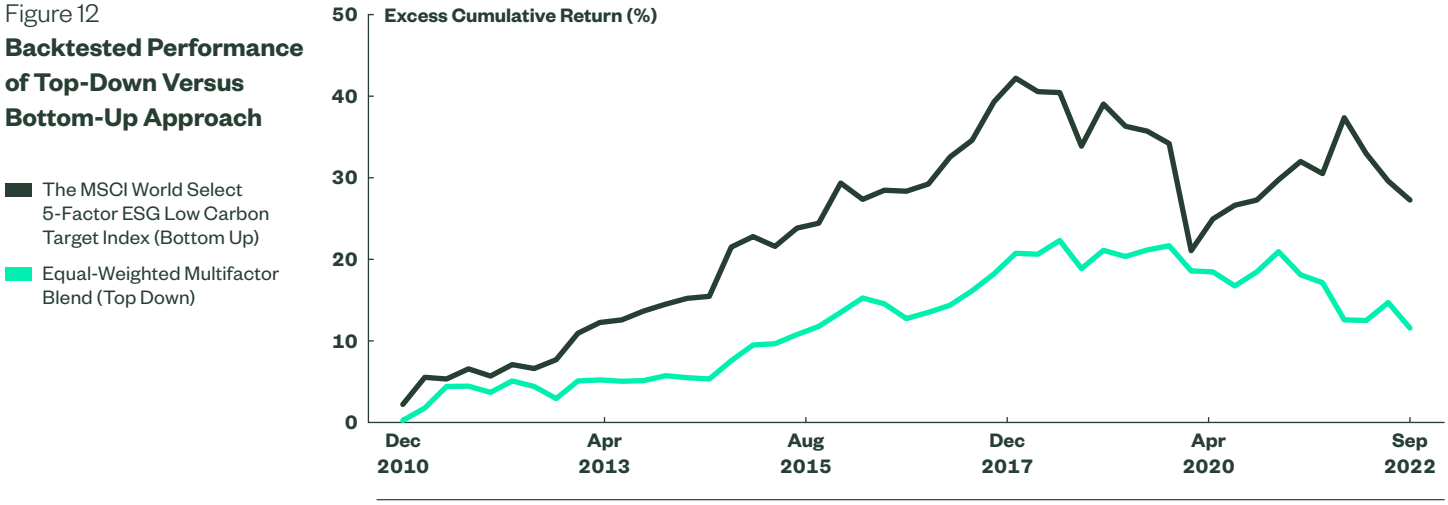
Several academic studies have noted the relative superiority of a bottom-up approach versus a top-down one. These studies concluded that by taking into account the interaction between various factors, such an approach can put to use a richer input data set.[6,7,8]

It should be noted that the multifactor approach has been relatively ineffective recently as market performance has been concentrated in a select few factors. Nevertheless, the multifactor approach continued to limit instances of consecutive underperformance.

To come back to the point of whether to go with a top-down or bottom-up approach when considering factor investing, we can see that both top-down and bottom-up approaches have added value when measured against a capitalization-weighted benchmark over the past decade with the bottom-up approach outperforming consistently (see Figure 12).

Figure 12

Backtested Performance of Top-Down Versus Bottom-Up Approach



Note: Quarterly rebalancing was assumed; the MSCI World Select 5-Factor ESG Low Carbon Target Index was incepted in September 2018 and results prior to this date were calculated by using available data at the time in accordance with the Index's current methodology. The returns for the equal-weighted multifactor series do not represent those of an index but were achieved by mathematically combining the actual performance data of the five factor indices. The performance assumes no transaction and rebalancing costs, so actual results will differ. The performance data displayed is a hypothetical example for illustrative purposes only and is not indicative of the past or future performance of any State Street Global Advisors product. Backtested Performance does not represent the results of actual trading but is achieved by means of the retroactive application of a model designed with the benefit of hindsight. Actual performance results could differ substantially, and there is the potential for loss as well as profit. The Backtested Performance may not take into account material economic and market factors that would impact the adviser's actual decision making. The performance reflects management fees, transaction costs and other fees and expenses a client would have to pay, which reduce returns. Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable. Source: Bloomberg, State Street Global Advisors, as of 30 September 2022.

Conclusion

Single factors have historically generated excess returns above a capitalization-weighted benchmark over the long term. As far as investors are concerned, we strongly believe that the question should not be about whether to, but how to, undertake a factor-investing approach.

On the one hand, sticking with individual factors leaves an investor hostage to individual factor performances, which can vary widely in frequency and amplitude. Such strategies also suffer from prolonged underperformances and steep drawdowns that investors may find hard to stomach. On the other hand, factor-timing strategies require a great amount of skill and precision to counteract the drag of portfolio turnover.

A multifactor blended approach can combine the benefits of the two without having to fully face the challenges inherent in either approach. Diversifying factor exposure can not only smooth the investment cyclicality associated with the excess returns of single factors but can also generate alpha in a relatively cost-effective manner. We recommend that investors carefully consider the costs involved along with their ability for risk taking and reliably timing factors before formulating their approaches to factor investing.

Endnotes

1 Ilmanen, A., Israel, R., Moskowitz, T. J., Thapar, A. K., & Lee, R. (2021, February 18). How Do Factor Premia Vary over Time? A Century of Evidence. SSRN.

2 Factor Investing: Not Which, but When. (2016, March). Northern Trust.

3 Asness, C. (2016, June 1). The Siren Song of Factor Timing, aka "Smart Beta Timing," aka "Style Timing." AQR Capital Management.

4 Alcover, Y. M. (2020, June 22). Factor Investing Debates: Should You Time Your Factor Exposures? Robeco.

5 Grinold, R. C. (1989, April 30). The Fundamental Law of Active Management. The Journal of Portfolio Management, 15 (3) 30–37.

6 Bender, J., & Wang, T. (2016, July 31). Can the Whole Be More than the Sum of the Parts? Bottom-up Versus Top-down Multifactor Portfolio Construction. The Journal of Portfolio Management, 42 (5) 39–50.

7 Fitzgibbons, S., Friedman, J., Pomorski, L., & Serban, L. (2017, November 30). Long-only Style Investing: Don't Just Mix, Integrate. The Journal of Investing, 26 (4) 153–164.

8 Clarke, R. G., Silva, H. D., & Thorley, S. (2016, October 11). Fundamentals of Efficient Factor Investing. Financial Analysts Journal, 72 (6). SSRN.

Contributor

Aishwarya Abboju
Senior Research Associate

About State Street Global Advisors

Our clients are the world's governments, institutions and financial advisors. To help them achieve their financial goals we live our guiding principles each and every day:

- Start with rigor
- Build from breadth
- Invest as stewards
- Invent the future

For four decades, these principles have helped us be the quiet power in a tumultuous investing world. Helping millions of people secure their financial futures. This takes each of our employees in 29 offices around the world, and a firm-wide conviction that we can always do it better. As a result, we are the world's fourth-largest asset manager* with US $3.26 trillion† under our care.

* Pensions & Investments Research Center, as of December 31, 2021.
† This figure is presented as of September 30, 2022 and includes approximately $55.12 billion USD of assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated. Please note all AUM is unaudited.

ssga.com

Marketing communication
Professional clients only.

Information Classification: Limited Access

State Street Global Advisors Worldwide Entities

The views expressed in this material are the views of the Investment Strategy & Research Group through the period ended 9 November 2022 and are subject to change based on market and other conditions. This document contains certain statements that may be deemed forward-looking statements. Please note that any such statements are not guarantees of any future performance and actual results or developments may differ materially from those projected.

Investing involves risk including the risk of loss of principal.

Asset Allocation is a method of diversification which positions assets among major investment categories. Asset Allocation may be used in an effort to manage risk and enhance returns. It does not, however, guarantee a profit or protect against loss.

Diversification does not ensure a profit or guarantee against loss.

This document provides summary information regarding the Strategy. This document should be read in conjunction with the Strategy's Disclosure Document, which is available from SSGA. The Strategy Disclosure Document contains important information about the Strategy, including a description of a number of risks.

The trademarks and service marks referenced herein are the property of their respective owners. Third party data providers make no warranties or representations of any kind relating to the accuracy, completeness or timeliness of the data and have no liability for damages of any kind relating to the use of such data.

The "value" style of investing emphasizes undervalued companies with characteristics for improved valuations, which may never improve and may actually have lower returns than other styles of investing or the overall stock market.

A "quality" style of investing emphasizes companies with high returns, stable earnings, and low financial leverage. This style of investing is subject to the risk that the past performance of these companies does not continue or that the returns on "quality" equity securities are less than returns on other styles of investing or the overall stock market."

The Fund may emphasize a "growth" style of investing. The market values of growth stocks may be more volatile than other types of investments. The prices of growth stocks tend to reflect future expectations, and when those expectations change or are not met, share prices generally fall. The returns on "growth" securities may or may not move in tandem with the returns on other styles of investing or the overall stock market.

The Fund may employ a momentum style of investing that emphasizes investing in securities that have had higher recent price performance compared to other securities, which is subject to the risk that these securities may be more volatile and can turn quickly and cause significant variation from other types of investments.

Low volatility funds can exhibit relative low volatility and excess returns compared to the Index over the long term; both portfolio investments and returns may differ from those of the Index. The fund may not experience lower volatility or provide returns in excess of the Index and may provide lower returns in periods of a rapidly rising market. Active stock selection may lead to added risk in exchange for the potential outperformance relative to the Index.

Equity securities may fluctuate in value and can decline significantly in response to the activities of individual companies and general market and economic conditions.

All information is from SSGA unless otherwise noted and has been obtained from sources believed to be reliable, but its accuracy is not guaranteed. There is no representation or warranty as to the current accuracy, reliability or completeness of, nor liability for, decisions based on such information and it should not be relied on as such. The information provided does not constitute investment advice and it should not be relied on as such. It should not be considered a solicitation to buy or an offer to sell a security. It does not take into account any investor's particular investment objectives, strategies, tax status or investment horizon. You should consult your tax and financial advisor.

The information contained in this communication is not a research recommendation or 'investment research' and is classified as a 'Marketing Communication' in accordance with the Markets in Financial Instruments Directive (2014/65/EU) or applicable Swiss regulation. This means that this marketing communication (a) has not been prepared in accordance with legal requirements designed to promote the independence of investment research (b) is not subject to any prohibition on dealing ahead of the dissemination of investment research.

This communication is directed at professional clients (this includes eligible counterparties as defined by the appropriate EU regulator who are deemed both knowledgeable and experienced in matters relating to investments. The products and services to which this communication relates are only available to such persons and persons of any other description (including retail clients) should not rely on this communication.

ID1309063- 5351383.1.2.GBL.INST 1222
Exp. Date: 12/31/2023