

Multifactor Funds

Set Realistic Expectations for Multifactor Funds

There is a strong case for multifactor funds, but even the best can underperform for a decade.

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Multifactor funds are sound in theory. They target stocks with characteristics that have historically been associated with market-beating performance, also known as factors. Just as it's prudent to diversify across asset classes, sectors, regions, and securities, it's a good idea to spread bets across factors that have a good chance of long-term success. Doing so can reduce risk and make it easier to stick with these factors through their inevitable rough patches.

Yet most of these funds have disappointed in recent years, illustrating that diversification across factors with strong theoretical support doesn't guarantee strong performance. Even the best funds aren't immune to lengthy stretches of underperformance. It's important to be selective and have realistic expectations.

Disappointing Performance

Most multifactor funds have underperformed their respective Morningstar Category indexes in recent years, as Exhibit 1 illustrates. Of the 35 surviving U.S.-listed multifactor equity exchange-traded funds in the nine Morningstar Style Box categories, only six posted higher returns than their category indexes over the trailing five years through September 2020. The results weren't much better after adjusting for risk (based on alpha) or over the most recent three-year period, where more funds were included. Multifactor funds in the foreign developed categories had better success rates, but those were still shy of 50%.

Exhibit 1 Surviving Multifactor Fund Performance Through September 2020

Category Group	5-Year		3-Year	
	Beat Rates (%)	Avg Index-Relative Rtn (%)	Beat Rates (%)	Avg Index-Relative Rtn (%)
U.S. Equity	17.1	-1.41	19.6	-1.93
Foreign Developed	33.3	-0.51	44.4	-0.33

Source: Morningstar Direct. Data through Sept. 30, 2020.

These results may be disappointing, but they aren't that surprising. Much of this underperformance is attributable to the poor performance of the value and small-size factors, which many of these funds lean into more heavily than their benchmarks. While these funds' inclusion of other factors tended to partially offset this performance drag, it often wasn't enough to overcome it.

Factor diversification helps, but it doesn't eliminate the risk of underperformance, even over long periods. That's because there are only a handful of robust factors to diversify across. Just as underperformance in one stock can sink a five-stock portfolio, significant underperformance in one or two factors can cause a multifactor fund to

underperform. However, diversification is still prudent because it's hard to know which factors will do well in the short term.

Set Realistic Expectations

It may be tempting to interpret multifactor funds' recent underperformance as a sign they lack merit, but that conclusion isn't warranted. While the factors that many of these funds target have tended to pay off over the long term, the volatility of their returns relative to the market far exceeds their average return edges. So there is a nontrivial probability that they will underperform over five-year and even 10-year periods, just on account of bad luck.

Academic researchers Eugene Fama and Kenneth French, who serve as consultants to Dimensional Fund Advisors, illustrate this effect in their paper, "Volatility Lessons" (1). They simulated the return distributions over several horizons for a few well-known premiums (market-risk, value, and small size) by randomly drawing monthly returns from each premium's historical distribution from 1963 through 2016.

They found U.S. stocks underperformed Treasuries in 15.6% of the 10-year simulations. When that happens, it's not evidence that stocks are broken. Sometimes, returns in solid strategies are just disappointing. Similarly, large-value stocks underperformed the market in 20.5% of the 10-year simulations, while small stocks underperformed in 22.5%.

Fama and French say it best: "Our general message is universal; because of the high volatility of stock returns, investors cannot draw strong inferences about expected returns from three, five, or even 10 years of realized returns."

We replicated this analysis for the MSCI USA Diversified Multifactor Index, tracked by iShares MSCI USA Multifactor ETF (LRGF), which has a Morningstar Analyst Rating of Silver. On average, that index beat the market by 0.15% per month (1.82% annually) from December 1998 through September 2020. Yet even with that expected edge, it underperformed in 14.5% of our 10-year simulations.

Focus on Portfolio Construction

Because performance is an unreliable indicator of investment merit, it's more important to focus on portfolio construction methodology. We recently published "A Framework for Evaluating Multifactor Funds," which provides a guide for assessing these funds' approaches to portfolio construction (2). Here are a few key questions from that framework worth asking before buying any multifactor fund.

1) Which factors does the fund target?

There are only a handful of factors that truly matter for stock investors. These include value, momentum, quality, low volatility, and small size. While there are many other factors, they either are not widely accepted, not investable at scale (like illiquidity), or just repackage one or more of these core factors. It is best to stick to funds that target a combination of the core factors.

It's also prudent to look for complementary factor pairings. For example, value tends to work well when momentum doesn't, and vice versa. Similarly, quality's returns relative to the market are negatively correlated with small size.

2) How does the fund combine its targeted factors?

There are two main approaches to combining multiple factors in a portfolio: considering factors separately (mixing) or considering them jointly (integration).

Funds that follow the mixing approach split their portfolios into individual sleeves, each targeting a distinct factor. This approach is simple and makes it easy to gauge the impact of each factor on the fund's performance. The drawback is it tends to dilute the fund's overall factor exposures because there is usually little overlap between the holdings in the different sleeves.

Funds that use the integration approach can achieve stronger factor exposures. They pursue stocks with the best overall combination of factor characteristics. This allows them to allocate the entire portfolio to stocks with exposure to the targeted factors.

The downside of the integration approach is that it can lead to greater active risk, which increases the potential for both outperformance and underperformance. It is also more complex than the mixing approach, making it harder to attribute portfolio performance to distinct factors.

3) How strong are the factor tilts?

Funds with greater exposure to their targeted factors have greater potential to outperform the market than their less aggressive counterparts when those factors are in favor and greater risk of underperformance when they are not. Portfolios with higher thresholds for stock selection and more-frequent rebalancing should have higher factor exposures than those with less demanding criteria and less-frequent updates. ...

Multifactor Versus Individual Factor Funds

Given multifactor funds' complexity, it's fair to ask whether it might be better to buy a few individual factor funds instead. That might be appropriate for investors who aren't satisfied with the factor combinations available in multifactor funds. However, it isn't prudent to use single-factor funds to time factor exposures, as that's very difficult to do successfully.

Multifactor funds offer a few advantages over combining individual factor funds. They rebalance for you and tend to have lower turnover, as some changing factor exposures offset. And funds that use an integrated approach to portfolio construction can achieve stronger factor tilts than a portfolio of individual factor funds.

Consider LRGF: From May 2015 (the first full month after its inception) through September 2020, it underperformed an equally weighted portfolio (rebalanced annually) of four individual factor funds drawn from the same universe (shown in Exhibit 2) by 2.59% annualized. This doesn't undercut the case for this multifactor fund. Rather, it largely reflects LRGF's stronger value and small-size tilts than the equally weighted individual

Exhibit 2 Performance (April 28, 2015–Sept. 30, 2020)

	Return (%)
iShares MSCI USA Multifactor ETF LRGF	8.30
iShares MSCI USA Size Factor ETF SIZE	9.35
iShares MSCI USA Value Factor ETF VLUE	5.44
iShares MSCI USA Quality Factor ETF QUAL	10.99
iShares MSCI USA Momentum Factor ETF MTUM	15.55

Source: Morningstar Direct. Data through Sept. 30, 2020.

factor portfolio. This should give it greater upside potential when those factors are in favor.

Patience Is the Most Important Factor

Investors who aren't comfortable with the possibility of underperforming for five or even 10 years shouldn't own multifactor funds--or any active investment for that matter. It often takes a long time for factors to pay off. That's a feature, not a bug: If they paid off consistently, investors would likely crowd into these strategies, which could reduce their efficacy. That doesn't mean you should ignore performance or give all multifactor funds a pass.

What matters is which factors a fund is targeting and how efficiently it captures them. Well-constructed funds ... won't always beat the market, but they have a good shot over the very long term.

The Size Effect in Multifactor Portfolios

By [Larry Swedroe](#) | May 7th, 2020

The lack of a statistically significant size premium in the U.S. since the publication of Rolf Banz's 1981 paper, "[The Relationship Between Return and Market Value of Common Stocks](#)," published in the Journal of Financial Economics, led many investors to question its use in building portfolios. This conclusion is typically arrived at by considering the standalone performance of the size factor ([I cover this extensively here](#)), which ignores the potential benefits of how the size factor interacts with other factors. However, investors should be interested in how the size factor contributes to investment outcomes when used alongside other factors.

The Size Premium in Multifactor Portfolios

Mikheil Esakia, Felix Goltz, Ben Luyten, and Marcel Sibbe, authors of the study "[Size Factor in Multifactor Portfolios: Does the Size Factor Still Have Its Place in Multifactor Portfolios?](#)" published in the Winter 2019 issue of The Journal of Index Investing, sought to answer the question of whether the inclusion of the size premium in multifactor portfolios improves the portfolio's efficiency.

They began by noting:

The size factor may be extremely useful to investors if it explains differences in returns that remain unexplained by other factors. From an investment perspective, this would suggest that considering a size tilt along with other tilts would provide benefits to investors in terms of risk and return.

Thus, their study sought to determine the cost or benefit of removing the size factor from a menu of factors investors can use in building portfolios. The seven factors they evaluated were: the market (beta), size, value, momentum, low risk, high profitability, and low investment. These factors have been widely used in both academic and practitioner research.

They first tested how measures of model fit deteriorate when each of those factors is omitted—enabling them to compare the relevance of each factor in explaining expected returns across equity portfolios. They then examined the long-term factor premia when controlling for different factors—enabling them to determine if the factor was subsumed (made redundant) by other factors. And finally, they examined the ex-post mean-variance efficient (MVE) portfolio and the weights it allocates to each of the seven factors—enabling them to determine whether a factor has contributed positively to the risk-return profile in the presence of other factors. Their data covers the period of July 1963 through 2018.

Following is a summary of their findings:

- The reduction in the explanatory power of their seven-factor model is highest when the size factor is excluded. Omitting the size factor reduces the model's ability to explain average excess returns by an absolute 22 percent.
- Omitting the momentum or high-profitability factors also leads to deterioration in the model performance, but the magnitude is slightly lower than that of size.
- There is no meaningful impact from excluding the value factor (consistent with prior research finding that the value factor becomes redundant in the presence of the investment and profitability factors) and slight improvements when low risk and low investment factors are omitted.

Their findings led Esakia, Goltz, Luyten, and Sibbe to conclude: "We clearly see no evidence in favor of omitting the size factor." They next evaluated how large the size premium is in the presence of other factors.

As you can see in the table below, the monthly size premium in the U.S. was not only the smallest, but it was the least significant. However, also note that the premiums for profitability and investment were just two and four basis points higher (though they were more significant). Should we only include the factor(s) with the highest premium? Not if there are diversification benefits—correlations are low to negative, which has been the case for the size premium. For example, the size factor has been negatively correlated to profitability, quality and momentum, uncorrelated to value, and has had a low correlation with market beta. With that in mind, consider the multifactor alpha (the third row in the table). As you can see, only momentum and low risk have higher multifactor alphas. And there is also a pronounced reduction in the premia for the value, low risk and low investment factors once we account for their exposures to other factors, suggesting that returns on those factors are partly explained by their exposure to some of the other factors.

	Size	Value	Mom.	Low Risk	High Prof.	Low Inv.
Average Return	0.24%** (2.04)	0.32%*** (2.99)	0.66%*** (4.10)	0.83%*** (6.53)	0.26%*** (3.06)	0.28%*** (3.64)
CAPM Alpha	0.14% (1.25)	0.41%*** (3.87)	0.73%*** (4.49)	0.86%*** (6.80)	0.32%*** (3.83)	0.37%*** (5.15)
Multifactor Alpha (with respect to other factors)	0.24%** (2.09)	0.04% (0.45)	0.59%*** (3.68)	0.30%*** (2.65)	0.24%*** (3.14)	0.16%*** (3.04)

Esakia, Goltz, Luyten, and Sibbe noted that "the fact that the stand-alone average return is similar to the multifactor alpha shows that the exposures of size to other factors have close to zero impact in total." In addition, they found that the variability of returns of the size factor is mostly unrelated to other factors. These findings led them to conclude: "If one is considering excluding a factor, size does not stand out as an obvious candidate." They added: "Our results clearly indicate that the size factor carries a positive premium after adjusting for implicit exposures to other factors. Therefore, multifactor equity investors should consider the size factor to harvest a premium that is unrelated to the other sources of performance in their portfolio."

That said, it's also important to note that the negative exposure of the size factor to the profitability, quality and momentum factors translates into a reduction in the (standalone) size premium. Adjusting for this exposure (which is what is done in a multifactor portfolio), the remaining premium will tend to be higher.

International Evidence

As a test of pervasiveness, Esakia, Goltz, Luyten, and Sibbe ran the same tests in developed and emerging markets.

They concluded:

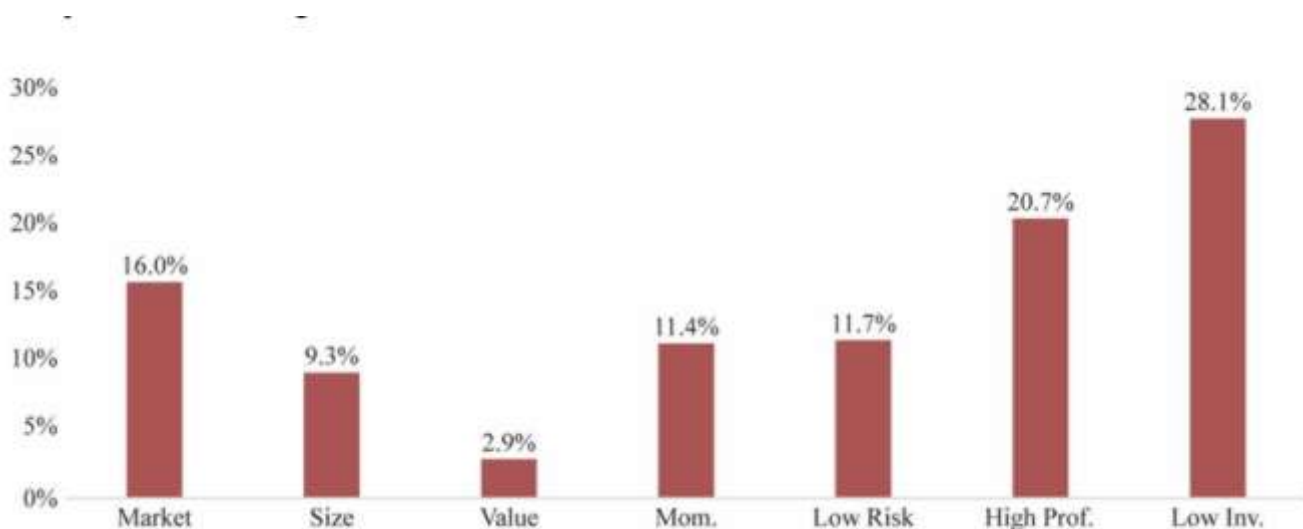
“Consistent to our findings in US data, accounting for cross-factor interactions on top of the market factor increases the size premium. The multifactor alpha is higher than the CAPM alpha in both developed and emerging markets.”

They added:

“Our main finding that the size premium is not lower than that of other factors, once we properly account for multiple exposures, holds across developed and emerging markets.”

Having found that the size factor carries a premium unexplained by other commonly used equity factors, we should expect that investors can improve their risk/return profile by including the size factor in their portfolio because it carries a premium not captured by other factors. They tested this in an ex-post MVE U.S. portfolio that maximizes the Sharpe ratio over the full sample.

The following chart shows the results.



As you can see, despite the size factor having the lowest return among the factors in the menu, the size factor plays a far greater role than the value factor and similar roles to the momentum and low-risk factors. Their tests also revealed that “the exclusion of the size factor would lead to about a 3% reduction in Sharpe ratio.” They also found that “one should have an expected zero return for the size factor to consider excluding it.” They noted this demonstrates that “some factors can stomach a sizable reduction in their premium.”

In another test related to macroeconomic conditions, they found that:

“size turns out to be the only factor that tends to perform well when the dividend yield is unexpectedly rising. Hence, we predict that size has an important role for investors who wish to reduce their exposure to interest rate shocks or dividend yield shocks.”

In general, they found that,

“the analysis of macroeconomic risk and multi-asset class portfolios confirms that the size factor offers substantial diversification benefits. Omitting size would be costly for an investor who is exposed not only to the equity factors but also to other sources of risk, such as interest rates and other macroeconomic risks.”

Summary

Esakia, Goltz, Luyten, and Sibbe’s results demonstrate the importance of not considering just the standalone factor premium but also its volatility and its correlation to the other factors in the portfolio. Their test results provide no evidence suggesting that one should exclude the size factor when constructing multifactor portfolios. Their findings are consistent with those of prior research, which I presented in detail in my Advisor Perspectives article of October 16, 2019, [“The Size Premium is Alive and Well.”](#)

Following is a summary of that piece:

- The size premium has been “polluted” by the very poor performance of small growth stocks, especially those with high investment and low profitability.
- [Once you control for other factors \(quality, profitability and low volatility\), the size premium is persistent and pervasive around the globe and is no longer concentrated in the tiniest stocks.](#) For example, small quality stocks outperform large quality stocks, and small junk stocks outperform large junk stocks, but the standard size effect suffers from a size-quality composition effect. In other words, controlling for quality restores the size premium.

The bottom line is that the research demonstrates that not only is there a size premium when we control for other factors but including the size premium adds value in multifactor portfolios. ¹

Notes:

1. Editor note: [See here](#) for an alternative view on the size factor

About the Author: [Larry Swedroe](#)

As Chief Research Officer for Buckingham Strategic Wealth and Buckingham Strategic Partners, Larry Swedroe spends his time, talent and energy educating investors on the benefits of evidence-based investing with enthusiasm few can match. Larry was among the first authors to publish a book that explained the science of investing in layman’s terms, “The Only Guide to a Winning Investment Strategy You’ll Ever Need.” He has since authored seven more books: “What Wall Street Doesn’t Want You to Know” (2001), “Rational Investing in Irrational Times” (2002), “The Successful Investor Today” (2003), “Wise Investing Made Simple” (2007), “Wise Investing Made Simpler” (2010), “The Quest for Alpha” (2011) and “Think, Act, and Invest Like Warren Buffett” (2012). He has also co-authored eight books about investing. His latest work, “Your Complete Guide to a Successful and Secure Retirement was co-authored with Kevin Grogan and published in January 2019. In his role as chief research officer and as a member of Buckingham’s Investment Policy Committee, Larry, who joined the firm in 1996, regularly reviews the findings published in dozens of peer-reviewed financial journals, evaluates the outcomes and uses the result to inform the organization’s formal investment strategy recommendations. He has had his own articles published in the Journal of Accountancy, Journal of Investing, AAI Journal, Personal Financial Planning Monthly, Journal of Indexing, and The Journal of Portfolio Management. Larry’s dedication to helping others has made him a sought-after national speaker. He has made appearances on national television shows airing on NBC, CNBC, CNN, and Bloomberg Personal Finance. Larry is a prolific writer and contributes regularly to multiple outlets, including Advisor Perspective, Evidence Based Investing, and Alpha Architect. Before joining Buckingham Wealth Partners, Larry was vice chairman of Prudential Home Mortgage. He has held positions at Citicorp as senior vice president and regional

treasurer, responsible for treasury, foreign exchange and investment banking activities, including risk management strategies. Larry holds an MBA in finance and investment from New York University and a bachelor's degree in finance from Baruch College in New York.

Our thoughts

HCM currently uses 3 Multifactor (SMLF, ISCF, OMFL), and 2 single Factor (MTUM, SMMV) ETFs for clients, along with several OEFs that incorporate a Quantitative approach in their process.

iShares MSCI USA Small-Cap Mltfctr ETF SMLF ★★★★★ Gold^Q

Quantitative rating as of Oct 31, 2020



We added the iShares Russell 2000 ETF (IWM, orange line) to SMLF's Morningstar chart since inception as a benchmark for comparison.

iShares MSCI Intl Small-Cap Mltfct ETF ISCF ★★★★★ Gold^Q

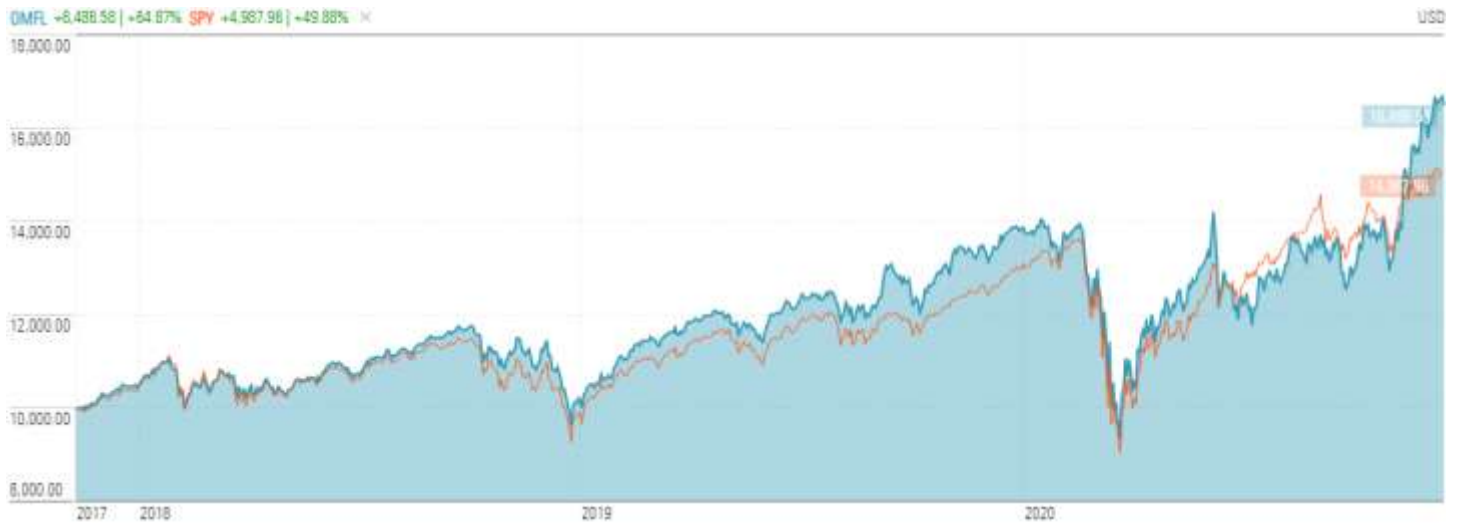
Quantitative rating as of Oct 31, 2020



We added 4 iShares MSCI Intl Factor ETFs - ISZE (Size Factor, orange line), IVLU (Value, turquoise), IMTM (Momentum, green), IQLT (Quality, purple) - to ISCF's chart.

Invesco Russell 1000[®] Dynamic Mltfct ETF OMFL ★★★★★ Neutral^Q

Quantitative rating as of Oct 31, 2020



We added the SPDR S&P 500 ETF Trust (SPY, orange line) to OMFL's chart.