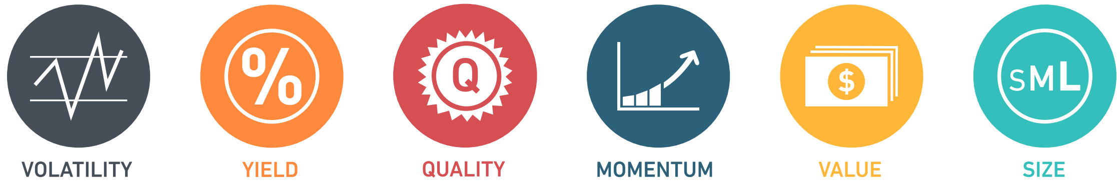
MSCI

FOCUS: SIZE

Factor Investing

msci.com



FACTOR FOCUS: SIZE

IN THE REALM OF INVESTING, A FACTOR IS ANY CHARACTERISTIC THAT HELPS EXPLAIN THE LONG-TERM RISK AND RETURN PERFORMANCE OF AN ASSET. MSCI FACTOR INDEXES ARE DESIGNED TO CAPTURE THE RETURN OF FACTORS WHICH HAVE HISTORICALLY DEMONSTRATED EXCESS MARKET RETURNS OVER THE LONG RUN.

MSCI Factor Indexes are rules-based, transparent indexes targeting stocks with favorable factor characteristics – as backed by robust academic findings and empirical results – and are designed for simple implementation, replicability, and use for both traditional passive and active mandates.

DEFINING SIZE

The size factor has captured the tendency of small-cap stocks to outperform bigger companies over the long run. Size is categorized as a "pro-cyclical" factor, meaning it has tended to benefit during periods of economic expansion (see "Performance and Implementation"). The size premium has been part of institutional investing for decades. In the past few years, it has become a building block of many factor-based indexes.[1]

The MSCI Equal Weighted Indexes tend to overweight smaller cap companies relative to the benchmark parent index

- Index constituents are weighted equally at each rebalance date, effectively removing the influence of that constituent's price (high or low) from the index

SIZE-BASED INVESTING HAS BEEN AN INTEGRAL PART OF THE INVESTMENT PROCESS FOR DECADES. MORE RECENTLY, TRANSPARENT AND RULES-BASED FACTOR INDEXES HAVE BECOME EFFECTIVE TOOLS TO GAIN EXPOSURE TO THE SIZE PREMIUM.

WHY INSTITUTIONAL INVESTORS USE SIZE STRATEGIES

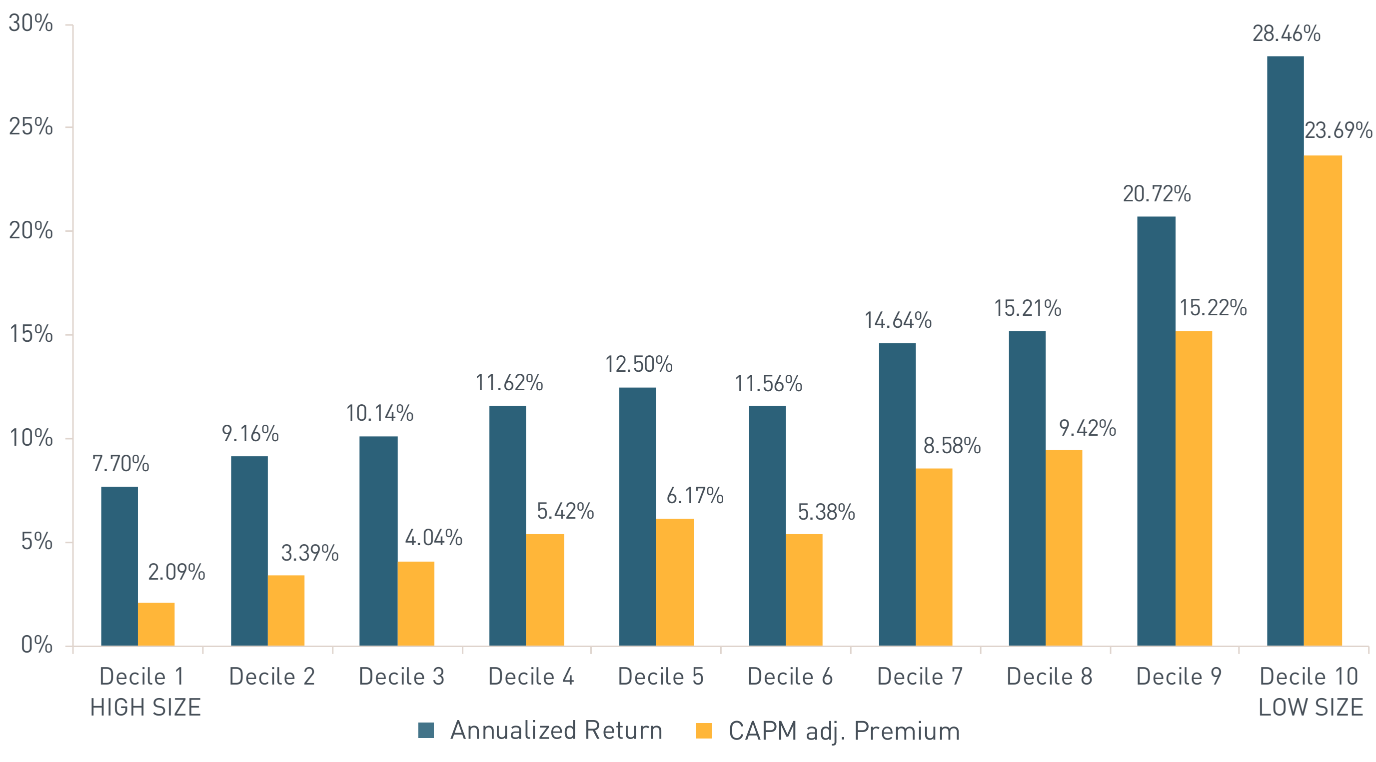
University of Chicago Ph.D. Rolf Banz identified the size factor in U.S. stocks in 1981.[2] Proponents of the size effect advance several explanations for it. Banz suggested that it stems from a flaw in the capital asset pricing model (CAPM, the standard method of projecting risk and return from stock investments) or from insufficient information about companies that get scant coverage by equity analysts. The research on size took off after economists Eugene Fama and Kenneth French included it as a key component in their influential three-factor model.

Subsequent studies have found the persistence of the size effect across markets (see sources). MSCI's research shows that there has been a size premium in the U.S. and abroad, even when the analysis is confined to highly investable stocks.

Our analysis of data for the 17 years through 2015 involved testing two universes of U.S. stocks, one representing the entire listed market of about 4,000 issues and the other a subset of about 2,500 large, mid- and small-cap stocks screened for investability, also known as the MSCI USA Investable Market Index (USA IMI).

As shown in the chart below, smaller stocks generally outperformed larger stocks in the U.S.-listed universe. This was true for both annualized returns and for returns exceeding those predicted by CAPM. (The CAPM-adjusted premium isolates the return attributable to factors, including size, from systemic market risk.)

THE SIZE PREMIUM IN THE U.S.-LISTED UNIVERSE

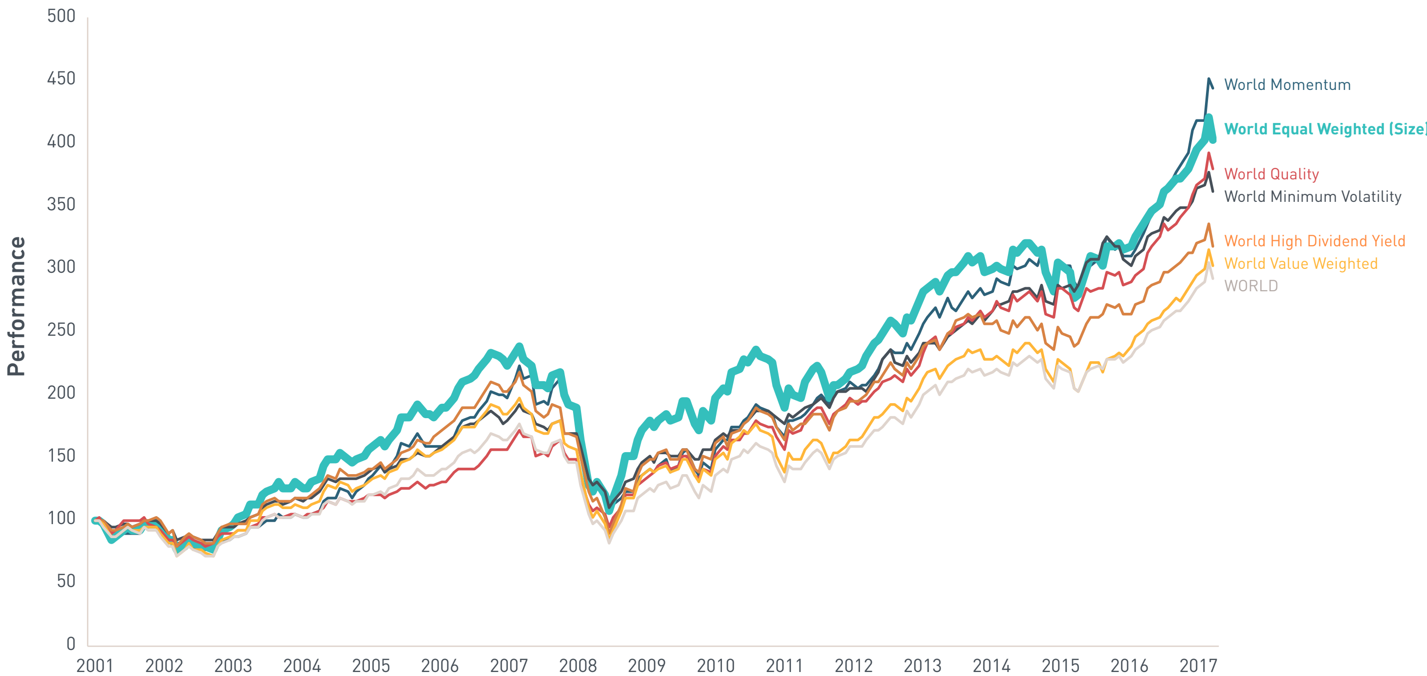


Deciles represent equally weighted subsets ranked by company size (decile 1 being the largest) and rebalanced monthly.

PERFORMANCE & IMPLEMENTATION

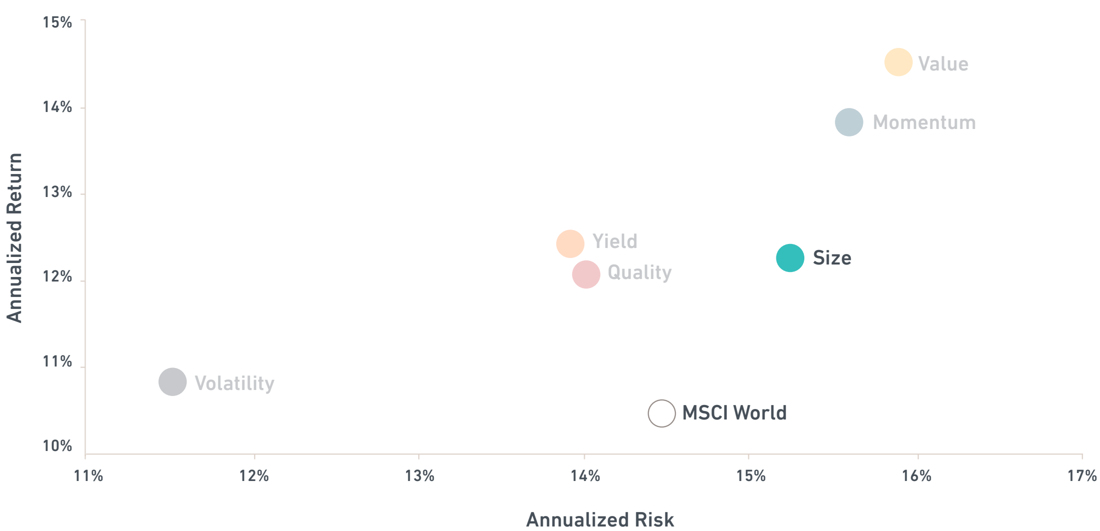
Over time, individual factors have delivered outperformance relative to the market. Over the period 2001-2016, most factor indexes – including size, represented by MSCI World Equal Weighted – outperformed the benchmark (see chart below). The MSCI World Equal Weighted index underweights large-cap stocks and overweights mid-cap stocks relative to its parent index resulting in a low size bias exposure.

MSCI WORLD FACTOR INDEXES



From a longer-term perspective, the simulated MSCI World Equal Weighted Index has generated an annualized return of over 11% during a 40-year period (see chart below).

LONG-TERM PERFORMANCE: JANUARY 1977 TO DECEMBER 2017



Although factor strategies have exhibited long-term outperformance, in the short-term factor performance has been cyclical and has generated periods of underperformance.

HOW THE SIX FACTORS HAVE PERFORMED RELATIVE TO EACH OTHER: SIZE

1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
45.6%	1.5%	-4.5%	-9.6%	56.7%	28.6%	28.4%	31.0%	19.9%	-29.2%	42.0%	18.2%	8.0%	16.7%	32.7%	12.1%	5.8%	10.3%	32.6%
40.1%	1.2%	-8.0%	-9.8%	50.4%	24.1%	17.2%	28.9%	16.8%	-35.5%	41.9%	16.5%	4.8%	16.5%	30.3%	9.0%	4.5%	9.4%	26.6%
25.3%	0.3%	-10.0%	-13.6%	33.8%	21.3%	15.2%	22.1%	10.3%	-39.9%	33.8%	12.8%	4.8%	15.0%	27.7%	7.0%	4.2%	8.9%	23.9%
20.5%	-2.1%	-11.5%	-14.4%	30.5%	20.8%	10.0%	21.2%	9.6%	-40.3%	35.5%	12.3%	4.4%	14.8%	27.4%	5.5%	-0.3%	8.2%	23.1%
18.4%	-10.2%	-12.0%	-15.1%	26.0%	20.0%	8.5%	20.7%	7.3%	-41.9%	30.8%	11.4%	-5.0%	13.7%	26.5%	4.6%	-1.0%	8.2%	22.9%
8.6%	-12.9%	-16.5%	-16.5%	25.9%	15.2%	8.3%	19.1%	6.4%	-42.4%	17.2%	9.1%	-9.3%	13.3%	22.9%	3.4%	-2.4%	5.1%	19.2%
8.4%	-18.9%	-20.5%	-19.5%	22.0%	12.7%	6.0%	16.8%	6.1%	-42.6%	14.8%	7.2%	-11.0%	8.9%	19.4%	3.3%	-2.7%	4.7%	18.0%

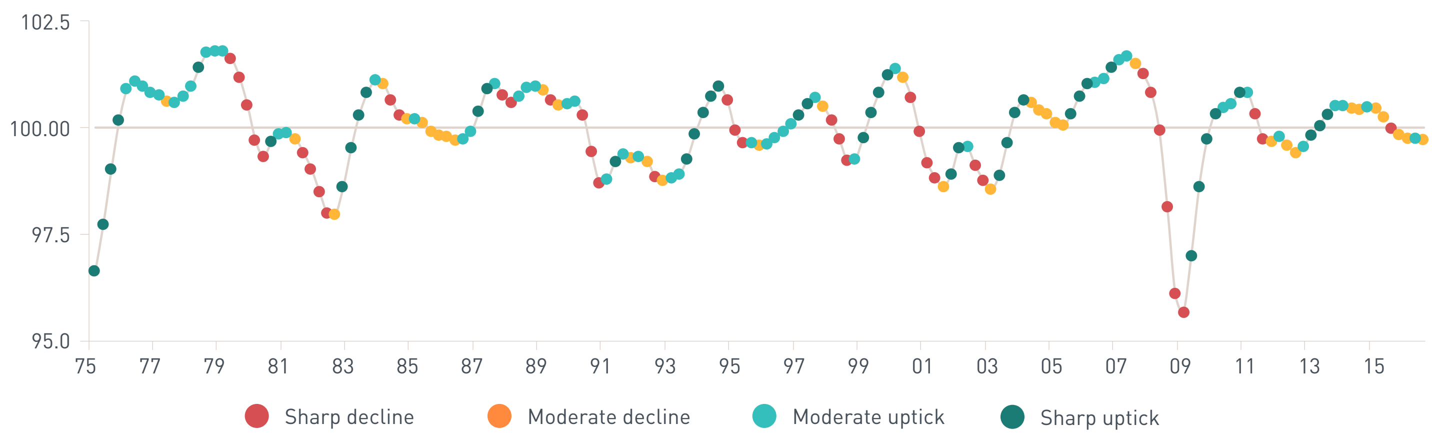
Volatility Yield Quality Momentum Value Size World

The analysis and observations in this report are limited solely to the period of the relevant historical data, backtest or simulation. Past performance — whether actual, back tested or simulated — is no indication or guarantee of future performance. None of the information or analysis herein is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision or asset allocation and should not be relied on as such.

The time periods covered in the charts in this paper were dictated by the data available when we conducted the simulations which produced them.

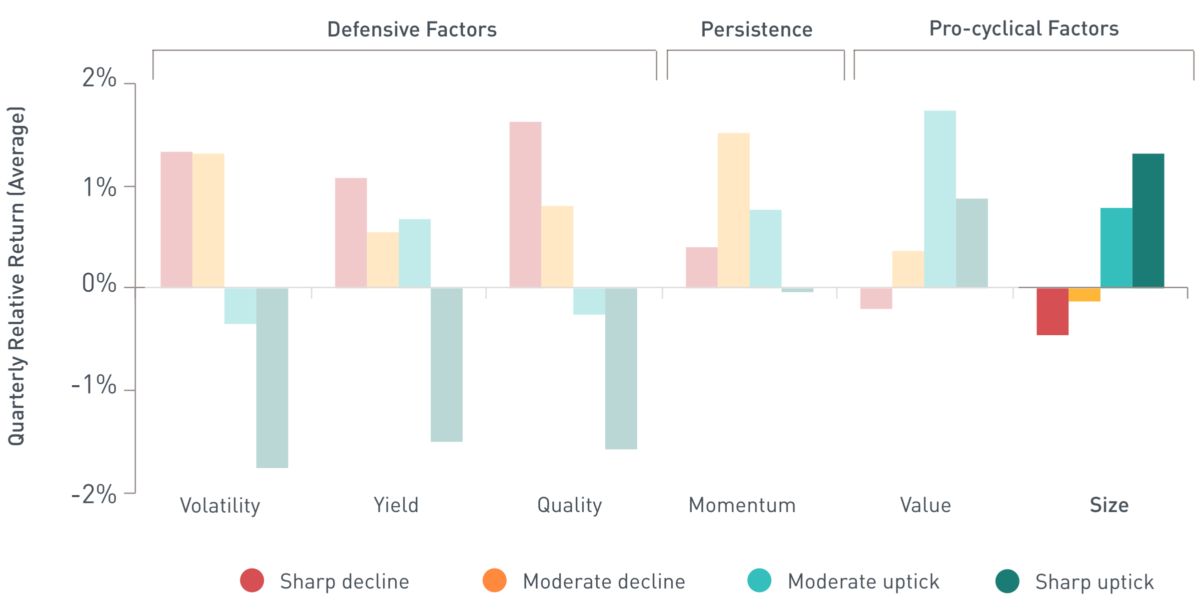
There are frequently material differences between backtested or simulated performance results and actual results subsequently achieved by any investment strategy

MACRO EFFECTS ON FACTOR PERFORMANCE



In general, factor performance has been cyclical in nature. Individual factors have been shown to outperform during different macroeconomic environments. As the charts on this page illustrate, the size (equal weight) factor falls into the "pro-cyclical" category, meaning that this type of strategy historically outperformed during rising market conditions over the study period.

The Composite Leading Indicator used here, designed to provide early-warning signals on business-cycle turning points, is an aggregate time series displaying a reasonably consistent leading relationship with the reference series for the macroeconomic cycle.



Data from November 28, 1975 to September 30, 2016.

SIZE

CONCLUSION

Although size-based investing has been a strategy for decades, it is only in recent years that transparent, rules-based indexes have provided effective ways to expose portfolios to the size premium. The advent of products such as the MSCI Equal Weighted Indexes, in addition to small cap, and size tilt indexes, gives investors several ways to access the size premium.

FOOTNOTES & REFERENCES

1 Oberoi R., A. Rao, L. Mrig and R.A. Subramanian (2016). "One Size Does Not Fit All: Understanding Factor Investing." MSCI Research Insight.

2 Banz, R.W. (1981). "The Relationship between Return and Market Value of Common Stocks." Journal of Financial Economics, Vol. 9, No. 1, pp. 3-18.

Bender, J., R. Briand, G. Fachinotti and S. Ramachandran. (2012). "Small Caps – No Small Oversight." MSCI Research Insight.

Bender, J., R. Briand, D. Melas and R.A. Subramanian. (2013). "Foundations of Factor Investing." MSCI Research Insight.

David, J.H., G. Sheay, Y. Tokat and N. Wicas. (2007). "Evaluating Small-Cap Active Funds." Vanguard.

Fama, E. and K.R. French. (2011). "Size, Value and Momentum in International Stock Returns." Working draft.

Gupta, A., A. Kassam, R. Suryanarayan and K. Varga. (2014). "Index Performance in Changing Economic Environments." MSCI Research Insight.

Morozov, A., S. Minovitsky, J. Wang and J. Yao. (2015)."Barra Global Total Market Model for Long-Term Investors." MSCI Model Insight.

Pathirawasam, C. (2010). "Size Effect in International Markets: A Survey of Literature." Working Paper.

msci.com

factorinvesting@msci.com

ABOUT MSCI

For more than 40 years, MSCI's research-based indexes and analytics have helped the world's leading investors build and manage better portfolios. Clients rely on our offerings for deeper insights into the drivers of performance and risk in their portfolios, broad asset-class coverage and innovative research.

Our line of products and services includes indexes, analytical models, data, real-estate benchmarks and ESG research.

MSCI serves 99 of the 100 largest money managers, according to the most recent Pensions & Investments ranking.

For more information, visit us at www.msci.com.