S&P Dow Jones Indices
A Division of S&P Global

Volatility Test: Defensive Factor Indices versus Actively Managed Funds

Contributors

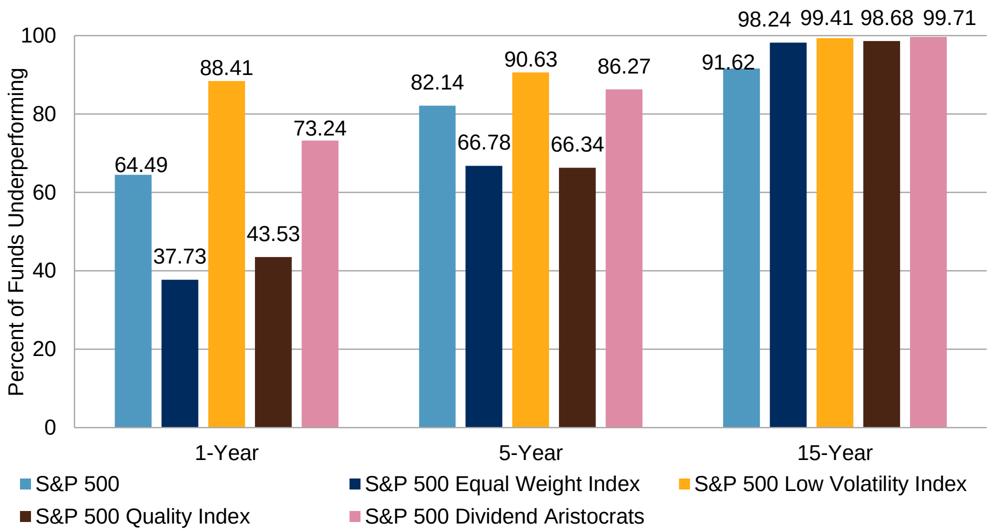
Berlinda Liu, CFA
Director
Global Research & Design
berlinda.liu@spglobal.com

Aye Soe
Managing Director
Global Research & Design
aye.soe@spglobal.com

Indices based on factors such as low volatility and quality generally feature defensive characteristics. These strategies tend to outperform the broad benchmark in down markets, as previous studies have shown. However, some market participants also believe that active management fares somewhat better than the benchmark in periods of volatility and distress. In 2018, the S&P 500® rallied 10.56% in the first three quarters and lost 13.52% in the fourth; this provides a good test to compare actively managed mutual funds against passive defensive factor strategies and see which rode the rollercoaster better. In our test, we also include the S&P 500 Equal Weight Index.

Different factors deliver different investment results, due to unique defensive mechanisms. In 2018, low volatility and dividends outperformed while quality lagged, compared with the median performance of all large-cap mutual funds. Over the long term, when the cyclicality of the market had smoothed out, all these passive strategies tended to outperform the majority of actively managed mutual funds (see Exhibit 1).

Exhibit 1: Percentage of All Large-Cap Mutual Funds Underperforming Defensive Factor Indices



Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

In 2018, 64% of large-cap active funds underperformed the broad market…

In 2018, 64% of large-cap active funds underperformed the broad market, but even more managers underperformed the S&P 500 Low Volatility Index (88%) and the S&P 500 Dividend Aristocrats® (73%). Though quality has been considered a defensive factor, it did not perform as well as low volatility or dividends in 2018. Nearly 56% of active large-cap managers beat the S&P 500 Quality Index over the one-year period.

In the five-year period ending December 2018, the S&P 500 Low Volatility Index and S&P 500 Dividend Aristocrats outperformed over 85% of large-cap active managers. In addition, over 66% of active large-cap funds had lower returns than the S&P 500 Equal Weight Index and the S&P 500 Quality Index.

…but more managers underperformed the S&P 500 Low Volatility Index and the S&P 500 Dividend Aristocrats.

Over the longer-term 15-year period, all four factor indices outperformed more than 98% of the large-cap mutual funds. This is not surprising; these defensive factor indices have tended to have higher hit rates and excess returns in down markets (see Exhibit 2).

Over a 15-year period, all four factor indices outperformed more than 98% of the large-cap mutual funds.

Exhibit 2: Hit Rate and Monthly Average Excess Returns of Defensive Factor Indices

PERIOD	S&P 500 EQUAL WEIGHT INDEX	S&P 500 LOW VOLATILITY INDEX	S&P 500 QUALITY INDEX	S&P 500 DIVIDEND ARISTOCRATS
HIT RATE (%)				
All Months	53.07	52.19	58.77	55.70
Up Months	60.27	32.88	48.63	43.84
Down Months	40.24	86.59	76.83	76.83
MONTHLY EXCESS RETURN (%)				
All Months	0.30	0.33	0.27	0.36
Up Months	0.45	-0.74	-0.12	-0.28
Down Months	0.02	2.24	0.97	1.51

Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 1999, to Dec. 31, 2018. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

We see that dividend, quality, and low volatility stood out in declining markets, with hit rates above 75%.

In general, we can see that dividend, quality, and low volatility stood out clearly in declining markets, with hit rates above 75%. Out of the 228 months that we studied, the S&P 500 had negative returns in 82 months. Of those months, the three factor indices outperformed over 75% of the time.

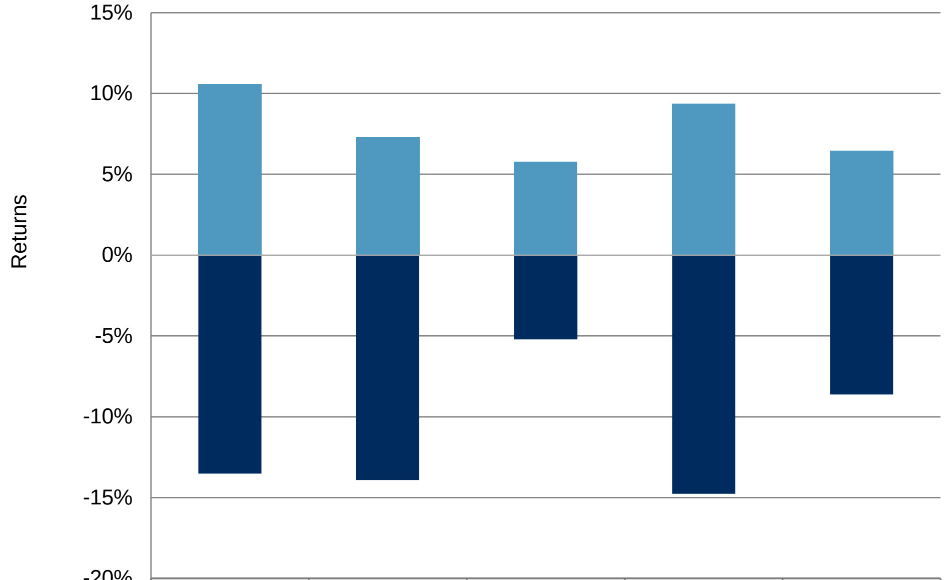
In addition, average monthly excess rate figures show the magnitude of out- and underperformance by factors in different market environments. In general, during up markets, the excess monthly returns of these factors tended to be negative. However, a different picture emerged when the market declined. Hence, these factors have generally had defensive properties with asymmetric payoffs.

Out of 228 months, the S&P 500 had negative returns in 82 months.

Financial market performance in 2018 can be split into two periods. Despite the flash crash in February and heightened market volatility in April, the first three quarters saw a strong rally thanks to solid corporate earnings. However, in the fourth quarter, uncertainty over global economic growth and future Fed policy wiped out the year's gains for many equity benchmarks. This happened in all the defensive factor strategies as well as the two reference indices (see Exhibit 3).

Of those months, the three factor indices outperformed over 75% of the time.

Exhibit 3: 2018 Index Returns



	S&P 500	S&P 500 Equal Weight Index	S&P 500 Low Volatility Index	S&P 500 Quality Index	S&P 500 Dividend Aristocrats
Q1-Q3 2018	10.56%	7.28%	5.79%	9.35%	6.46%
Q4 2018	-13.52%	-13.90%	-5.22%	-14.76%	-8.63%

Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

The source of 2018 outperformance for low volatility and dividend was lower beta and less cyclical companies.

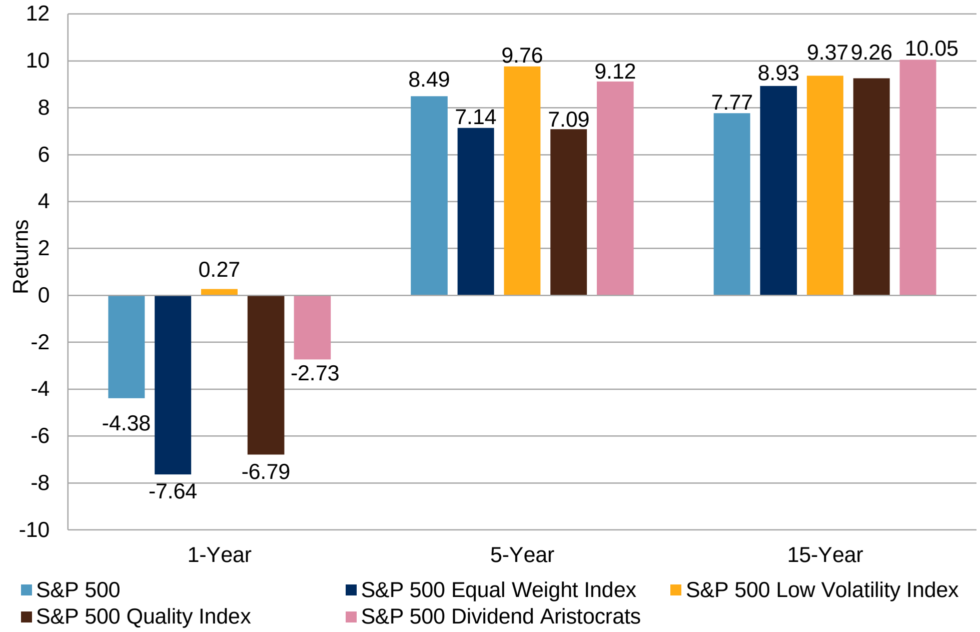
Exhibit 3 shows the source of 2018 outperformance for the low volatility and dividend factors as lower beta and less cyclical companies that lagged the broad market rally in the first three quarters but created far less drawdown in the fourth quarter market shakeup. The S&P 500 Low Volatility Index and the S&P 500 Dividend Aristocrats tend to have a higher percentage of these firms than the S&P 500.

The S&P 500 Quality Index did not fare as well in 2018 due to its sector composition. This index selects securities based on their quality score, which is a composite of three fundamental measurements: the balance sheet accruals ratio, return on equity (ROE), and financial leverage ratio. The use of a profitability metric or ROE significantly increased the index's weight in Information Technology, which posted an 18% loss in the last quarter of 2018, while reducing the index's allocation to Health Care, the Biotechnology industry in particular, which posted a return of 15% during the first three quarters of 2018.

Factors tend to earn higher risk-adjusted returns than the broad market over the long term.

Although factor returns can have cyclical tendencies in the near to mid term, empirical evidence shows that factors tend to earn higher risk-adjusted returns than the broad market over the long term. Using annualized 1-, 5-, and 10-year returns of the factor strategies, Exhibit 4 highlights the cyclical nature of factor returns in the short term and higher returns in the long term.

Exhibit 4: Annualized Returns of Factor Indices



Source: S&P Dow Jones Indices LLC. Data as of Dec. 31, 2018. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

2018 performance demonstrated that defensive factor indices can provide cost-efficient downside protection.

Performance in 2018 demonstrated that investors can find cost-efficient downside protection using proper defensive factor indices. Over the long term, these factor strategies also tend to outperform the broad equity market on a risk-adjusted basis.

PERFORMANCE DISCLOSURE

The S&P 500 Dividend Aristocrats was launched on May 2, 2005. The S&P 500 Equal Weight Index was launched on January 8, 2003. The S&P 500 Quality Index was launched on July 8, 2014. The S&P 500 Low Volatility Index was launched on April 4, 2011. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index Launch Date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. Complete index methodology details are available at www.spdji.com. Past performance of the Index is not an indication of future results. Prospective application of the methodology used to construct the Index may not result in performance commensurate with the back-test returns shown.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the Index is set at a fixed value for calculation purposes. The Launch Date designates the date upon which the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its datafeed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

The back-test period does not necessarily correspond to the entire available history of the Index. Please refer to the methodology paper for the Index, available at www.spdji.com for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Another limitation of using back-tested information is that the back-tested calculation is generally prepared with the benefit of hindsight. Back-tested information reflects the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities, fixed income, or commodities markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

The Index returns shown do not represent the results of actual trading of investable assets/securities. S&P Dow Jones Indices LLC maintains the Index and calculates the Index levels and performance shown or discussed, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. As a simple example, if an index returned 10% on a US $100,000 investment for a 12-month period (or US $10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US $1,650), the net return would be 8.35% (or US $8,350) for the year. Over a three year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US $5,375, and a cumulative net return of 27.2% (or US $27,200).