

# S&P 500<sup>®</sup> Low Volatility Index: 15 Years of Live Performance in 15 Exhibits

## Contributor

**George Valantasis, CFA**

Director

Factors and Dividends

[george.valantasis](mailto:george.valantasis@spglobal.com)

[@spglobal.com](mailto:george.valantasis@spglobal.com)

Fifteen years ago, the [S&P 500 Low Volatility Index](#) was launched, providing market participants with a transparent, rules-based approach to track the well-documented low volatility anomaly<sup>1</sup>—the tendency for less volatile stocks to deliver superior risk-adjusted performance compared to their higher volatility peers over the long term. By systematically selecting the 100 least volatile stocks from the [S&P 500](#), it offers a disciplined approach to harnessing the anomaly within a large-cap universe.

In the years since its inception, the index has navigated bull markets, multiple economic cycles, major drawdown events and shifting interest rate regimes. As we mark the 15<sup>th</sup> anniversary of the S&P 500 Low Volatility Index, this paper reviews its performance, characteristics and behavior across this dynamic period. Through 15 exhibits, we analyze how the index has performed, when it has excelled, the challenges it has faced and why it continues to be a distinctive and enduring building block for market participants.

<sup>1</sup> Please refer to "[In Search of the Low Volatility Anomaly: A Case Study.](#)"

**Exhibit 1: Risk/Performance Profile**

Period	S&P 500	S&P 500 Low Volatility Index
<b>Annualized Performance (%)</b>		
15-Year Live Period	13.24	10.45
Since Sept. 30, 1989	10.56	9.92
<b>Annualized Volatility (%)</b>		
15-Year Live Period	14.12	11.63
Since Sept. 30, 1989	14.68	11.64
<b>Risk-Adjusted Performance</b>		
15-Year Live Period	0.94	0.90
Since Sept. 30, 1989	0.72	0.85

Source: S&P Dow Jones Indices LLC. Data from Sept. 30, 1989, to March 31, 2026. The S&P 500 Low Volatility Index was launched April 4, 2011. All data prior to such date is back-tested hypothetical data. 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.

Since the launch of the S&P 500 Low Volatility Index on April 4, 2011, large-cap U.S. equities have performed exceptionally well. The S&P 500 posted an annualized gain of 13.24%, compared to 10.45% for the S&P 500 Low Volatility Index (see Exhibit 1). This performance gap is largely expected: the period has been defined by a historically strong bull market in which growth, high beta and technology stocks have led.

The low volatility anomaly is evident, however, when examining performance over the full period since 1989. While the S&P 500 Low Volatility Index underperformed the S&P 500 by 64 bps (10.56% versus 9.92%) in absolute terms, it outperformed significantly on a risk-adjusted basis, with a ratio of 0.85 compared to 0.72 for the S&P 500.

**Exhibit 2: Live Period Annual Performance**

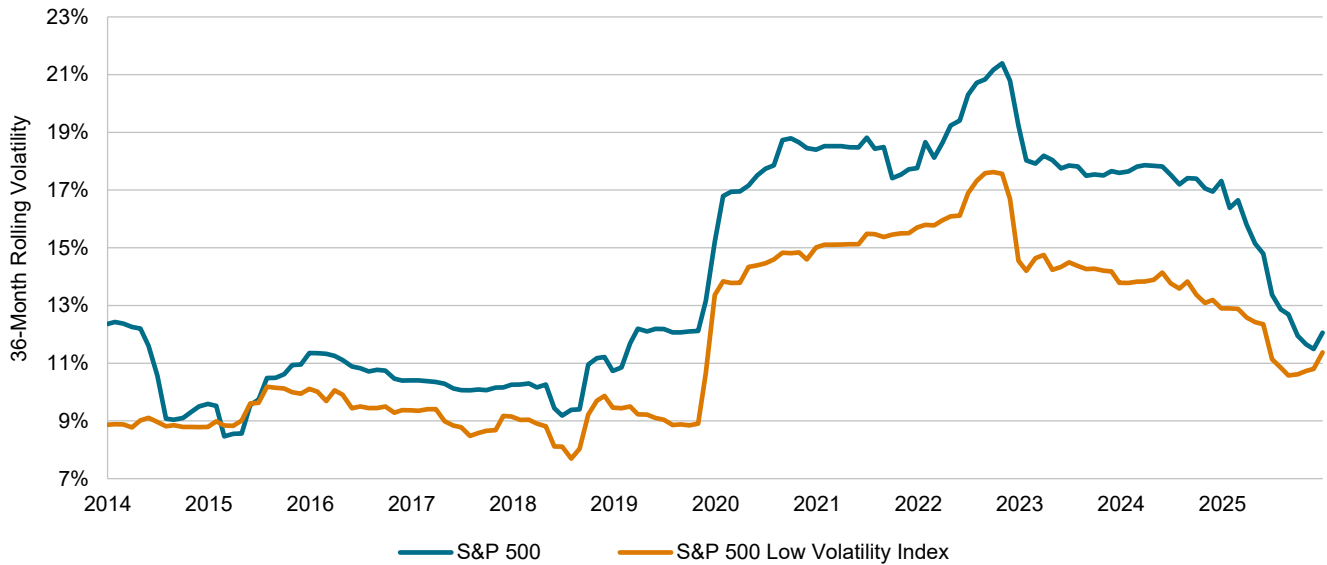
Year	Performance (%)	
	S&P 500	S&P 500 Low Volatility Index
April 4, 2011 - Dec. 31, 2011	-4.12	9.82
2012	16.00	10.30
2013	32.39	23.59
2014	13.69	17.49
2015	1.38	4.34
2016	11.96	10.37
2017	21.83	17.41
2018	-4.38	0.27
2019	31.49	28.26
2020	18.40	-1.11
2021	28.71	24.42
2022	-18.11	-4.59
2023	26.29	0.72
2024	25.02	14.26
2025	17.88	4.36
YTD 2026	-4.33	3.05

Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

The annual performance pattern has been consistent and intuitive: when the S&P 500 had strong performance, the S&P 500 Low Volatility Index typically lagged; in weaker years for the former, the latter tended to outperform. This dynamic is most apparent in the only two full calendar years in which the S&P 500 posted negative performance—2018 and 2022—when the S&P 500 Low Volatility Index outperformed by 4.65% and 13.53%, respectively.

This pattern has continued into the index's milestone year. Through March 31, 2026, the S&P 500 Low Volatility Index gained over 3%, while the S&P 500 was down 4.33%.

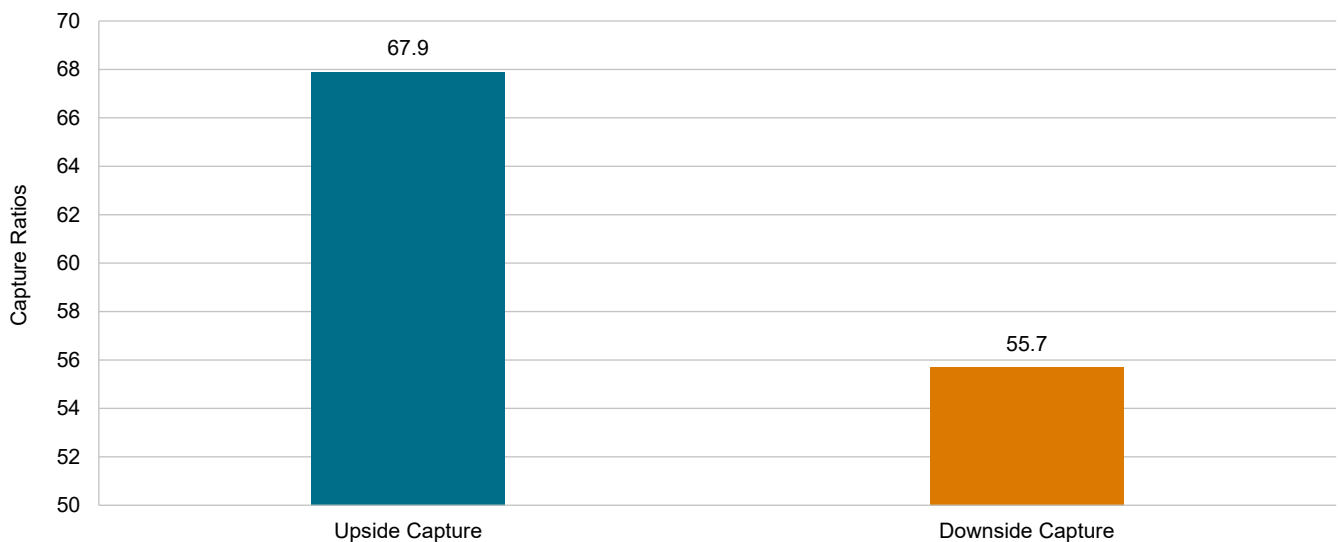
### Exhibit 3: Live Period Rolling 36-Month Volatility



Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Over the past 15 years, the S&P 500 Low Volatility Index recorded materially lower annualized volatility—11.63% compared to over 14% for the S&P 500. These averages, however, conceal notable variation across market regimes. During the relatively calm pre-COVID-19 period, the volatility gap was modest at just 1.5%; in the more-turbulent post-COVID-19 environment, it widened to 3.5%.

### Exhibit 4: Asymmetry of Capture Ratios



Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Beyond reduced volatility, a notable advantage of the S&P 500 Low Volatility Index has been the asymmetric nature of its capture ratios relative to the S&P 500. Over the past 15 years, it has participated in 67.9% of the S&P 500's upside while limiting downside participation to just 55.7% (see Exhibit 4).

### Exhibit 5: Live Period Comparison versus S&P 500 High Beta Index

Metric	S&P 500 High Beta Index	S&P 500 Low Volatility Index
Annualized Performance (%)	12.39	10.51
Annualized Volatility (%)	24.24	11.65
Risk-Adjusted Performance	0.51	0.90
Max Drawdown (%)	-36.18	-21.38
Upside Capture	134.11	67.95
Downside Capture	160.06	55.72
Trailing 12-Month Outperformance (%)	43%	57%

Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

This asymmetry in capture ratios becomes more interesting when contrasted with the [S&P 500 High Beta Index](#), which sits at the opposite end of the risk spectrum. Unlike low volatility stocks—which have tended to cushion drawdowns more than they sacrifice in rallies—high beta stocks tend to participate more in market downturns than upturns. Over the long run, this unfavorable dynamic has weighed on the S&P 500 High Beta Index's performance: going back to 1990, the S&P 500 Low Volatility Index has more than doubled the performance of the S&P 500 High Beta Index on a risk-adjusted basis—0.92 compared to 0.42.

This trend has persisted throughout the 15-year live period (see Exhibit 5). Although the S&P 500 Low Volatility Index trailed the benchmark by approximately 188 bps in annualized terms, it experienced less than half the volatility. This translated to a risk-adjusted gain of 0.90 versus 0.51, an improvement of roughly 76%.

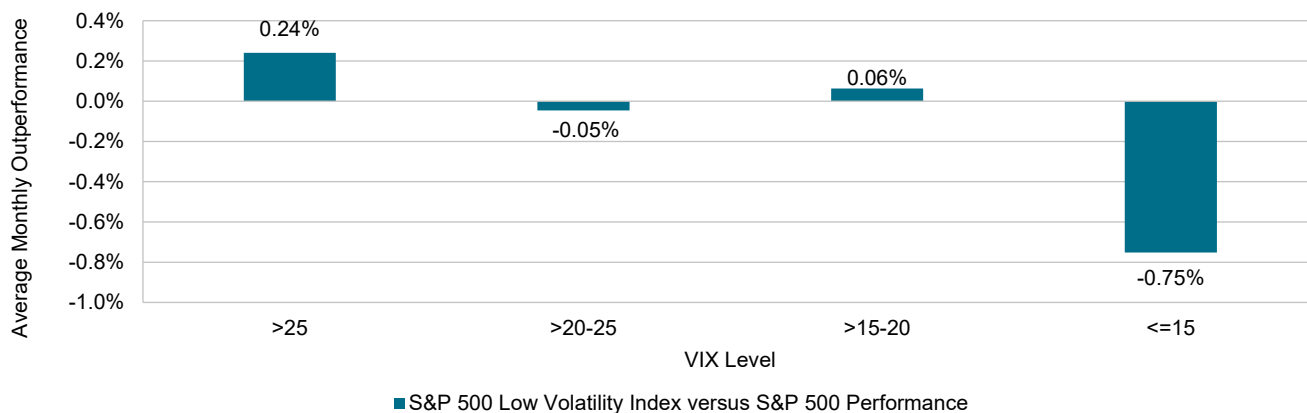
### Exhibit 6: Live Period Major Drawdown Events

Historical Drawdown	Change (%)	
	S&P 500	S&P 500 Low Volatility Index
European Debt Crisis (April 2011 - September 2011)	-16.3	-3.7
China Black Monday (May 2015 - September 2015)	-8.2	-2.9
Inflation Fears (January 2018 - March 2018)	-6.1	-3.4
Q4 2018 (September 2018 - December 2018)	-13.5	-5.2
COVID-19 (March 2020)	-12.4	-13.1
Fed Pivot (December 2021 - October 2022)	-17.7	-8.3
2025 Tariffs (Feb. 19, 2025 - April 8, 2025)	-18.7	-6.3
<b>Average</b>	<b>-13.3</b>	<b>-6.1</b>

Source: S&P Dow Jones Indices LLC. Data from April 30, 2011, to April 8, 2026. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

The S&P 500 Low Volatility Index has demonstrated a strong track record of downside protection during periods of market stress. Across the seven largest drawdown events of the past 15 years, the index outperformed in six—the sole exception being March 2020, at the onset of the COVID-19 pandemic. On average, the index declined by 6.1% during these episodes, compared to a 13.3% drop for the S&P 500, providing more than 50% greater loss protection when it mattered most (see Exhibit 6).

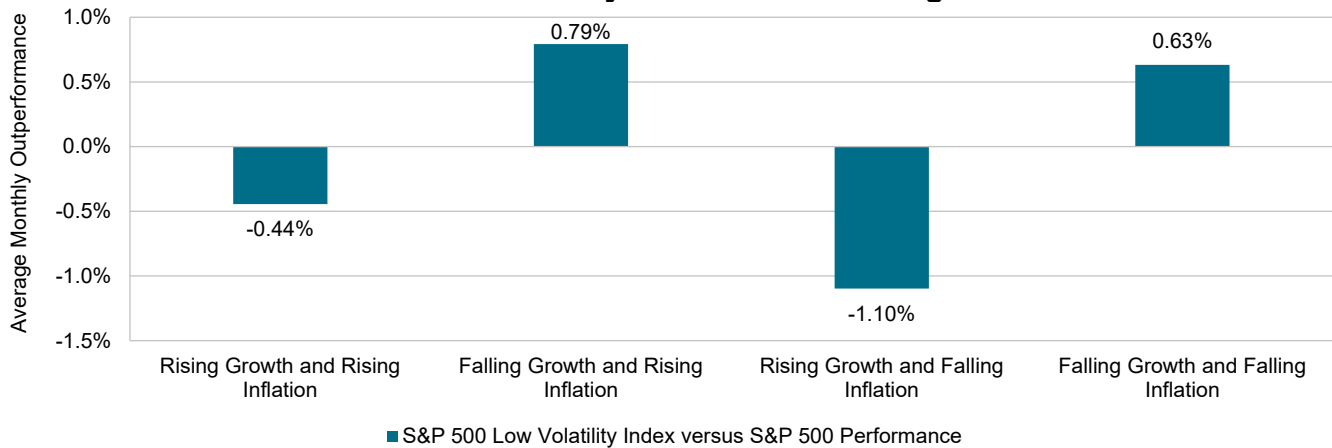
### Exhibit 7: Live Period Performance by Volatility Environment



Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Exhibit 7 reveals a clear and intuitive pattern: the S&P 500 Low Volatility Index outperforms the S&P 500 in high volatility environments when VIX® exceeds 25, but its relative advantage narrows as conditions become more favorable for risk taking. This effect is most pronounced when VIX falls below 15, when the S&P 500 has registered its greatest outperformance.

### Exhibit 8: Live Period Excess Returns by Macroeconomic Regime

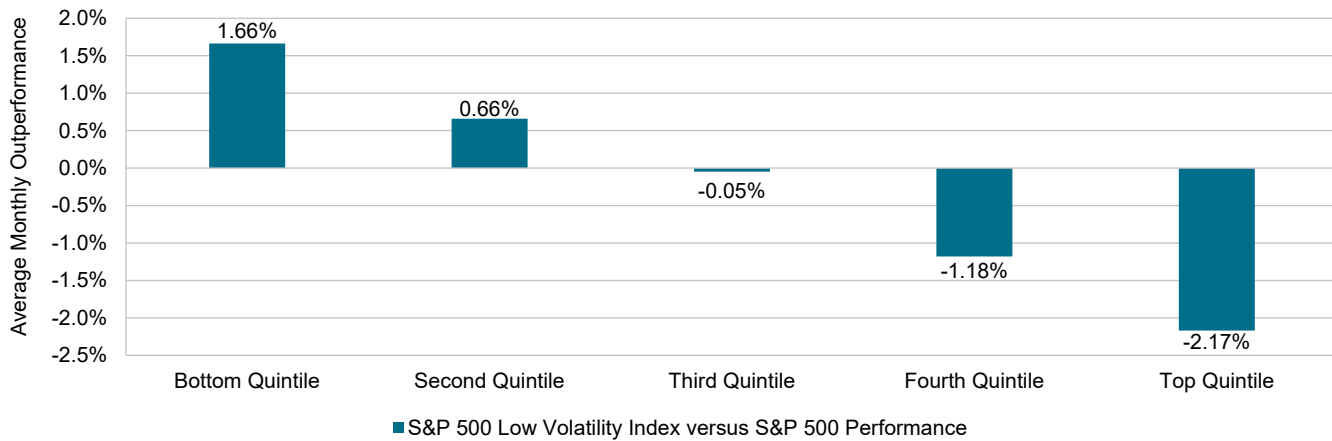


Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to Feb. 28, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Exhibit 8 compares relative performance across four macroeconomic environments based on whether growth and inflation are rising or falling.<sup>2</sup>

The trend is clear: rising growth favored the S&P 500, while declining growth favored the S&P 500 Low Volatility Index. In “risk-on” periods—rising growth and falling inflation—the S&P 500 outperformed most. Conversely, in “risk-off” stagflationary conditions—falling growth and rising inflation—the S&P 500 Low Volatility Index posted its strongest relative outperformance.

### Exhibit 9: Live Period S&P 500 Performance in Quintiles



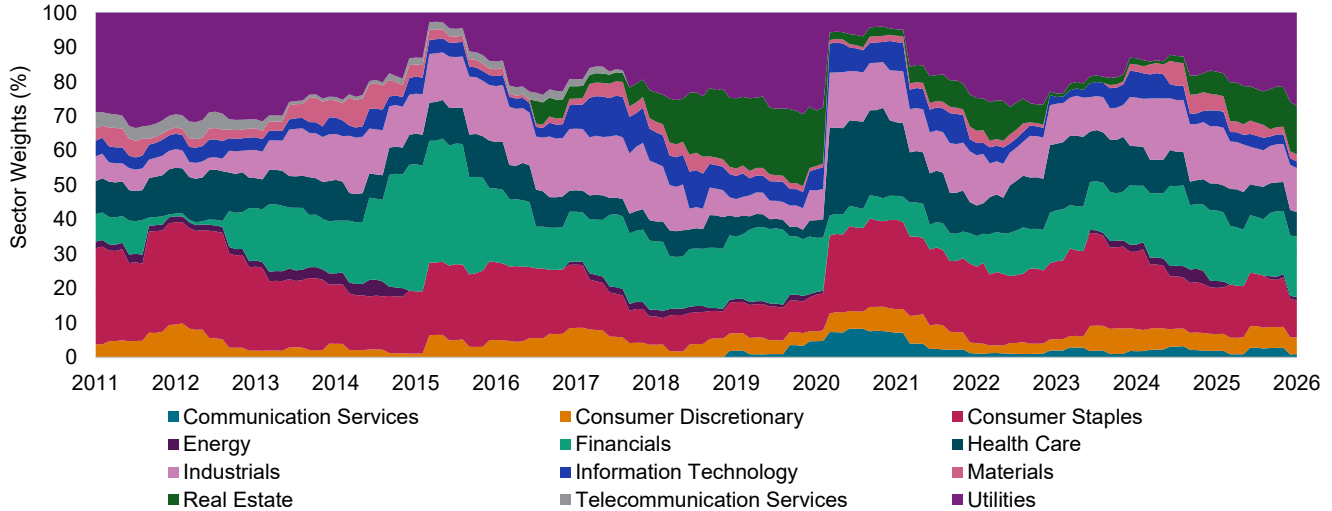
Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Sorting monthly S&P 500 performance into quintiles offers perhaps the clearest illustration of this divergence. In the worst-performing months (bottom quintile), the S&P 500 Low Volatility Index outperformed by an average of 1.66%. This decreased steadily across each quintile in a

<sup>2</sup> For a detailed explanation of the macroeconomic framework, please refer to [“A Historical Perspective on Factor Index Performance across Macroeconomic Cycles.”](#)

stepwise fashion, posting the largest underperformance in the best-performing months (top quintile), where the S&P 500 outperformed by 2.17%.

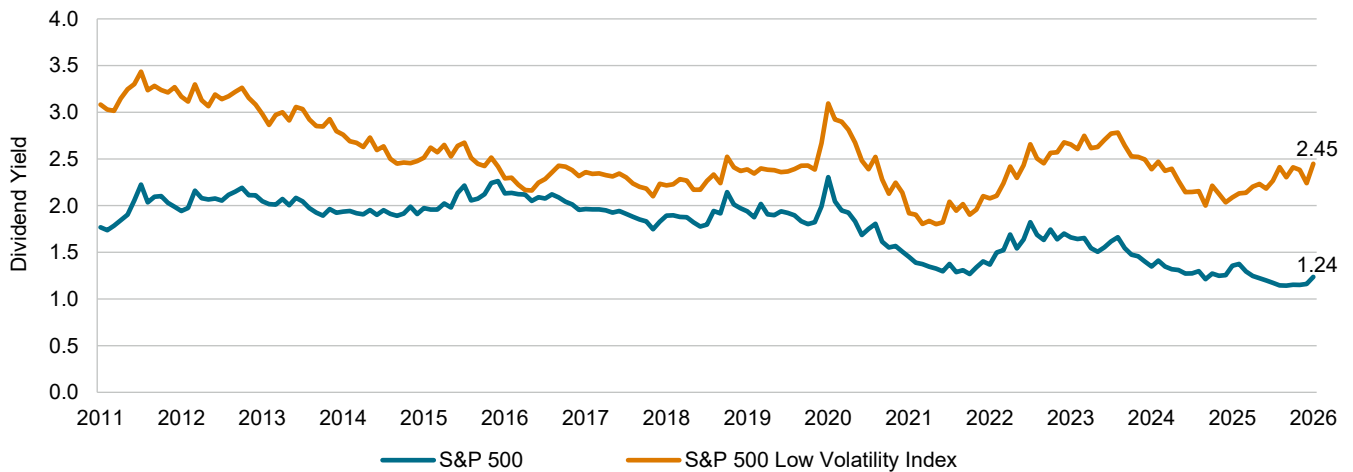
**Exhibit 10: Live Period Sector Weights over Time**



Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

As Exhibit 10 illustrates, the S&P 500 Low Volatility Index has dynamically adjusted its sector weights over the past 15 years in response to shifting market and volatility conditions. Rebalancing quarterly, the index reconstitutes around the least volatile constituents at each interval—a composition that naturally evolves over time.

**Exhibit 11: Live Period Dividend Yield over Time**



Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

The S&P 500 Low Volatility Index has had a higher dividend yield than the S&P 500 in every month over the past 15 years. The narrowest gap occurred in June 2016, likely reflecting elevated demand for low volatility strategies around the Brexit Referendum. On average, the

index generated a 74 bps higher yield. Its most recent 1.21% yield (2.45% versus the S&P 500's 1.24%) stands close to a 15-year high, ranking in the 94<sup>th</sup> percentile of the full live period.

### Exhibit 12: Hypothetical Compositions versus the S&P 500 Low Volatility Index and S&P 500

Metric (15-Year Live Period)	Hypothetical Compositions			Indices	
	80% S&P 500/20% S&P 500 Low Volatility Index	70% S&P 500/30% S&P 500 Low Volatility Index	60% S&P 500/40% S&P 500 Low Volatility Index	S&P 500 Low Volatility Index	S&P 500
Annualized Performance (%)	12.75	12.49	12.22	10.45	13.24
Annualized Volatility (%)	13.17	12.76	12.41	11.65	14.12
Risk-Adjusted Performance	0.97	0.98	0.99	0.9	0.94
Drawdown (%)	-21.97	-21.02	-20.30	-21.38	-23.87
Upside Capture Ratio	93.59	90.38	87.18	67.94	-
Downside Capture Ratio	91.14	86.72	82.29	55.72	-

All compositions are hypothetical compositions.

Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. 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.

While the S&P 500 Low Volatility Index has shown outperformance on its own, we can also consider performance when combined with the S&P 500. Exhibit 12 presents three hypothetical compositions that blend the S&P 500 and S&P 500 Low Volatility Index at 80/20, 70/30 and 60/40 ratios. The results demonstrate tangible differences, including progressively higher risk-adjusted performance and incremental reductions in volatility, maximum drawdown and capture ratios.

**Exhibit 13: Comparison of Top 10 Holdings**

S&P 500 Top 10 Constituents		S&P 500 Low Volatility Index Top 10 Constituents	
Company	Index Weight (%)	Company	Index Weight (%)
Nvidia Corp	7.6	Southern Co	1.4
Apple Inc.	6.7	Centerpoint Energy Inc	1.4
Alphabet Inc A	5.4	WEC Energy Group Inc	1.4
Microsoft Corp	4.9	Duke Energy Corp	1.3
Amazon.com Inc	3.6	Pinnacle West Capital (AZ)	1.3
Broadcom Inc	2.6	Atmos Energy Corp	1.3
Meta Platforms, Inc. Class A	2.2	Evergy Inc.	1.3
Tesla, Inc	1.9	Ameren Corp	1.3
Berkshire Hathaway B	1.6	CMS Energy Corp	1.3
JP Morgan Chase & Co	1.4	DTE Energy Co	1.3
<b>Total</b>	<b>37.9</b>	<b>Total</b>	<b>13.4</b>

Source: S&P Dow Jones Indices LLC. Data as of March 31, 2026. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

As of March 31, 2026, the top 10 holdings accounted for 37.9% of the S&P 500's weight, compared to just 13.4% in the S&P 500 Low Volatility Index (see Exhibit 13). Berkshire Hathaway being the only company in the S&P 500 Low Volatility Index among the top 10 names in the S&P 500 shows the diversification potential between the two indices.

**Exhibit 14: Live Period Excess Return Correlation Matrix**

Index	S&P 500 Low Volatility Index	S&P 500 Quality Index	S&P 500 Growth	S&P 500 Value
<b>S&amp;P 500 Quality Index</b>	0.32	-	-	-
<b>S&amp;P 500 Growth</b>	-0.35	-0.16	-	-
<b>S&amp;P 500 Value</b>	0.36	0.16	-0.99	-
<b>S&amp;P 500 Momentum Index</b>	0.08	0.17	0.36	-0.38

Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. The S&P 500 Low Volatility Index was launched April 4, 2011. The S&P 500 Quality Index was launched July 8, 2014. The S&P 500 Momentum Index was launched Nov. 18, 2014. All data prior to such date is back-tested hypothetical data. 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.

Exhibit 14 plots the live period excess return correlation between the S&P 500 Low Volatility Index and four other core S&P 500 Factor Indices—the [S&P 500 Quality Index](#), [S&P 500 Growth](#), [S&P 500 Value](#) and [S&P 500 Momentum Index](#). Over the past 15 years, the S&P 500 Low Volatility Index's average excess correlations were 0.32 with the S&P 500 Quality Index, -0.35 with the S&P 500 Growth, 0.36 with the S&P 500 Value and 0.08 with the S&P 500 Momentum Index. This distinct performance profile highlights the S&P 500 Low Volatility Index as a potential complement not only to the broad market, but to other factor strategies as well.

**Exhibit 15: Valuation Discount versus S&P 500**

Metric	S&P 500 Low Volatility Index Discount versus S&P 500 (%)	Percentile Relative to History
Price-to-Book	45	99 <sup>th</sup>
Price-to-Sales	32	90 <sup>th</sup>
Price-to-Earnings	19	92 <sup>nd</sup>
Composite	32	99 <sup>th</sup>

Source: S&P Dow Jones Indices LLC. Data from April 4, 2011, to March 31, 2026. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Exhibit 15 illustrates the current valuation discounts of the S&P 500 Low Volatility Index relative to the S&P 500, expressed as percentiles over the full 15-year live period. As of Feb. 28, 2026, the S&P 500 Low Volatility Index traded at unusually wide discounts across all three metrics: 45% (price-to-book), 32% (price-to-sales), 19% (price-to-earnings) and 32% (composite average)—corresponding to the 99<sup>th</sup>, 90<sup>th</sup>, 92<sup>nd</sup> and 99<sup>th</sup> percentiles, respectively.

## Conclusion

Fifteen years of live data show the S&P 500 Low Volatility Index's strong risk-adjusted performance and potential as a differentiated building block in the U.S. equities space. While the period's bull market created a structural headwind, the index delivered on its core mandate—lower volatility and meaningful downside protection, particularly during times of market stress. Its distinct factor profile, higher dividend yield and lower concentration may further enhance its potential within a broader U.S. equities context. With valuation discounts at 15-year highs, the index remains particularly relevant today.

# Appendix

## Exhibit 16: S&P 500 Low Volatility Index Methodology Overview

Criteria	Details
Universe	S&P 500
Liquidity	To be eligible, stocks must have been publicly issued and actively traded for a minimum of 252 trading days.
Security Selection	The index is composed of the 100 securities exhibiting the lowest volatility over the past year (252 trading days).
Target Constituent Count	100
Weighting	During each rebalancing, the weight assigned to each index constituent is determined to be inversely proportional to its volatility.
Rebalancing	Third Friday of February, May, August and November

Source: S&P Dow Jones Indices LLC. Data as of March 31, 2026. Table is provided for illustrative purposes. Please see the [S&P Low Volatility Indices Methodology](#) for more information.

## Exhibit 17 : Full Period Risk/Performance Statistics

Period	S&P 500	S&P 500 Low Volatility Index
<b>Annualized Performance (%)</b>		
Since Inception	10.56	9.92
YTD	-4.33	3.05
1-Year	17.80	0.26
3-Year	18.30	7.99
5-Year	12.06	7.20
10-Year	14.15	8.69
20-Year	10.52	9.10
<b>Annualized Volatility (%)</b>		
Since Inception	14.68	11.64
<b>Risk-Adjusted Performance</b>		
Since Inception	0.72	0.85
<b>Drawdown (%)</b>		
Since Inception	-50.95	-35.36
<b>Capture Ratio</b>		
Upside Capture Since Inception	-	69.69
Downside Capture Since Inception	-	53.60

Source: S&P Dow Jones Indices LLC. Data from Sept. 30, 1989, to March 31, 2026. Inception date for this analysis is Sept. 30, 1989. The S&P 500 Low Volatility Index was launched on April 4, 2011. All data prior to such date is back-tested hypothetical data. 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.

## Performance Disclosure/Back-Tested Data

The S&P 500 Low Volatility Index and S&P 500 High Beta Index were launched April 4, 2011. The S&P 500 Quality Index was launched July 8, 2014. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance, and is based on the index methodology 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. In addition, forks have not been factored into the back-tested data with respect to the S&P Cryptocurrency Indices. For the S&P Cryptocurrency Top 5 & 10 Equal Weight Indices, the custody element of the methodology was not considered; the back-test history is based on the index constituents that meet the custody element as of the Launch Date. Also, the treatment of corporate actions in back-tested performance may differ from treatment for live indices due to limitations in replicating index management decisions. Complete index methodology details are available at [www.spglobal.com/spdji](http://www.spglobal.com/spdji). Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results.

Please refer to the methodology for the Index 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. Back-tested performance is for use with institutions only; not for use with retail investors.

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 to a fixed value for calculation purposes. The Launch Date designates the date when 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 data feed 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.

Typically, when S&P DJI creates back-tested index data, S&P DJI uses actual historical constituent-level data (e.g., historical price, market capitalization, and corporate action data) in its calculations. As ESG investing is still in early stages of development, certain datapoints used to calculate S&P DJI's ESG indices may not be available for the entire desired period of back-tested history. The same data availability issue could be true for other indices as well. In cases when actual data is not available for all relevant historical periods, S&P DJI may employ a process of using "Backward Data Assumption" (or pulling back) of ESG data for the calculation of back-tested historical performance. "Backward Data Assumption" is a process that applies the earliest actual live data point available for an index constituent company to all prior historical instances in the index performance. For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as "product involvement") were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on "Backward Data Assumption" please refer to the [FAQ](#). The methodology and factsheets of any index that employs backward assumption in the back-tested history will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used.

Index returns shown do not represent the results of actual trading of investable assets/securities. S&P Dow Jones Indices 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).

## General Disclaimer

© 2026 S&P Dow Jones Indices. All rights reserved. S&P, S&P 500, SPX, SPY, The 500, US 500, US 30, S&P 100, S&P COMPOSITE 1500, S&P 400, S&P MIDCAP 400, S&P 600, S&P SMALLCAP 600, S&P GIVI, GLOBAL TITANS, DIVIDEND ARISTOCRATS, DIVIDEND MONARCHS, BUYBACK ARISTOCRATS, SELECT SECTOR, S&P MAESTRO, S&P PRISM, GICS, SPIVA, SPDR, INDEXOLOGY, iTraxx, iBoxx, ABX, ADBI, CDX, CMBX, MBX, MCDX, PRIMEX, HHPI and SOVX are trademarks of S&P Global, Inc. (“S&P Global”) or its affiliates. DOW JONES, DJIA, THE DOW and DOW JONES INDUSTRIAL AVERAGE are trademarks of Dow Jones Trademark Holdings LLC (“Dow Jones”). These trademarks together with others have been licensed to S&P Dow Jones Indices LLC. Redistribution or reproduction in whole or in part are prohibited without written permission of S&P Dow Jones Indices LLC. This document does not constitute an offer of services in jurisdictions where S&P Dow Jones Indices LLC, S&P Global, Dow Jones or their respective affiliates (collectively “S&P Dow Jones Indices”) do not have the necessary licenses. Except for certain custom index calculation services, all information provided by S&P Dow Jones Indices is impersonal and not tailored to the needs of any person, entity or group of persons. S&P Dow Jones Indices receives compensation in connection with licensing its indices to third parties and providing custom calculation services. Past performance of an index is not an indication or guarantee of future results.

It is not possible to invest directly in an index. Exposure to an asset class represented by an index may be available through investable instruments based on that index. S&P Dow Jones Indices does not sponsor, endorse, sell, promote or manage any investment fund or other investment vehicle that is offered by third parties and that seeks to provide an investment return based on the performance of any index. S&P Dow Jones Indices makes no assurance that investment products based on the index will accurately track index performance or provide positive investment returns. Index performance does not reflect trading costs, management fees or expenses. S&P Dow Jones Indices makes no representation regarding the advisability of investing in any such investment fund or other investment vehicle. A decision to invest in any such investment fund or other investment vehicle should not be made in reliance on any of the statements set forth in this document. S&P Dow Jones Indices is not an investment adviser, commodity trading advisor, commodity pool operator, broker dealer, fiduciary, promoter” (as defined in the Investment Company Act of 1940, as amended), “expert” as enumerated within 15 U.S.C. § 77k(a) or tax advisor. Inclusion of a security, commodity, crypto currency or other asset within an index is not a recommendation by S&P Dow Jones Indices to buy, sell, or hold such security, commodity, crypto currency or other asset, nor is it considered to be investment advice or commodity trading advice.

These materials have been prepared solely for informational purposes based upon information generally available to the public and from sources believed to be reliable. No content contained in these materials (including index data, ratings, credit-related analyses and data, research, valuations, model, software or other application or output therefrom) or any part thereof (“Content”) may be modified, reverse-engineered, reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of S&P Dow Jones Indices. The Content shall not be used for any unlawful or unauthorized purposes. S&P Dow Jones Indices and its third-party data providers and licensors (collectively “S&P Dow Jones Indices Parties”) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Dow Jones Indices Parties are not responsible for any errors or omissions, regardless of the cause, for the results obtained from the use of the Content. THE CONTENT IS PROVIDED ON AN “AS IS” BASIS. S&P DOW JONES INDICES PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT’S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Dow Jones Indices Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages.

S&P Global keeps certain activities of its various divisions and business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain divisions and business units of S&P Global may have information that is not available to other business units. S&P Global has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

In addition, S&P Dow Jones Indices provides a wide range of services to, or relating to, many organizations, including issuers of securities, investment advisers, broker-dealers, investment banks, other financial institutions and financial intermediaries, and accordingly may receive fees or other economic benefits from those organizations, including organizations whose securities or services they may recommend, rate, include in model portfolios, evaluate or otherwise address.

The Global Industry Classification Standard (GICS®) was developed by and is the exclusive property and a trademark of S&P and MSCI. Neither MSCI, S&P nor any other party involved in making or compiling any GICS classifications makes any express or implied warranties or representations with respect to such standard or classification (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of such standard or classification. Without limiting any of the foregoing, in no event shall MSCI, S&P, any of their affiliates or any third party involved in making or compiling any GICS classifications have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.