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'LOW VOLATILITY' EQUITY INVESTING: STRUCTURAL VS. STATISTICAL

Decades ago, asset allocation was essentially limited to a mix of fixed income, equities, private investments and cash aimed at generating an annual return in excess of a fixed return target. Given that both equity and fixed income offered reasonable long-term rates of return in excess of the target and that cash earned returns more than zero, the opportunity cost of expressing a view of a few percentage points in favor of either equity or fixed income was manageable. In short, career risk didn't preclude sound investment decision making and 'savvy' investors periodically shifted allocations to attempt to avoid steep declines in either bonds or equities and keep 'dry powder' for more attractive opportunities.

The Allocator's Conundrum

Over the last decade, allocations have become far more complex, peer-awareness has increased substantially and prospective return differentials between asset classes appear more pronounced. Allocators are tasked with the notable challenge of remaining both fully invested and positioned to avoid excessive risk, while also earning a mandated rate or return. Hence the motivation is very high for investment teams to seek out investment opportunities that provide 'equity-like' returns with lower volatility than broad-based equity indexes, i.e., higher risk-efficiency and/or lower beta. However, the question remains, what is the best way to get low volatility exposure? We believe that there are two competing, and/or complementary, approaches – statistical or structural.

Over the course of this paper, we wish to highlight that investors allocating to traditional lower volatility equity strategies (statistical) are expressing explicit investment sector, style, factor, capitalization and interest rate biases. Consequently, we believe index put writing (structural) can offer a complementary strategy that lacks the dependence on backward looking relationships and limits the basis risk to broader equity indexes. Furthermore, while both low volatility approaches may help address current investor fears about the potential for a stagnant or declining market, index put writing may derive greater benefit from other risk factors such as increases in market volatility or rising interest rates.

A Statistical Approach: Low Volatility Equity

The list of investment strategies that attempt to provide this return profile includes a variety of alternative investment strategies, but strategies that simply hold 'low volatility' equity portfolios are among the most widely accepted and have been for good reason. The table below provides a comparison of the S&P 500 Low Volatility Index ("SPLVI") and the MSCI USA Minimum Volatility Index ("USMVI") to their respective 'full volatility' parent index for the longest common period for which return data is available. The 'low volatility' equity indexes outperformed their full volatility parent indexes and, as designed, experienced lower monthly return volatilities and drawdowns.

RETURN & RISK STATISTICS
December 1990 – January 2017

	S&P 500 Index	S&P 500 Low Volatility Index	MSCI USA Index	MSCI USA Minimum Volatility Index
Annual Total Return	10.0%	11.0%	10.1%	10.4%
Annual Volatility	14.2%	10.9%	14.3%	11.2%
Risk-Adjusted	0.70	1.00	0.71	0.93
Beta to Index	1.00	0.58	1.00	0.72
Median 30-Day Return	1.3%	1.2%	1.3%	1.2%
Up-Market Capture	100%	72%	100%	79%
Down-Market Capture	100%	48%	100%	64%
Max Drawdown	-51%	-35%	-51%	-41%

Source: Bloomberg LP.

Low volatility indexes like the S&P 500 Low Volatility Index ("SPLVI") and MSCI USA Minimum Volatility Index ("USMVI") follow statistical approaches to index construction. While each index has its own investment approach, philosophically they construct portfolios that hold equity securities that have expressed lower volatility over some backward looking timeframe. Previous time periods vary, but this philosophy assumes a degree of performance persistence.

Comparing a few relative statistics of the indices below also suggests that the low volatility indexes offer characteristics that investors might expect from traditional 'active' equity strategies. Hence, low volatility indexes and their related exchange traded funds ("ETFs") typically fall under the industry's 'smart beta' moniker. For a quantitatively focused industry, deciding what is or isn't 'smart beta' is surprisingly subjective. We find it difficult to not view the use of the term as a sort of 'active risk in disguise', the sort Jacques Clouseau might don. After all, investing in both the S&P 500 Index and the S&P 500 Low Volatility Index is in effect simply overweighting a subset of stocks held in the S&P 500.

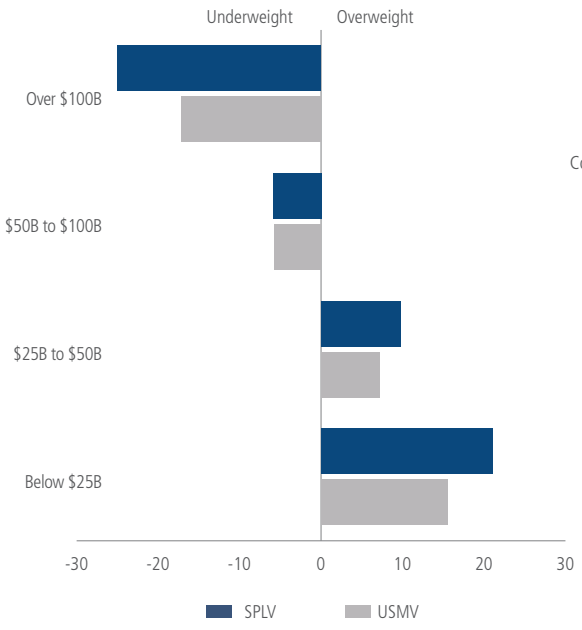
LOW VOLATILITY EQUITY STRATEGY PORTFOLIO STATISTICS
December 1990 – January 2017

	S&P 500 Low Volatility Index (SPLVI) vs. S&P 500	MSCI USA Minimum Volatility Index (USMVI) vs. MSCI USA
Tracking Error	9.45%	5.90%
Correlation	0.75	0.92
Active Share (vs SPY)	68%	33%*

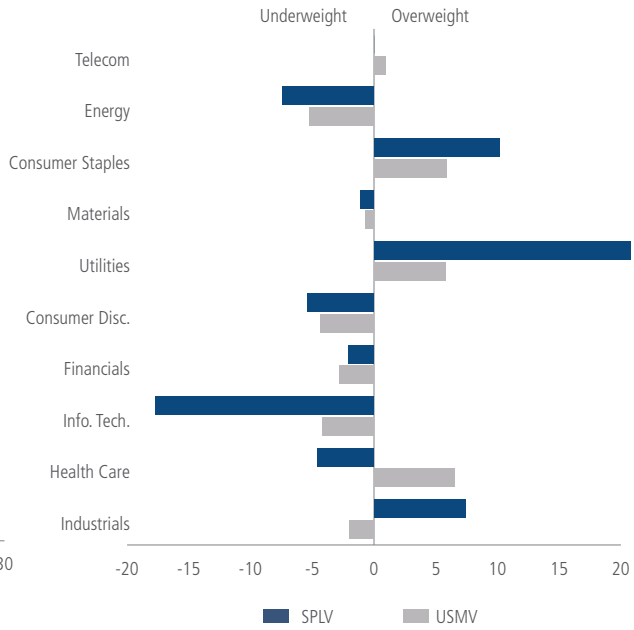
*No ETF for MSCI USA.
Source: Bloomberg LP.

Many factors can reduce a stock's return volatility, including high dividends, stable earnings, large market capitalization, low financial leverage and low share turnover, i.e., concentrated ownership. However, the systematic application of a rule set across any universe of stocks can lead to portfolio exposure imbalances, both intended and unintended. The charts below illustrate the relative market capitalization and sector exposures of the ProShares S&P 500 Low Volatility ETF ("SPLV") and the iShares Edge MSCI Minimum Volatility USA ETF ("USMV") versus the SPDRS S&P 500 ETF ("SPY").

MARKET CAPITALIZATION (VS. SPY) (%)
December 31, 2016



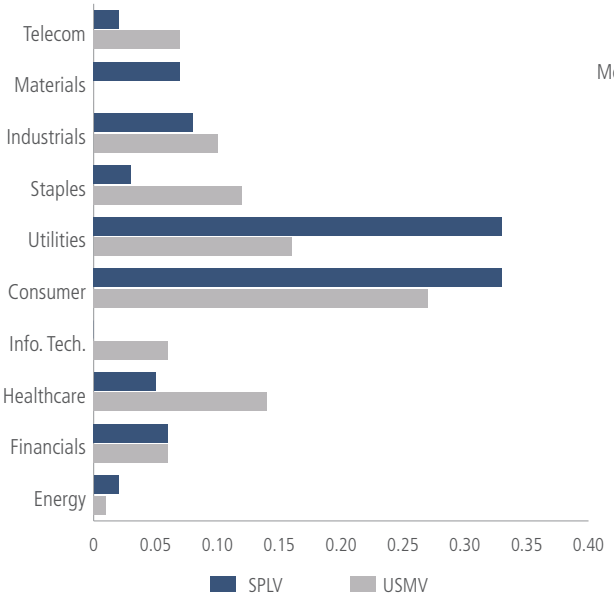
GICS SECTORS (VS. SPY) (%)
December 31, 2016



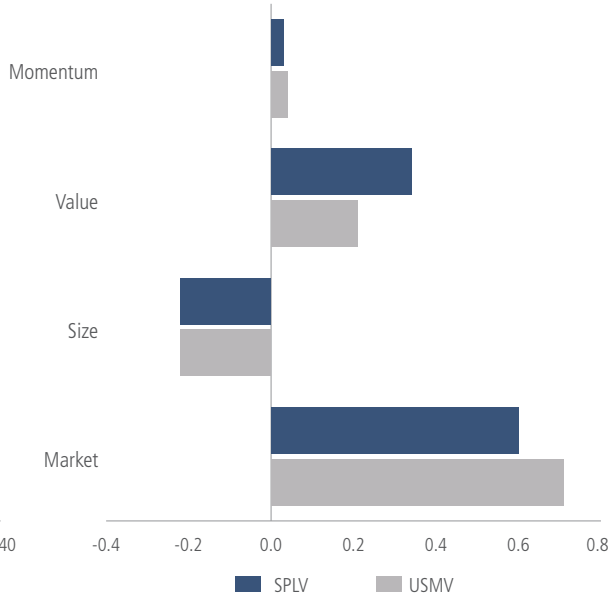
Source: Bloomberg LP.

The charts make plain the biases inherent in both the SPLVI and USMVI and highlight the fact that MSCI's index methodology imposes constraints on the minimum variance index's relative exposures which was also illustrated by the lower tracking error and active share statistics in the previous table. Further, the tables below provide regression based return betas and factors for the indexes. As expected, the sector return betas align with the relative sector exposure presented above and the size factor exposure in the Fama-French factor analysis is consistent. The low volatility indexes' biases towards small-cap value exposure may explain a reasonable portion of their relative performance success. Further, the sector concentration, while historically fruitful from a low volatility point of view, quietly embraces others risks that remain less obvious.

S&P 500 GICS SECTOR BETAS
December 31, 2016



FAMA-FRENCH FACTOR
December 31, 2016

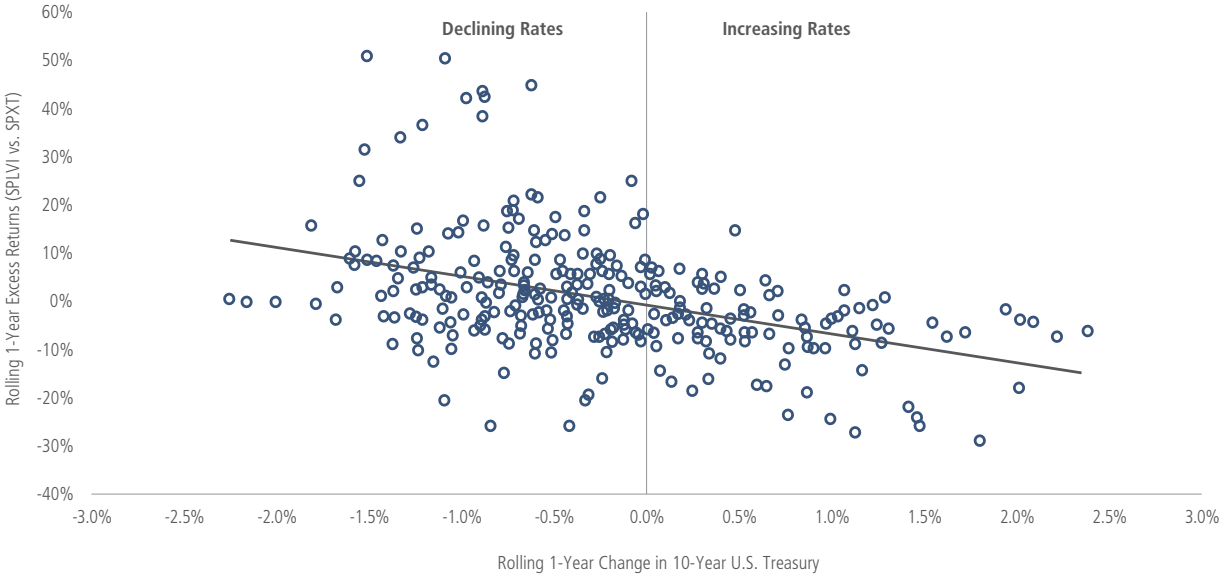


Source: Bloomberg LP, Fama/French Data Dartmouth.

As a potential byproduct of the exposures illustrated above, including the heavy Utilities and Consumer overweight, the low volatility indexes' relative returns versus the S&P 500 Index appear to exhibit sensitivities to changes in interest rates, which we define as the 10-Year U.S. Treasury yield. For example, the scatter plots below chart the rolling 1-year excess return of SPLVI vs. the S&P 500 Index and USMVI vs. the MSCI USA Index against the rolling 1-year change in the yield on the 10-Year U.S. Treasury. It appears that the SPLVI has had a tendency to outperform in months when the 10-Year yield declined and underperform in months when the 10-Year yield increased.

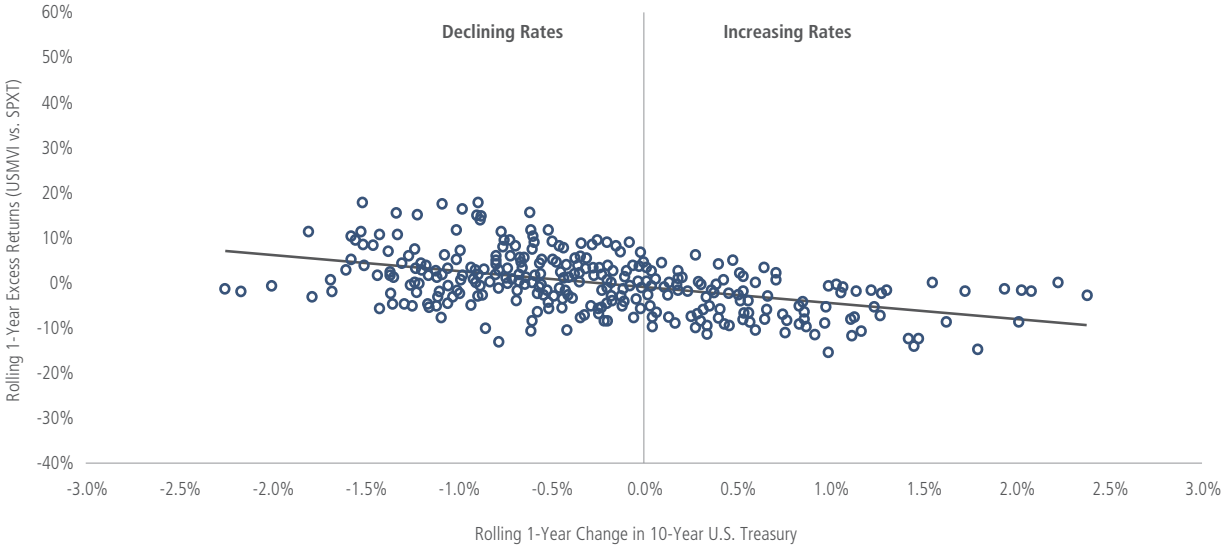
S&P 500 LOW VOLATILITY INDEX VS. S&P 500

1-Year Excess Return vs. Change in 10-Year U.S. Treasury Yield. November 1990 – December 2016



MSCI USA MINIMUM VOLATILITY INDEX VS. S&P 500

1-Year Excess Return vs. Change in 10-Year U.S. Treasury Yield. May 1988 – December 2016



Source: Bloomberg LP.

Our next table provides the longer-term correlations of SPLVI's and USMVI's monthly excess returns to monthly changes in the 10-Year U.S. Treasury yield. Notably, it appears that both SPLVI's and USMVI's betas and correlations to changes in longer-term interest rates have increased in more recent time periods.

CORRELATION: EXCESS RETURN TO CHANGES IN 10-YEAR U.S. TREASURY YIELD

As of December 2016

	SPLVI (vs. S&P 500 Index)	USMVI (vs. MSCI USA)
3-Year	-0.67	-0.65
5-Year	-0.62	-0.63
10-Year	-0.46	-0.46
15-Year	-0.47	-0.41
20-Year	-0.31	-0.34

To date, most of the research on interest rates and low volatility index performance that we have reviewed stop short of drawing any definitive relationship between low volatility index performance (absolute or relative) and interest rates. That's by no means a criticism of the research. It's a reality of the fact that low volatility and sector based indexes don't have long enough histories to predate the long downward trend in interest rates since the 1980s. And, we all know that in the investment industry, views that are unsubstantiated by statistically significant 'data' are of little utility, as 'no data' means 'no investment'.

In our experience, long-term investment success typically hinges on maintaining a balanced perspective on historical relationships and present context. To this end, we conclude our notes on low volatility equity indexes with a broader look at the S&P 500 Index and 10-Year U.S. Treasury rates with a full admission that it is not a robust statistical analysis of historical relationships. Rather, it is something we find interesting to look at and leave the reader to draw their own conclusions.

S&P 500 INDEX VS. U.S. TREASURY YIELDS (10-YEAR)

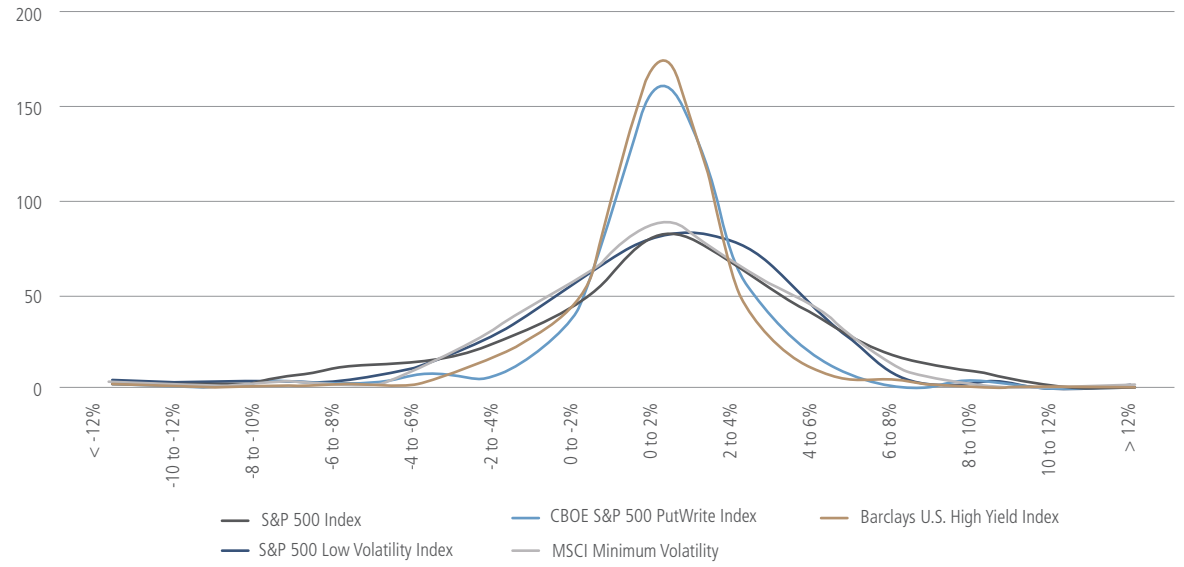
January 1962 – February 2017

A Structural Approach: Equity Index PutWrite

We have dedicated entire papers to why we believe equity index PutWrite strategies are attractive investment solutions for broader asset allocations. However, for the purposes of this paper and in the spirit of our preference for brevity, let's just agree that, assuming market efficiency, an investor who bears the downside risk of a financial asset should earn the dominant proportion of the return generated by that financial asset or enterprise over the long term. There are plenty of thoughtful research pieces that support this relatively common sense idea and confirm that option markets underwrite risk with the intention of collecting premiums that compensate the 'seller' based on the risks assumed.

A collateralized equity index PutWrite strategy generates a 'structurally' lower volatility exposure than the underlying index upon which the put options are sold. Rather than selecting equities based on historical return characteristics (statistical approach), the PutWrite collects cash premiums as direct compensation for assuming the downside risk of an equity index and is not necessarily dependent upon capital appreciation or dividends to generate its returns. The payoff of an index PutWrite is explicitly defined. The net result has been a greater consistency in returns than low volatility equity indexes. Below is a monthly return distribution chart for the CBOE S&P 500 PutWrite Index ("PUT Index") versus the S&P 500 Index, SPLVI, USMVI and Barclays U.S. High Yield Bond Index.

MONTHLY RETURN DISTRIBUTIONS
December 1990 – December 2016



Source: Bloomberg LP.

The return consistency of the PUT Index is more similar to the Barclays U.S. High Yield Index than the S&P 500 or either SPLVI or USMVI. Comparing risk/returns statistics we find that the PUT Index has achieved similar long-term results as SPLVI and USMVI but has done so by accepting a different risk profile.

RETURN & RISK STATISTICS
December 1990 – January 2017

	CBOE S&P 500 PutWrite Index	S&P 500 Index	S&P 500 Low Volatility Index	MSCI USA Minimum Volatility Index	Barclays U.S. High Yield Index
Ann. Total Return	9.9%	10.0%	11.0%	10.4%	9.2%
Ann. Volatility	9.7%	14.2%	10.9%	11.2%	8.4%
Risk-Adjusted	1.02	0.70	1.00	0.93	1.10
Beta to Index	0.56	1.00	0.58	0.72	0.35
Median 30-Day Return	1.2%	1.3%	1.2%	1.2%	1.0%
Up-Market Capture	63%	100%	72%	80%	50%
Down-Market Capture	40%	100%	48%	66%	23%
Max Drawdown	-33%	-51%	-35%	-41%	-33%

Source: Bloomberg LP.

From an 'active' risk perspective, the PUT Index, again, has exhibited similar risk profile as the SPLVI. However, importantly, the PUT Index does not assume the same relative risks as the equity based SPLVI and USMVI.

RELATIVE RISK STATISTICS
December 1990 – January 2017

	CBOE S&P 500 PutWrite Index vs. S&P 500	S&P 500 Low Volatility Index (SPLVI) vs. S&P 500	MSCI USA Minimum Volatility Index (USMVI) vs. MSCI USA
Tracking Error	8.31%	9.45%	5.90%
Correlation	0.82	0.75	0.92
Active Share (vs SPY)	n/a	68%	33%*

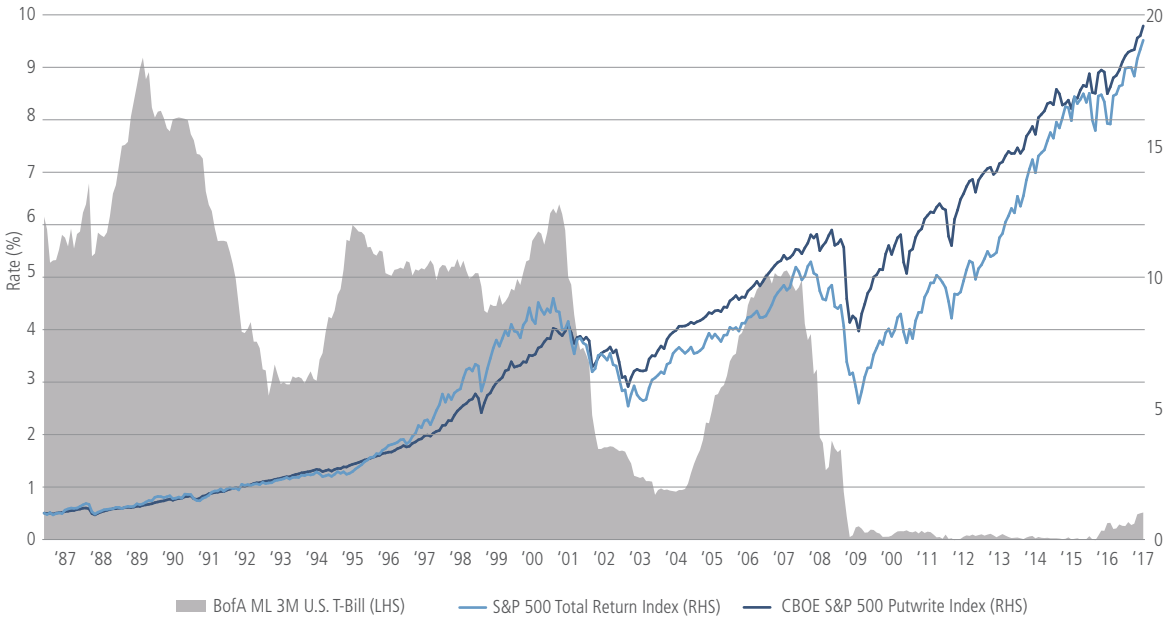
*No ETF for MSCI USA.
Source: Bloomberg LP.

By gaining the exposure through short put options and collateral portfolio consisting of U.S. T-Bills, the PUT Index accepts option related risks. Principally, it accepts exposures related to the price and volatility of an equity index (delta and implied volatility) and interest rates. Risks related to delta and implied volatility are directly related to the underlying index and essentially eliminate the index relative risks highlighted with SPLVI and USMVI.

An equity index PutWrite can possess interest rate sensitivity in two ways. The first and less relevant is the sensitivity of a put option to changes in interest rates (rho). This exposure is minimized by focusing on short-dated options and becomes relevant for longer-dated options. The second is the collateral portfolio, but if exposures are limited to short-term U.S. Treasuries then risk is also limited. Unfortunately, despite a long history of interest rate data, most modern investment strategies have a history that only span a few brief periods of rising interest rates. So looking at history offers only a limited perspective. Nevertheless, below is a historical analysis of the PUT Index returns over notable interest rate regimes.

INDEX UNIT VALUE VS. 3M U.S. T-BILL RATES

June 1986 – September 2016



Source: Bloomberg LP.

The CBOE S&P 500 PutWrite (PUT) Index incepted in June 2007 with historical back-tested data available since 6/30/1986. Investing entails risks, including possible loss of principal.

Past performance is no guarantee of future results.

INDEX TOTAL RETURNS BY INTEREST RATE REGIME

	Cumulative Chg. 3M US T-Bill Rate (bps)	S&P 500 Index	CBOE S&P 500 PutWrite	PutWrite Excess Return to S&P 500 Index	S&P 500 Low Vol	S&P 500 Low Vol Excess Return to S&P 500 Index	MSCI USA Min Vol Index	MSCI USA Min Vol Excess Return to S&P 500 Index
Rising Rates								
Jan 1994 to Jan 1995	297	0.53	7.32	6.79	-1.26	-1.79	-0.09	-0.62
Sep 1998 to Oct 2000	203	19.15	21.94	2.78	7.15	-12.00	12.67	-6.48
Apr 2004 to Jul 2006	411	8.47	9.67	1.20	10.54	2.07	10.78	2.31
Average				3.59		-3.91		-1.60
Declining Rates								
Mar 1989 to Sep 1992	-644	14.2	16.8	2.56	14.6	-1.39	16.3	0.26
Oct 2000 to May 2003	-511	-13.0	-5.0	7.96	6.7	19.64	-6.5	6.51
Jan 2007 to Dec 2008	-503	-19.8	-11.8	8.04	-12.0	7.81	-13.2	6.61
Average				5.38		8.69		4.46
Flat Rates								
Sep 1992 to Jan 1994	29	14.3	14.3	-0.01	12.4	-1.9	15.2	0.86
Jan 1996 to Aug 1998	-22	19.4	15.5	-3.82	13.6	-5.81	15.6	-3.73
Dec 2008 to Oct 2015	-1	15.4	11.4	-4.04	14.8	-0.63	15.1	-0.27
Average				-2.62		-2.78		-1.05

Source: Bloomberg.

The CBOE S&P 500 PutWrite (PUT) Index incepted in June 2007 with historical back-tested data available since 6/30/1986. Investing entails risks, including possible loss of principal.

Past performance is no guarantee of future results.

The data supports our expectations that the CBOE S&P 500 PutWrite Index has performed well versus the underlying S&P 500 Index during periods of rising interest rates. The short-duration of the PUT Index's collateral portfolio, a blend of 1M and 3M U.S. T-Bills, avoided duration risk and was able to benefit from increases in short-term rates as it rolls T-Bills at maturity. We also manage our collateral portfolios to avoid significant rate risk and potentially dampen strategy volatility during periods of market stress.

Looking at the full 30-year period, we might hypothesize that the PUT Index tended to outperform the S&P 500 over periods of both rising and declining rates because equity market volatility tended to be higher when interest rates adjusted and markets may have been less directional. Whereas, the periods of relatively flat rates with reasonably stable levels of volatility proved too profitable for the S&P 500 versus the PUT Index.

Meanwhile, going a step further, the delta, implied volatility and interest rate risks can be systematically managed to improve the results of the PUT Index and further enhance the 'low volatility' equity exposure offered by a PutWrite strategy. We provide the statistical comparison of our S&P 500 Index PutWrite strategy to various other indices:

RETURN & RISK STATISTICS

July 2011 – January 2017

	NB S&P 500 PutWrite Rep. Account	CBOE S&P 500 PutWrite Index	S&P 500 Index	S&P 500 Low Volatility Index	MSCI USA Minimum Volatility Index	Barclays U.S. High Yield Index
Ann. Total Return	**9.4%**	8.2%	12.7%	12.9%	13.2%	6.7%
Ann. Volatility	**5.5%**	8.1%	11.6%	9.2%	8.8%	6.5%
Risk-Adjusted	**1.73**	1.01	1.09	1.39	1.49	1.04
Beta to Index	**0.43**	0.58	1.00	0.58	0.62	0.41
Median 30-Day Return	**0.9%**	0.8%	1.3%	1.1%	1.2%	0.7%
Up-Market Capture	**53%**	56%	100%	74%	77%	48%
Down-Market Capture	**30%**	44%	100%	43%	47%	43%
Max Drawdown	**-6%**	-11%	-14%	-5%	-6%	-10%

Source: Bloomberg LP.

RELATIVE RISK STATISTICS

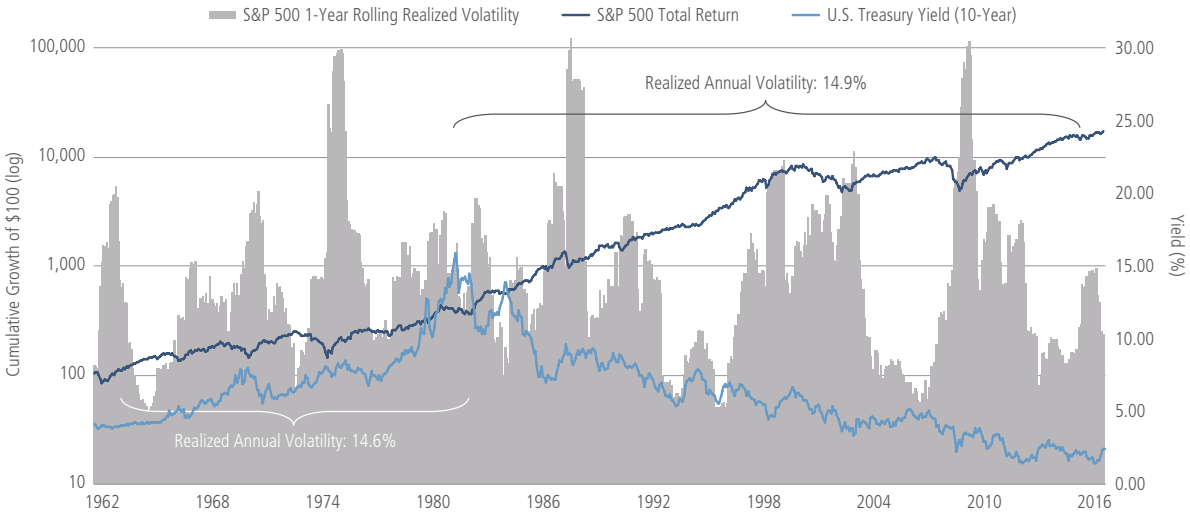
December 1990 – January 2017

	NB S&P 500 PutWrite Rep. Account vs. S&P 500	CBOE S&P 500 PutWrite Index vs. S&P 500	S&P 500 Low Volatility Index (SPLVI) vs. S&P 500	MSCI USA Minimum Volatility Index (USMVI) vs. MSCI USA
Tracking Error	**6.86%**	6.63%	9.45%	5.90%
Correlation	**0.92**	0.83	0.75	0.92
Active Share (vs SPY)	**n/a**	n/a	68%	33%*

*No ETF for MSCI USA Holdings.
Source: Bloomberg LP.

Lastly, the charts below help illustrate the reasons we have confidence in the 'present context' of index put writing. First, option premiums are generally related to index volatility. Hence, historically, the PUT Index performance, relative to the S&P 500, has benefited from higher volatility levels. Should S&P 500 Index volatility increase as interest rates move towards longer term averages or back to historical lows, then an index PutWrite would likely collect more premiums as compensation for the increased levels of index price risk. Further, in a rising interest rate environment, collateral investments can generate additional income. In the scenario in which volatility remains relatively constrained as it has since 2009, then we would expect our index put writing to continue to earn an attractive risk-adjusted return. What will happen is anyone's guess, but we believe index put writing is less biased towards recent history than traditional low volatility equity strategies and is uniquely positioned to benefit from increased equity market uncertainty without assuming additional risks related to sectors, return factors, market capitalization or interest rates.

S&P 500 INDEX VS. U.S. TREASURY YIELDS (10-YEAR) WITH 1-YEAR S&P 500 REALIZED VOLATILITY
January 1962 – February 2017



Conclusion

To be clear, we are not advocating against low volatility equity strategies that employ backward looking statistical analysis. Rather, our objective was to draw a comparison between the widely accepted statistical approaches and the structural based methods of index put writing. Consistent with the philosophical approach we deploy in our option writing strategies, we do not know what will happen in the future and believe the best course for an investor is most likely to diversify their approach to low volatility equity investing by allocating to both structural and statistical portfolio methodologies. In closing, we provide as summary blended allocations to S&P 500 PutWrite representative account performance and the S&P 500 Low Volatility Index versus the S&P 500 Index.

RETURN & RISK STATISTICS
July 2011 – February 2017

	S&P 500 Index	CBOE S&P 500 PutWrite Index	S&P 500 Low Volatility Index (SPLV)	NB S&P 500 PutWrite (NB PW)	**50% SPLV 50% NB PW**
Total Return	13.2%	8.2%	13.5%	9.6%	**11.6%**
Volatility	11.6%	8.1%	9.3%	5.4%	**6.8%**
Risk-Adjusted	1.14	1.01	1.46	1.76	**1.71**
Beta	1.00	0.58	0.58	0.43	**0.51**
Max DD	-13.9%	-11.3%	-5.3%	-5.9%	**-5.1%**
Up-Market	1.00	0.56	0.75	0.53	**0.64**
Down-Market	1.00	0.44	0.43	0.30	**0.37**

The benefit of diversifying across the different approaches is manifest. Given the recent success of the S&P 500 and that the structure of a put writing strategy generally results in limited upside market participation, we believe that the benefits of combining the structural and statistical approaches will persist regardless of future underlying market dynamics. And importantly, the risk-efficiency potential of the structural approach can require smaller allocations away from low-cost passive exposures, essentially achieving more with less.

Index Definitions

The S&P 500 consists of 500 stocks chosen for market size, liquidity, and industry group representation. It is a market value weighted index (stock price times number of shares outstanding), with each stock's weight in the Index proportionate to its market value. The "500" is one of the most widely used benchmarks of U.S. equity performance. As of September 16, 2005, S&P switched to a float-adjusted format, which weights only those shares that are available to investors, not all of a company's outstanding shares. The value of the index now reflects the value available in the public markets.

The CBOE S&P 500 PutWrite Index (PUT) is designed to track the performance of an index option put writing strategy that sells a sequence of one-month, at-the-money, S&P 500 Index puts and invest cash at one- and three-month Treasury Bill rates. The number of puts sold varies from month to month, but is limited so that the amount held in Treasury Bills can finance the maximum possible loss from final settlement of the SPX puts, i.e., put options are fully collateralized.

The MSCI ACWI (All Country World Index) Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets. As of November 27, 2013, the MSCI ACWI consists of 44 country indices comprising 23 developed and 23 emerging market country indices. The developed market country indices included are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States. The emerging market country indices included are: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey, and United Arab Emirates.

The BofA Merrill Lynch U.S. T-Bill 0-3 Month Index tracks the performance of the U.S. dollar denominated U.S. Treasury Bills publicly issued in the U.S. domestic market with a remaining term to final maturity of less than 3 months.

The S&P 500® Low Volatility Index measures performance of the 100 least volatile stocks in the S&P 500. The index benchmarks low volatility or low variance strategies for the U.S. stock market. Constituents are weighted relative to the inverse of their corresponding volatility, with the least volatile stocks receiving the highest weights.

The MSCI USA Minimum Volatility (USD) Index aims to reflect the performance characteristics of a minimum variance strategy applied to the large and mid cap USA equity universe. The index is calculated by optimizing the MSCI USA Index, its parent index, in USD for the lowest absolute risk (within a given set of constraints). Historically, the index has shown lower beta and volatility characteristics relative to the MSCI USA Index.

Global PutWrite Equal Weight (ATM) Composite– Inception 2/28/2011

	Composite		Benchmark		Composite						
	Composite Total Return (Gross of Fees)	Composite Total Return (Net of Fees)	Global 0.5 Beta Index	Global 1.0 Beta Index	No. of Accounts	Market Value	Total Firm Assets	% of Firm Assets	Internal Dispersion	Composite 3 Year Standard Deviation	Global 0.5 Beta 3 Year Standard Deviation
	%	%	%	%		(millions)	(billions)	%		%	%
YTD Sep-16	4.36	3.85	4.45	8.52	≤5	256.1	N/A	N/A	N/A	6.25	5.99
2015	-0.27	-0.92	-2.22	-4.87	≤5	246.1	240.4	0.0	N/A	6.31	7.09
2014	2.96	2.30	1.13	2.02	≤5	246.0	250.0	0.0	N/A	7.09	5.67
2013	9.18	8.47	8.22	16.76	≤5	106.1	241.7	0.0	N/A	N/A	N/A
2012	21.61	20.83	8.69	17.38	≤5	2.4	205.0	0.0	N/A	N/A	N/A
10 Mo. 2011	3.24	2.68	-6.33	-13.02	≤5	2.0	193.1	0.0	N/A	N/A	N/A

Compliance Statement

- Neuberger Berman Group LLC (NBG, "Neuberger Berman" or the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS® standards. Neuberger Berman was independently verified for the period January 1, 2011 to December 31, 2015. The GIPS® firm definition was redefined effective January 1, 2011. For prior periods there were two separate firms for GIPS® firm definition purposes and such firms were independently verified for the periods January 1, 1997 to December 31, 2010 and January 1, 1996 to December 31, 2010, respectively. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS® standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS® standards. Verification does not ensure the accuracy of any specific composite presentation. The verification reports are available upon request.

Definition of the Firm

- The firm is currently defined for GIPS® purposes as Neuberger Berman Group LLC, (NBG, "Neuberger Berman" or the "Firm"), and includes the following subsidiaries: Neuberger Berman LLC, Neuberger Berman Investment Advisers LLC, Neuberger Berman Europe Ltd., Neuberger Berman Asia Ltd., Neuberger Berman East Asia Ltd., Neuberger Berman Singapore Pte. Ltd., Neuberger Berman Taiwan Ltd, Neuberger Berman Australia Pty. Ltd., Neuberger Berman Trust Company N.A., Neuberger Berman Trust Company of Delaware N.A., NB Alternatives Advisers LLC and NB Alternative Investment Management LLC. The GIPS® firm definition was redefined effective January 1, 2011. For prior periods there were two separate firms for GIPS® firm definition purposes and such firms, including any predecessor and successor entities, are now subsidiaries that are included in the Firm. Effective January 1, 2016, Neuberger Berman Fixed Income LLC was renamed Neuberger Berman Investment Advisers LLC. On July 1, 2016, Neuberger Berman Management LLC was merged with and into Neuberger Berman LLC.

Policies

- Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

Composite Description

- The Global Equity Index Put/Write (ATM) strategy (the "Composite") represents the performance of all fee-paying, discretionary accounts regardless of market value. The composite was created in January 2016. The Composite seeks to both increase long term return potential and reduce strategy volatility. Underlying index exposures are selected consistent with client asset allocations, and risk parameters are set with client's risk/return objectives.

Composite Description (continued)

- Collateral investments reflect investor preferences and are managed with an emphasis on capital preservation. Option exposure is managed to increase diversification across tenors and strike prices and reduce downside risk from high delta option positions during down markets. Option positions with little remaining time values can be rolled to collect additional premiums and increase capital efficiency. The performance history of the Composite prior to January 1, 2016 is comprised of the performance history of the accounts managed by the portfolio management team while at a predecessor firm. A complete list and description of Neuberger Berman's composites and performance results is available upon request.

Benchmark Description

- The benchmarks are the Global 0.5 Beta Index which is a risk-matched index that is comprised of 50% of the underlying equity index exposure and 50% allocation to the BofA M. 0-3 month US Tbill Index rebalanced monthly. The Global 1.0 Beta Index is comprised of 33.33% allocation to each of the S&P 500, MSCI EAFE Net and MSCI EM Net indices rebalanced monthly. Net total return indexes reinvest dividends after the deduction of withholding taxes, using (for international indexes) a tax rate applicable to non-resident institutional investors who do not benefit from double taxation treaties.

Reporting Currency

- Valuations are computed and performance is reported in U.S. dollars.

Fees

- The maximum fee is 65 basis points per annum.

Fee Schedule

- The annual investment advisory fee, payable quarterly, for each portfolio with a market value of less than $50mm is: 0.65% for the next $50mm of market value is 0.55%; 0.45% over $100mm

Internal Dispersion

- Internal dispersion is calculated using the asset weighted standard deviation of annual gross returns of those portfolios that were in the composite for the entire year.

Annualized Standard Deviation

- The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The standard deviation is not required for periods prior to 2011.

This material is intended as a broad overview of the portfolio managers' current style, philosophy and process. This material has been prepared exclusively for the recipient and is not for redistribution. This material is provided for informational purposes only and nothing herein constitutes investment, legal, accounting or tax advice, or a recommendation to buy, sell or hold a security. Information is obtained from sources deemed reliable, but there is no representation or warranty as to its accuracy, completeness or reliability. All information is current as of the date of this material and is subject to change without notice. Any views or opinions expressed may not reflect those of the firm as a whole. Third-party economic or market estimates discussed herein may or may not be realized and no opinion or representation is being given regarding such estimates. Neuberger Berman products and services may not be available in all jurisdictions or to all client types. Investing entails risks, including possible loss of principal. Diversification does not guarantee profit or protect against loss in declining markets. Investments in hedge funds and private equity are speculative and involve a higher degree of risk than more traditional investments. Investments in hedge funds and private equity are intended for sophisticated investors only. Indexes are unmanaged and are not available for direct investment. **Past performance is no guarantee of future results.**

This material may include estimates, outlooks, projections and other "forward-looking statements." Due to a variety of factors, actual events or market behavior may differ significantly from any views expressed.

Representative portfolio information (characteristics, holdings, weightings, etc.) is based upon the composite or a representative/model account. Representative accounts are selected based on such factors as size, length of time under management and amount of restrictions. Any segment level performance shown (equity only or fixed income only) is presented gross of fees and focuses exclusively on the investments in that particular segment of the portfolio being measured (equity or fixed income holdings) and excludes cash. Client accounts are individually managed and may vary significantly from composite performance and representative portfolio information. Specific securities identified and described do not represent all of the securities purchased, sold or recommended for advisory clients. It should not be assumed that any investments in securities, companies, sectors or markets identified and described were or will be profitable.

Gross of fee returns do not reflects the deduction of investment advisory fees and other expense. If such fees and expense were reflected, returns referenced would be lower. Advisory fees are described in Part 2 of Neuberger Berman's Form ADV. A client's return will be reduced by the advisory fees and any other expenses it may incur in the management of its account. The deduction of fees has a compounding effect on performance results. For example, assume Neuberger Berman achieves a 10% annual return prior to the deduction of fees each year for a period of ten years. If a fee of 1% of assets under management were charged and deducted from the returns, the resulting compounded annual return would be reduced to 8.91%. Please note that there is no comparable reduction from the indices for the fees.

All information as of the date indicated. Firm data, including employee and assets under management figures, reflect collective data for the various affiliated investment advisers that are subsidiaries of Neuberger Berman Group LLC (the "firm"). Firm history includes the history of all firm subsidiaries, including predecessor entities. Investment professionals referenced include portfolio managers, research analysts/associates, traders, and product specialists and team dedicated economists/strategists.

Neuberger Berman Investment Advisers LLC is a registered investment adviser.

The "Neuberger Berman" name and logo are registered service marks of Neuberger Berman Group LLC.

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