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STRATEGY 201

S&P 500® Low Volatility Index: Low and Slow Could Win the Race

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Low-volatility investing has been around since the earlier 1970s but it has gained momentum in recent years as global markets have grown increasingly choppy and erratic. With so much uncertainty in riskier investments, many investors are seeking calmer waters for at least a portion of their portfolios.

To that end, there are two approaches to creating low-volatility portfolios (see Exhibit 1 below):

The first approach consists of constructing a traditional minimum variance optimized portfolio through the estimation of covariance matrix of stock returns.

The second approach involves ranking a universe of securities based on their past volatility and placing them into quantiles. Several pieces of academic literature have shown that both approaches reduce volatility to a similar extent over the long-term.

Exhibit 1: Low-Volatility Investment Approaches

	Optimization-Based Low-Volatility Portfolios	Rank-Based Low-Volatility Portfolios
Portfolio construction	Mean variance optimized through the estimation of covariance matrix of stock returns	Ranking based on past volatility measure
Complexity	High	Simple
Number of stocks	40-55	100
Number of factors required to estimate	Multiple, depending on whether a risk model is used	One (past volatility)

The S&P 500® Low Volatility Index addresses the need for an easily comprehensible and transparent benchmark for managed volatility equity strategies. The S&P 500 Low Volatility Index comprises the 100 least-volatile stocks in the S&P 500.

Volatility is measured as the standard deviation of price changes over the trailing 252 days. The 100 securities are then ranked and weighted according to their volatility, with higher weights assigned to less-volatile stocks. The index is rebalanced quarterly. Historical data shows that an index comprising low-volatility securities outperform more-volatile securities by providing better downside protection during volatile periods while offering favorable relative annualized returns.

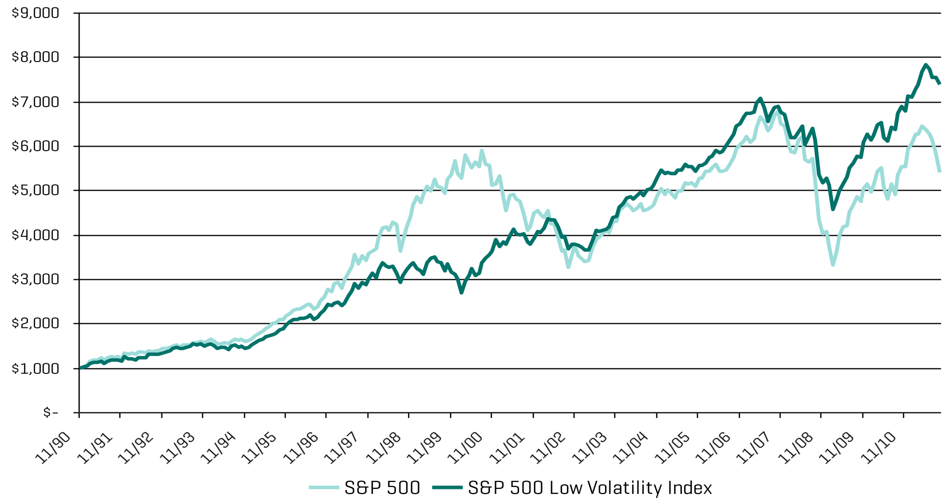
1. LOWER RISK DOESN'T MEAN HAVING TO SETTLE FOR LOWER RETURNS

Getting better returns without taking higher risks may seem counterintuitive. However, the simple, yet powerful low-volatility investment approach has resulted in higher relative performance compared to the parent index over a long-term period.

[1]Bliz, D.C and P. van Vliet (2007),The Volatility Effect: Lower Risk Without Lower Return, Journal of Portfolio Management, Vol. 34, No.1; Bliz, D.C and P. van Vliet (2011),Benchmarking Low Volatility Strategies, Journal of Index Investing, Vol. 2, No.1; and Baker, Malcolm, Brendan Bradley and Jeffrey Wurgler (2011),Benchmarks as Limits to Arbitrage: Understanding the Low Volatility Anomaly, Financial Analysts Journal, Volume 67, No.1.

For example, a hypothetical investment in the S&P 500 Low Volatility Index made on November, 30, 1990, would have generated higher returns than the same investment in the S&P 500 as of September 30, 2011 (see Exhibit 2 on the following page).

Exhibit 2: Relative Performance of the S&P 500 Low Volatility Index and the S&P 500



Source: Standard & Poor's. Data as of September 30, 2011. Charts and tables are provided for illustrative purposes. It is not possible to invest directly in an Index. Past performance is not indicative of future results. This chart 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.

The S&P 500 Low Volatility Index outperforms the S&P 500 over near-, medium-, and long-term investment horizons.

In terms of annualized, risk-adjusted returns, the S&P 500 Low Volatility Index outperforms the S&P 500 over near-, medium- and long-term investment horizons (see Exhibit 3 below). The S&P 500 Low Volatility Index's realized volatility is 30% lower over a 10-year period and 24% lower over 20 years.

Exhibit 3: Risk/Return Profile of the S&P Low Volatility Index and the S&P 500		
	S&P 500 Low Volatility Index	S&P 500
Annualized Return		
1-Year	9.89%	1.14%
3-Year	6.36%	1.23%
5-Year	3.34%	-1.18%
10-Year	6.81%	2.82%
15-Year	8.35%	5.23%
20-Year	9.64%	7.64%
Annualized Standard Deviation		
3-Year	14.25%	21.25%
5-Year	12.69%	18.32%
10-Year	10.73%	15.75%
15-Year	12.21%	16.50%
20-Year	11.47%	15.08%
Sharpe Ratio		
3-Year	0.143	-0.106
5-Year	0.060	-0.072
10-Year	0.143	-0.046
15-Year	0.139	0.015
20-Year	0.168	0.054
Maximum Drawdown	-35.36%	-50.95%

Source: Standard & Poor's. Data as of September 30, 2011. Charts and tables are provided for illustrative purposes. Past performance is not indicative of future results. This table 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.

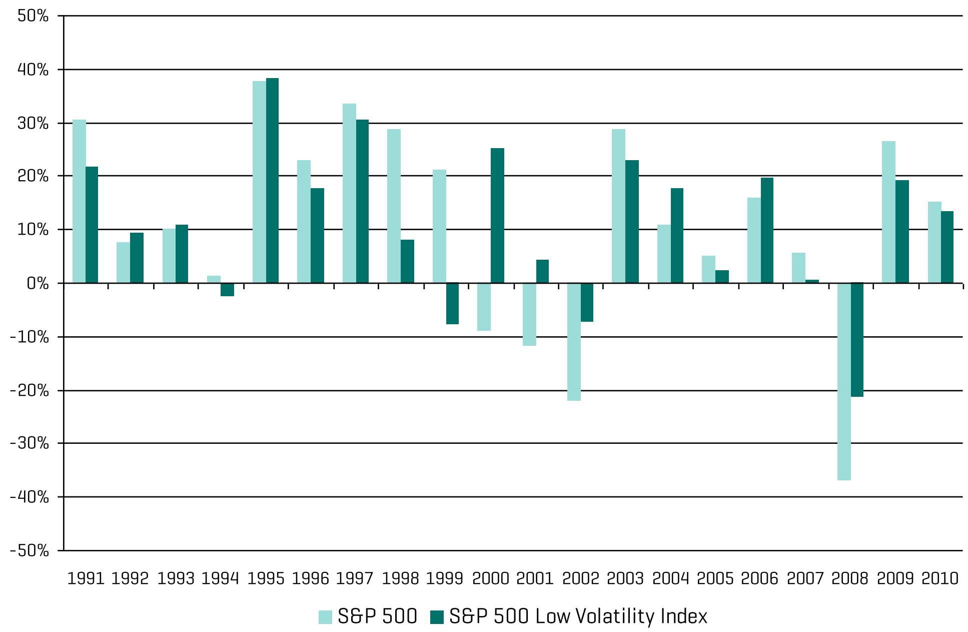
2. LOW VOLATILITY PERFORMANCE IN TIMES OF BULLS AND BEARS

Low-volatility funds may provide lower gains during "up" markets, especially if it's a short-term spike. The S&P Low Volatility Index's calendar year returns lagged behind those of the S&P 500 during the bull markets of 1995 to 1999 (see Exhibit 4 below). Similarly, as also shown in Exhibit 3, the S&P 500 Low Volatility Index's returns fell behind during the most-recent bull market cycle from 2003 to 2007 (with the exception of 2006).

However, during the bear markets of 2000 to 2002 and 2008, the S&P 500 Low Volatility Index's returns declined significantly less than those of the S&P 500. The data suggests that while the S&P 500 Low Volatility Index does not participate fully in the bull market rallies, it may provide a level of downside protection when markets turn bearish.

The S&P 500 Low Volatility Index may provide a level of downside protection in a bearish market.

Exhibit 4: Calendar-Year Returns of the S&P 500 Low Volatility Index versus the S&P 500



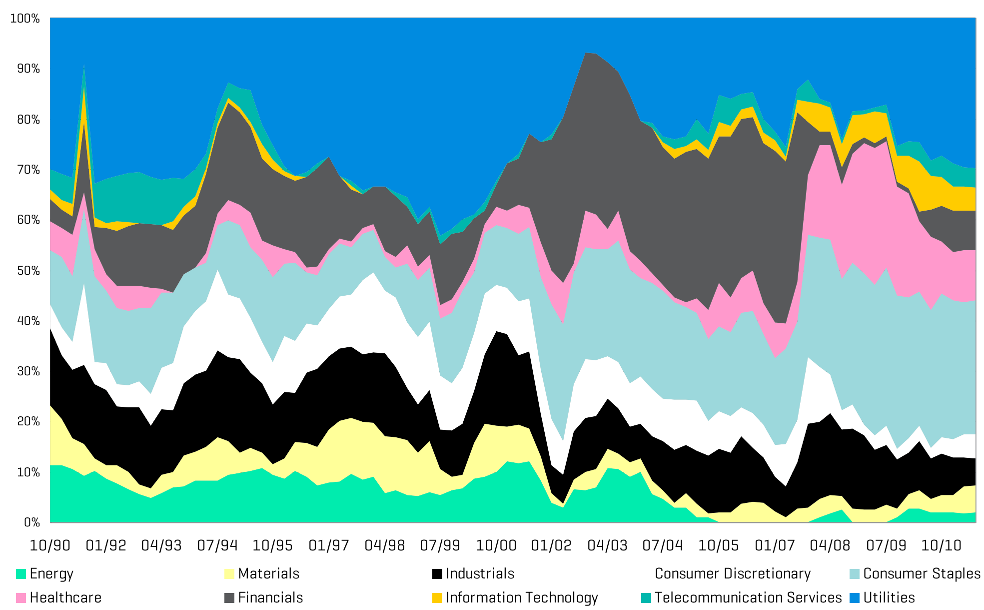
Source: Standard & Poor's. Data as of September 30, 2011. Charts and tables are provided for illustrative purposes. This chart reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

3. SECTOR DIVERSIFICATION

Conventional wisdom suggests that low-volatility portfolios comprise traditionally defensive sectors such as utilities and consumer staples. However, the S&P 500 Low Volatility Index has maintained a healthy sector diversification over time without significantly clumping in any one sector (see Exhibit 5 on the following page).

The S&P 500 Low Volatility Index had considerably lower exposure than the S&P 500 prior to the credit meltdown of 2008.

Exhibit 5: The S&P 500 Low Volatility Index's Sector Composition over Time



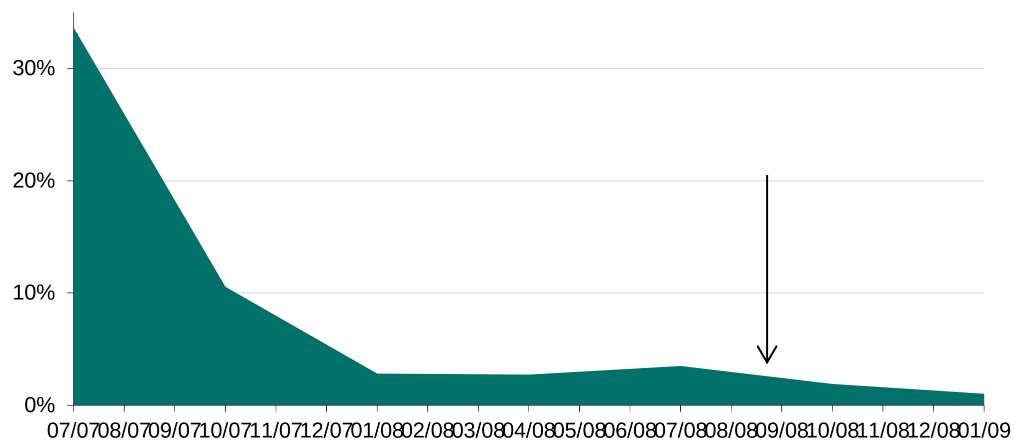
Source: Standard & Poor's. Data as of September 30, 2011. Charts are provided for illustrative purposes. This chart reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Comparing the S&P 500 Low Volatility Index's sector exposure with that of the S&P 500 (prior to periods of significant market unrest) sheds more light on how the index's makeup can contribute to the performance of a low volatility approach.

During the technology bubble of 1995 to 2000, sector analysis shows that the S&P 500 Low Volatility Index maintained zero to minimal weight in the information technology sector. In contrast, the S&P 500 had as much as 28.5% in the sector at the peak of the bubble.

Similarly, in the months prior to the collapse of Lehman Brothers and the credit market meltdown of 2008, the S&P 500 Low Volatility Index had considerably lower exposure to the financial sector. As of the July 2008 rebalance, the weight of the financial sector in the S&P 500 Low Volatility Index was 3.5%, compared with the S&P 500's financial sector weight of 15.11%. The S&P 500 Low Volatility Index's participation in the financial sector dropped to a minimal level months before the collapse (see Exhibit 6 on the following page).

Exhibit 6: The S&P 500 Low Volatility Index's Exposure to the Financial Sector Leading Up to the 2008 Financial Crisis



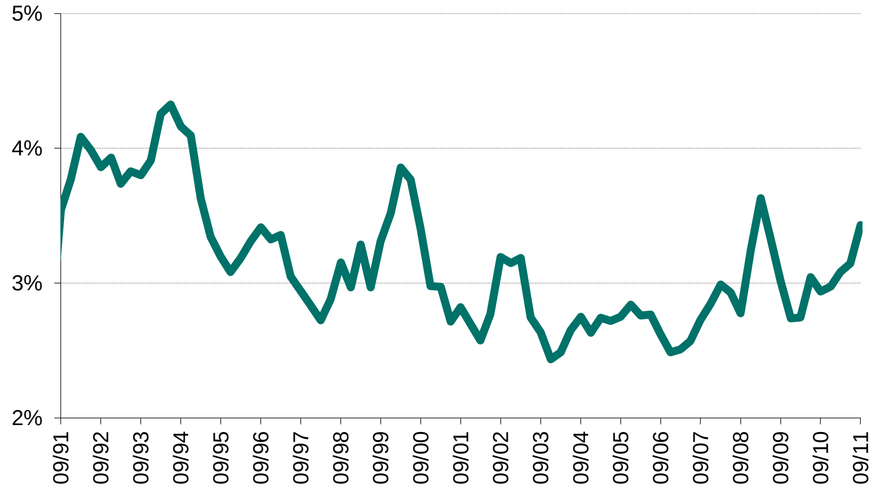
Source: Standard & Poor's. Data as of September 30, 2011. Charts and tables are provided for illustrative purposes. This chart reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

4. HIGHER YIELDS FROM THE S&P 500 LOW VOLATILITY INDEX

The S&P 500 Low Volatility Index provides a higher yield compared to that of the S&P 500.

The S&P 500 Low Volatility Index provides a higher yield compared to that of the S&P 500. Historical data shows the S&P 500 Low Volatility Index provided a yield of 2.4% to 4.3% from November 30, 1990, to September 30, 2011 (see Exhibit 7 below). The index's yield was 3.43% as of September 30, 2011, compared to the S&P 500's 2.18% yield.

Exhibit 7: Historical Yields of the S&P 500 Low Volatility Index



Source: Standard & Poor's. Data as of September 30, 2011. Charts and tables are provided for illustrative purposes. This chart 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.

5. CONCLUSION

The S&P 500 Low Volatility Index follows a rules-based, transparent and replicable methodology that can be easily understood by investors. It delivers superior returns over the parent S&P 500 with significantly lower volatility. This desirable risk/return profile should provide portfolio diversification when used within the strategic asset allocation process.

Exhibit 8: ETF Linked to the S&P 500 Low Volatility Index	
ETF	Ticker
PowerShares S&P 500 Low Volatility Portfolio	SPLV

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Performance Disclosure

The launch date of the S&P 500 Low Volatility Index was April 4, 2011 at the market close. All information presented prior to the index inception date is back-tested. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. Complete index methodology details are available at www.spdji.com/spindices.

Past performance is not an indication of future results. Prospective application of the methodology used to construct the S&P Global Infrastructure Index, the S&P Emerging Markets Infrastructure Index, the Dow Jones Brookfield Global Infrastructure Index, and the Dow Jones Brookfield Emerging Markets Infrastructure Index may not result in performance commensurate with the back-test returns shown. 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 or www.spdji.com/spindices 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. It is not possible to invest directly in an Index.

Another limitation of back-tested hypothetical information is that generally the back-tested calculation is prepared with the benefit of hindsight. Back-tested data reflect 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 (or 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 investor assets. S&P/Dow Jones Indices LLC maintains the indices 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 would pay to purchase the securities they represent. The imposition of these fees and charges would cause actual and back-tested performance to be lower than the performance shown. In 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% were 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 3 years, 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).