The S&P 500® is the most widely used index in the insurance market. Over 92% of the top fixed indexed annuity products offer accounts linked to the S&P 500. As more attention shifts towards product diversification and market differentiation within the insurance space, carriers and agents are seeking additional cost efficient and attractive index annuity options for their clients.

For an index to serve as the underlying vehicle for indexed annuity products, it has to be replicable, simple and liquid. The S&P 500 Equal Weight Index, S&P MidCap 400® S&P 500 Risk Control indices and S&P 500 Low Volatility Index meet all three of these.

1. S&P 500 Equal Weight Index: A twist on the iconic S&P 500, the index contains the same 500 constituents but uses a different weighting scheme. While the S&P 500 weights each company by its market value (for example, a USD 50 billion dollar company will receive five times more weight than a USD 10 billion dollar company), its equal-weighted counterpart assigns an equal weight to all 500 constituents on a quarterly basis. As illustrated in Exhibits 1 and 2 on the next page, over the last decade this slight twist has resulted in significant outperformance versus the headline index.

2. S&P MidCap 400: This index represents the mid-cap segment of the U.S. equity market and generally includes companies in the USD 1 to USD 4.4 billion market capitalization range. Its constituents are distinct from those of the S&P 500 and S&P SmallCap 600®, and there is no overlap between the companies in the S&P 500, S&P MidCap 400 and S&P SmallCap 600. These mid-cap companies are also typically larger than small-cap companies included in small-cap indices such as the S&P SmallCap 600 and Russell 2000® Index, but are smaller than blue chips. Exhibits 1 and 2 on the following page show that over the last decade, the mid-cap segment of the U.S. equity market outperformed the large- and small-cap segments.

3. S&P 500 Daily Risk Control 10% Index: The S&P Risk Control methodology allows an investor to target a certain volatility level through a framework that dynamically allocates the investment between the S&P 500 and cash based on the volatility of the S&P 500. The S&P 500 Daily Risk Control 10% Index represents an investment consisting of the S&P 500 and cash such that the volatility of the investment is capped at 10%. The allocation to cash and S&P 500 is computed daily based on the trailing volatility of the S&P 500 Index. The S&P 500 Risk Control index series is also available targeting risk levels of 5%, 7.5%, 12% and 15%. One of the main characteristics of the Risk Control framework is that it is parameterized and hence, highly configurable.


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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. In the U.S. markets, academics have shown that the low volatility anomaly, which implies that low volatility stocks have outperformed their higher volatility counterparts over the medium to longer term, has existed for the last four and half decades. This index has outperformed the S&P 500 over the last 10 years while reducing the volatility by about 27% compared to the S&P 500.

<table>
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<tr>
<th>Exhibit 1: Index Statistics</th>
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<tr>
<td>10-Year Return</td>
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<td>10-Year Volatility</td>
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<td>10-Year Correlation with the S&amp;P 500</td>
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Source: S&P Dow Jones Indices, as of September 30, 2013. Charts are provided for illustrative purposes. Past performance is not a guarantee of future results. These charts and graphs may reflect 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 2: 10-Year Return History

Source: S&P Dow Jones Indices, as of September 30, 2013. Charts are provided for illustrative purposes. Past performance is not a guarantee of future results. These charts and graphs may reflect 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 3: 252-Day Realized Volatility

Source: S&P Dow Jones Indices, as of September 30, 2013. Charts are provided for illustrative purposes. Past performance is not a guarantee of future results. These charts and graphs may reflect 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.

Hedging Costs

A major concern for issuers of annuity products is hedging costs. To construct an annuity product, the issuer typically needs a zero coupon bond structure to protect the principal, as well as an option package to participate in the market growth. The cost of the zero coupon bond depends purely on the interest rate, the maturity and the principal protection rate. It is independent of the underlying index. Exhibits 4 and 5 below illustrate the cost of the option package embedded in an annuity product based on different S&P Dow Jones indices, assuming 100% principal protection.

Exhibit 4 below shows the value of the embedded options based on different S&P Dow Jones indices with various participation rates. The annuity products are constructed as follows:

Valuation date: November 3, 2013; Maturity: November 3, 2014
Principal protection rate: 100%
Floor: 0%
Capped return: None

Source: Numerix via Bloomberg. Charts are provided for illustrative purposes.
Exhibit 5 below shows the value of the embedded options based on different S&P Dow Jones indices with various capped returns. The annuity products are constructed as follows:

Valuation date: November 3, 2013; Maturity: November 3, 2014
Principal protection rate: 100%
Participation rate: 100%
Floor: 0%

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Source: Numerix via Bloomberg. Charts are provided for illustrative purposes.

The Practice Essentials series is a curriculum-based, educational program covering selected financial markets, asset classes and indexing concepts.

www.spdji.com
Performance Disclosure

The S&P 500 Daily Risk Control 10% (the "Index") was launched on May 13, 2009. The S&P 500 Low Volatility ("the Index") was launched on April 1, 2011. All information presented prior to the Launch 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 on the Launch Date. Complete index methodology details are available at www.spdji.com.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency on their products. 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 Web site 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.

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. 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 (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.

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