

# The S&P Europe 350<sup>®</sup> and Related Strategies: It's a Family Affair

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S&P Dow Jones Indices introduced the S&P Europe 350 in October 1998. Along with the S&P 500<sup>®</sup>, S&P/TSX 60 and several other widely followed regional indices, the S&P Europe 350 represents the European portion of the S&P Global 1200. Today, the S&P Europe 350 serves as an investable benchmark for the European equity markets and underlies a variety of index-linked financial products such as exchange-traded funds (ETFs), index funds and structured products.

As the adoption of the S&P Europe 350 as an investable benchmark has increased, S&P Dow Jones Indices has introduced various tradable strategies based on the index. These strategies address market participants' need for managed risk strategies and access to a variety of factors and themes, such as dividends and low risk. Currently, the suite of such strategies includes:

- The S&P Europe Equal Weight Index
- The S&P Europe 350 Dividend Aristocrats<sup>®</sup>
- The S&P Europe 350 Low Volatility Index
- The S&P Europe 350 Risk Control Indices
- The S&P Dynamic Asset Exchange (Europe 350) Index

These strategies can be thought of in two ways: as strategies that tilt the index to factors besides the market factor and as asset allocation strategies. Of the strategies previously mentioned, the factor-based strategies include equal weight, Dividend Aristocrats and low volatility. These are pure equity strategies, while risk control and Dynamic Asset Exchange are asset allocation strategies that distribute between the S&P Europe 350 and cash, or fixed income based on different objectives and signals.

## Exhibit 1: The S&P Europe 350 Index Family



Source: S&P Dow Jones Indices.

## The S&P Europe 350: Overview and Characteristics

The S&P Europe 350 is a float-adjusted, market-capitalization-weighted index that includes the largest and most-liquid stocks from developed Europe. The index is managed in the same way as the S&P 500, in which the 350 stocks are selected by the Index Committee of S&P Dow Jones Indices according to a clearly defined set of rules. Constituents are selected for the index based on size and liquidity, as well as on country and sector representation. Like the S&P 500, the S&P Europe 350 does not simply include the largest 350 stocks in the region. Rather, the index includes leading companies from each of the ten GICS<sup>®</sup> sectors across the 17 markets in the region.

The primary objective of the S&P Europe 350 is to reflect the composition of the regional European equity market, while being efficient to replicate. To achieve this goal, the index covers a high percentage of the market, while including a limited number of constituents. The index also has investment characteristics, such as country and sector composition, that closely resemble those of the broader equity market.

Exhibit 2 depicts the coverage of the S&P Europe 350 relative to the regional equity market. Of note, the S&P Europe BMI is used as a proxy for the investable market, since it covers approximately 99% of the float-adjusted market capitalization within each country included in the index.

<b>Exhibit 2: The S&amp;P Europe 350 Market Coverage</b>					
Country	Float-Adjusted Market Cap (€ Billions)			No. of Stocks	
	S&P Europe 350	S&P Europe BMI	% of S&P Europe BMI	S&P Europe 350	S&P Europe BMI
Austria	17.6	40.1	44.0	4	32
Belgium	111.7	136.5	81.8	10	50
Denmark	107.1	153.6	69.7	7	43
Finland	84.5	122.1	69.2	9	54
France	921.9	1,054.8	87.4	49	181
Germany	856.2	993.4	86.2	38	184
Greece	3.5	21.3	16.6	2	35
Ireland	31.6	59.3	53.3	4	28
Italy	225.7	291.7	77.4	22	112
Luxembourg	27.8	31.8	87.4	3	7
The Netherlands	250.2	311.5	80.3	17	64
Norway	69.9	113.7	61.5	8	75
Portugal	13.6	25.8	52.7	4	18
Spain	305.0	360.5	84.6	17	67
Sweden	296.0	382.1	77.5	27	132
Switzerland	822.1	938.2	87.6	26	135
U.K.	2,081.4	2,436.0	85.4	103	408
<b>Total</b>	<b>6,225.9</b>	<b>7,472.5</b>	<b>83.3</b>	<b>350</b>	<b>1,625</b>

Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results.

Particular care is taken to ensure that the country and sector representation of the S&P Europe 350 is consistent with that of the broader regional equity market, despite including a fixed number of large, liquid companies. As illustrated in Exhibit 3, the country and sector composition of the S&P Europe 350 closely mirrors that of the broader market.

<b>Exhibit 3: The S&amp;P Europe 350 Country and Sector Composition</b>			
Country	S&P Europe 350 (%)	S&P Europe BMI (%)	Variance (%)
Austria	0.3	0.5	-0.3
Belgium	1.8	1.8	0.0
Denmark	1.7	2.1	-0.3
Finland	1.4	1.6	-0.3
France	14.8	14.1	0.7
Germany	13.8	13.3	0.5
Greece	0.1	0.3	-0.2
Ireland	0.5	0.8	-0.3
Italy	3.6	3.9	-0.3
Luxembourg	0.4	0.4	0.0
The Netherlands	4.0	4.2	-0.1
Norway	1.1	1.5	-0.4
Portugal	0.2	0.3	-0.1
Spain	4.9	4.8	0.1
Sweden	4.8	5.1	-0.4
Switzerland	13.2	12.6	0.6
U.K.	33.4	32.6	0.8
Sector	S&P Europe 350 (%)	S&P Europe BMI (%)	Variance (%)
Cons. Disc.	10.1	11.0	-0.9
Cons. Staples	13.2	12.1	1.0
Energy	9.3	8.5	0.7
Financials	21.8	22.0	-0.2
Healthcare	12.8	11.9	0.9
Industrials	11.2	13.2	-2.0
Info. Tech.	3.6	4.2	-0.7
Materials	8.0	7.7	0.2
Telecom	5.9	5.4	0.5
Utilities	4.2	3.8	0.4

Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results.

### Maintenance and Turnover

Typically, additions are only made to the S&P Europe 350 when vacancies occur due to corporate activity. A key advantage of this type of fixed-count index is that it ensures index turnover is kept to a minimum. However, in order to make sure the index continues to reflect the market, the Index Committee reviews the index composition on a quarterly basis and may make additional changes if necessary. Share changes and IPOs are reviewed and updated on a quarterly cycle.

<b>Exhibit 4: The S&amp;P Europe 350 Annual Turnover</b>					
	2009	2010	2011	2012	2013
Annual Turnover (%)	5.69	2.72	2.85	3.56	2.32

Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results.

## Performance Analysis and Comparison to Peer Indices

Exhibit 5 provides a brief methodology overview of the S&P Europe 350 with comparisons to the STOXX<sup>®</sup> Europe 600 and Euro STOXX 50<sup>®</sup>; two widely used European equity indices.

<b>Exhibit 5: Methodology Comparison of the S&amp;P Europe 350 to Peer Indices</b>			
Methodology Component	S&P Europe 350	STOXX Europe 600	Euro STOXX 50
Geographic Coverage	Developed Europe (17 Countries)	Developed Europe (18 Countries including Czech Republic)	Eurozone
Number of Components	350	600	50
Index Selection Criteria	Committee-determined based on size and liquidity, and country and sector representation	The largest 600 stocks in universe, subject to minimum liquidity threshold	Largest 50 companies across 19 ICB Supersectors, subject to minimum liquidity threshold
Sector Classification System	GICS	ICB	ICB
Weighting	Float Market Cap	Float Market Cap	Float Market Cap with a 10% maximum single stock cap.
Rebalancing Frequency	Quarterly review with additions typically only made when vacancies occur	Quarterly review	Annual review with quarterly weighting adjustments

Source: S&P Dow Jones Indices, www.stoxx.com. Data as of (or accessed on) Dec. 31, 2013.

The most important distinction between these indices is that the Euro STOXX 50 is focused exclusively on the eurozone, while the S&P Europe 350 and the STOXX Europe 600 include all of developed Europe. This results in large differences in country composition, since non-eurozone countries such as the U.K., Switzerland and Sweden account for about one-half of the regional equity market. Additionally, STOXX classifies the Czech Republic as a developed market, while S&P Dow Jones Indices classifies it as an emerging market. This results in the Czech Republic market being ineligible for the S&P Europe 350 but included in the STOXX Europe 600.

The comprehensiveness of the indices is also an important factor. The Euro STOXX 50 is a narrow index, including just 50 mega-cap stocks, while the STOXX Europe 600 is a broad index, including large-, mid- and small-cap stocks. The S&P Europe 350 lies in the middle and it is designed to replicate the investment characteristics of broad market European equity benchmarks such as the STOXX Europe 600, while being much more efficient to replicate.

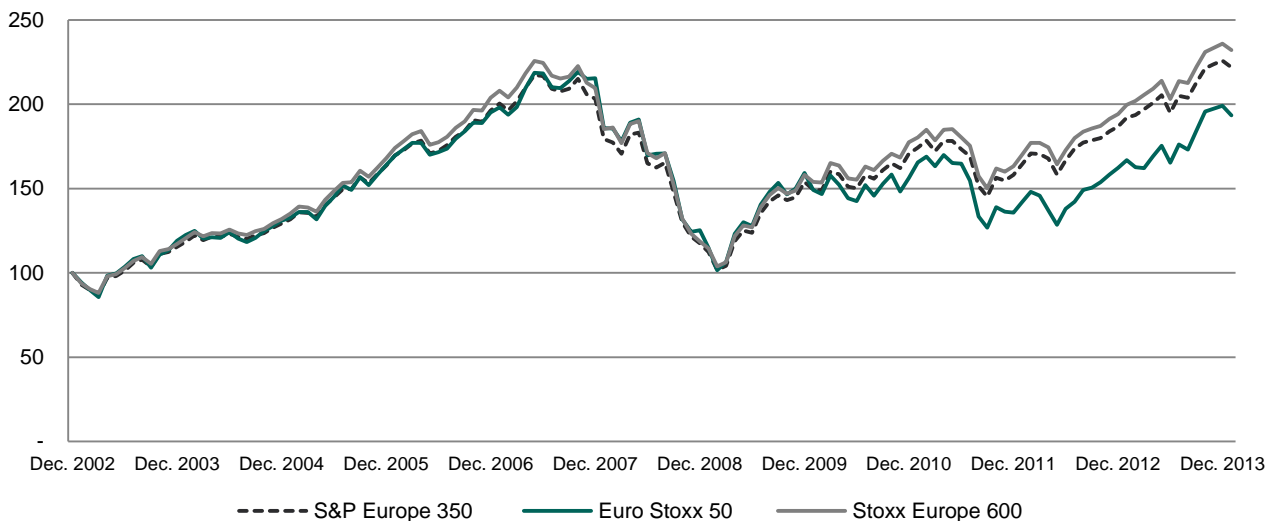
<b>Exhibit 6: Risk/Return and Other Comparisons of the S&amp;P Europe 350 to Peer Indices</b>			
Period	S&P Europe 350	STOXX Europe 600	Euro STOXX 50
<b>Annualized Returns (%)</b>			
1-Year	15.56	16.21	15.95
3-Year	8.41	8.75	5.32
5-Year	14.57	15.17	11.01
10-Year	6.47	6.76	4.68
<b>Annualized Volatility (%)</b>			
3-Year	12.48	12.51	16.70
5-Year	14.53	14.59	18.86
10-Year	14.32	14.56	17.24
<b>Tracking Error (%)</b>			
3-Year	-	0.54	6.55
5-Year	-	0.61	6.67
10-Year	-	1.00	5.63
<b>Correlation to the S&amp;P Europe 350</b>			
3-Year	-	1.00	0.94
5-Year	-	1.00	0.95
10-Year	-	1.00	0.95

Source: S&P Dow Jones Indices, Bloomberg. Data as of Jan. 31, 2014. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results.

As illustrated in Exhibit 6, the S&P Europe 350 and the STOXX Europe 600 have had similar total returns and volatility over the short and long term. Likewise, the correlation between the two indices is 1.0 and the tracking error is less than 1%. This is not surprising given the high level of overlap in the indices' relative composition and similar country and sector weights. Historical performance demonstrates that the S&P Europe 350 has effectively tracked broader European equity benchmarks with a significantly smaller number of constituents.

The Euro STOXX 50 has performed similarly to the other two indices throughout the past year. However, over the longer term, it has significantly lagged both the S&P Europe 350 and the STOXX Europe 600. This has been primarily a result of stronger performance in non-eurozone countries and secondarily due to outperformance of small-cap stocks.

### Exhibit 7: Performance Comparison of the S&P Europe 350 to Peer Indices



Source: S&P Dow Jones Indices, Bloomberg. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results.

### The S&P Europe 350 Equity Strategies Through the Lens of Factors

Now we will focus on the S&P Europe 350 strategy indices, which provide market participants with a variety of nonmarket-capitalization-weighted indices designed to capture certain factor tilts. One way to analyze these strategies is to utilize the Fama-French Three Factor Model.

Exhibit 8 depicts the Fama-French style factor loading for the S&P Europe 350 and the associated factor strategies. The analysis shows that the S&P Europe 350 has a slight large-cap tilt, which is not surprising given its focus on larger, more liquid names and market capitalization weighting. As expected, the S&P Europe 350 Equal Weight Index eliminates this bias toward large-cap stocks. Less obvious is the negative tilt toward momentum, which is likely the result of the index rebalancing winners back to an equal weight on a quarterly basis.

Both the S&P Europe 350 Dividend Aristocrats and the low-volatility strategies lower the market beta in comparison to the S&P Europe 350. Neither index has statistically significant value exposures. Depending on the period over which the loading is calculated, low volatility strategies may load up on growth or value. In this case, over the span of almost 13 years from December 2000 to December 2013, the value exposure was not statistically significant. The S&P Europe 350 Dividend Aristocrats is equal weighted (like the S&P Europe 350 Equal Weight Index) and that explains a similar negative tilt on momentum for that index. For the S&P Europe 350 Low Volatility Index, the positive tilt with respect to momentum can be explained because the low-volatility strategies tend to be biased toward recent winners, which are less volatile in the near term than recent losers.

In the next few sections, we will explore the details of these strategies and discuss why market participants need to consider them, especially now.

**Exhibit 8: Fama-French Style Loading of Factors in Various Strategies**

Index	Market (Mkt.-RF)	Small Cap (SMB)	Value (HML)	Momentum (WML)	Adjusted R Squared
S&P Europe 350	0.98	(0.21)	(0.00)	(0.02)	1.00
S&P Europe 350 Equal Weight Index	1.03	0.05	0.06	(0.18)	0.98
S&P Europe 350 Dividend Aristocrats	0.81	(0.04)	(0.18)	(0.23)	0.86
S&P Europe 350 Low Volatility Index	0.80	0.08	(0.02)	0.16	0.92

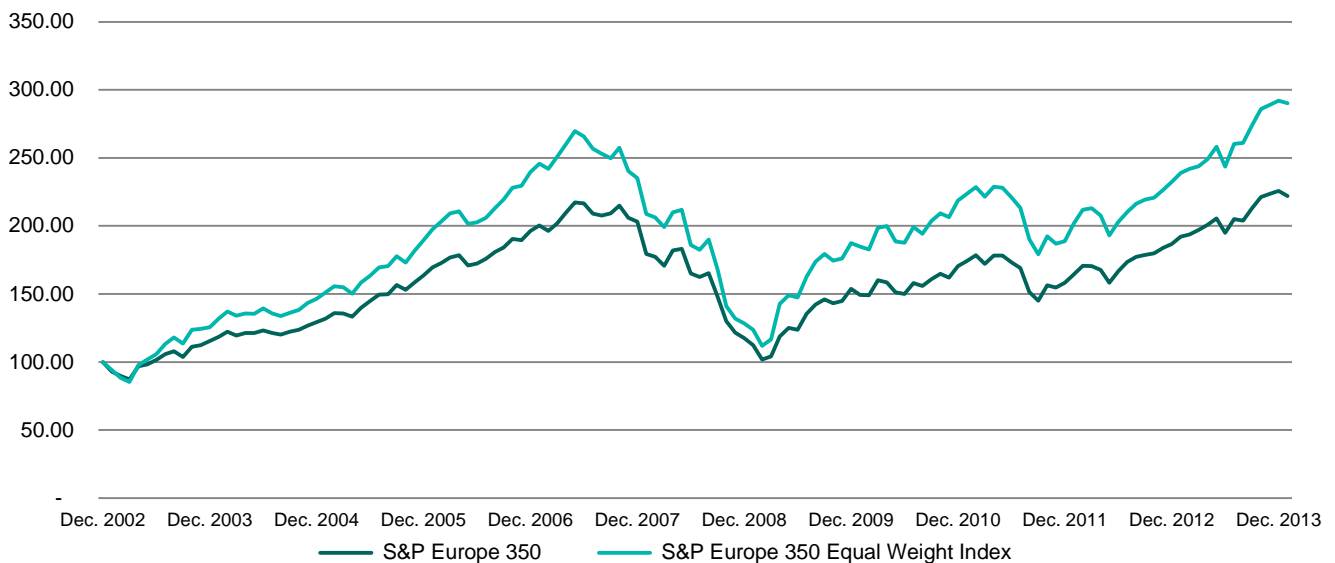
Source: S&P Dow Jones Indices, LLC. S&P Europe 350 data from December 2000 to January 2014; S&P Europe 350 Equal Weight Index data from October 2001 to January 2014; S&P Europe 350 Dividend Aristocrats data from January 2003 to January 2014; and S&P Europe 350 Low Volatility Index data from December 2000 to January 2014. Index performance based on monthly returns. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical performance. Please see Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance. Factor returns are sourced from the Fama-French data library at [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html). Highlighted cells show statistically significant numbers at the 95% confidence level.

**The S&P Europe 350 Equal Weight Index**

Alternatively weighted indices were pioneered in 2003 with the creation of the S&P 500 Equal Weight Index. Despite its simplicity, equal weighting remains one of the most popular forms of alternative weighting. The S&P Europe 350 Equal Weight Index is constructed in precisely the same fashion as the S&P 500 Equal Weight Index. The index includes the same constituents as its capitalization-weighted parent, but at each quarterly rebalancing, the 350 constituents are adjusted to have equal weights.

The most obvious and powerful effect of equal weighting, relative to market-capitalization-weighted indices, is a significant tilt toward small cap, as company size is ignored. Interestingly, the S&P Europe 350 Equal Weight Index does not register a statistically significant bias to small cap according to the Fama-French model. However, as previously mentioned, equal-weighting does remove the large-cap tilt exhibited by the standard S&P Europe 350. Additionally, market beta increases above one as a result of the small-cap tilt, and the equal-weighting scheme results in a significantly lower concentration of large-cap stocks. Finally, equal weighting will result in differences in country and sector weightings.

**Exhibit 9: Historical Performance of the S&P Europe 350 Equal Weight Index Compared to the S&P Europe 350**



Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Index performance based on total return in euros. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

The S&P Europe 350 Equal Weight Index has significantly outperformed the standard benchmark both in the short and long term, albeit at a modestly higher level of volatility. Over time, the small-cap tilt has driven outperformance relative to the capitalization-weighted S&P Europe 350. In addition, small caps have outperformed larger-cap companies over the short term, which has boosted index short-term performance as well.

#### Exhibit 10: Risk/Return Analysis for the S&P Europe 350 Equal Weight Index vs. the S&P Europe 350

Period	S&P Europe 350		S&P Europe 350 Equal Weight Index	
	Annualized Return (%)	Annualized Risk (%)	Annualized Return (%)	Annualized Risk (%)
1-Year	15.56	-	21.49	-
3-Year	8.41	12.48	9.07	14.14
5-Year	14.57	14.53	18.62	17.64
10-Year	6.47	14.32	8.20	16.95

Source: S&P Dow Jones Indices. Data as of Jan. 31, 2014. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

#### Exhibit 11: Calendar Year Performance Comparison of the S&P Europe 350 Equal Weight Index vs. the S&P Europe 350

Index	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)
S&P Europe 350	15.5	11.9	26.6	20.0	3.5	-42.2	31.0	10.8	-7.3	18.0	21.0
S&P Europe 350 Equal Weight Index	25.6	16.7	29.3	26.5	-1.9	-45.5	46.1	16.7	-13.7	23.1	25.7

Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

### The S&P Europe 350 Dividend Aristocrats

There are several ways to construct dividend strategies, but they generally follow a two-step process; first, selecting securities based on yield and second, applying a quality filter. The aim of the filter is eliminating securities where yields may not be sustainable or securities where high yields are a function of distress in the price. Dividend strategies differ primarily on the kind of quality filter that is applied. The Dividend Aristocrat family of indices enforces some of the most stringent quality screens on stocks—a demonstrated, long-term history of increased dividends. In the case of the S&P Europe 350 Dividend Aristocrats, the track record of increasing dividends must span at least 10 years, which is a very high standard.

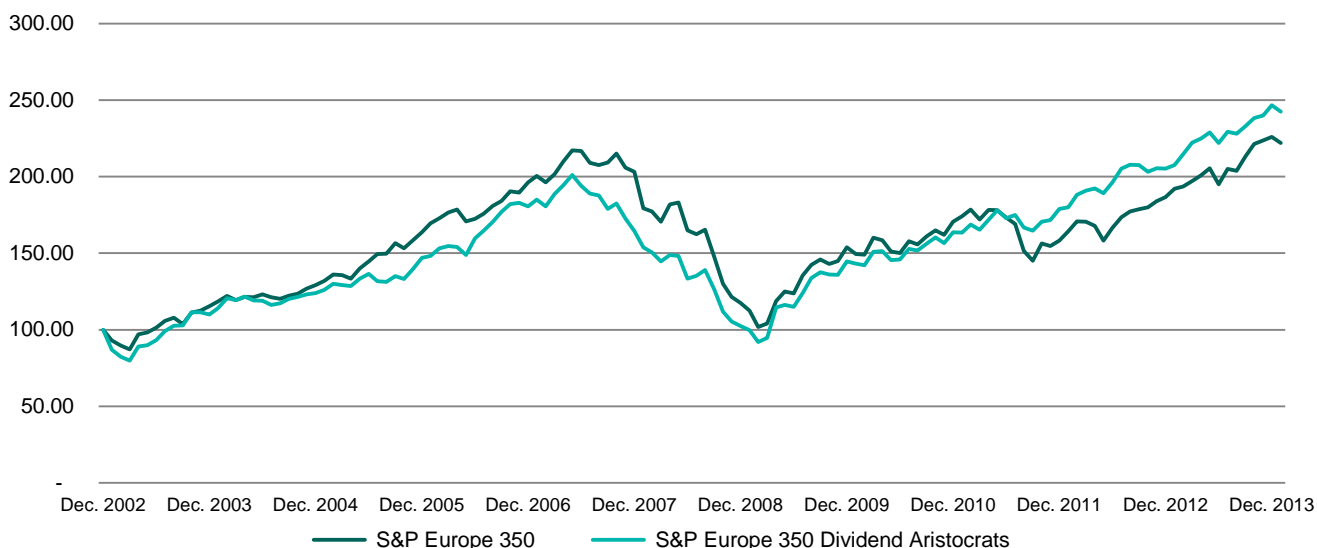
Companies with a long history of increasing dividends year over year are attractive for a couple of reasons. First, the ability of a company to grow dividends over market cycles over long periods demonstrates management's ability to grow the business and support increasing payouts through disciplined use of capital. Second, rising interest rates are a concern on most investor's minds, because increased rates would tend to reduce prices for assets that do not grow payments. Dividend growth strategies become attractive in this environment because the rate of growth of the firm's payout would counter rising rates, thereby preventing a deterioration of the stock price.

### Methodology

The S&P Europe 350 Dividend Aristocrats selects at least 40 companies from the S&P Europe 350 that have increased dividends over the past 10 years in addition to satisfying float market capitalization and liquidity requirements. The constraints are relaxed progressively to complete the constituent count. As of Feb. 28, 2014, the index had 45 constituents. Sectors are capped at 30% and the components are weighted equally. The index reconstitutes annually and rebalances the constituents to equal weight quarterly.

## Analysis vs. the S&P Europe 350

### Exhibit 12: Historical Performance of the S&P Europe 350 Dividend Aristocrats Compared With the Benchmark S&P Europe 350



Source: S&P Dow Jones Indices. Data as of Jan. 31, 2014. Index performance based on total return in euros. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

When market participants look at equity income strategies, they typically look only at current yields. However, it can be helpful to focus on total return, which is a combination of yield and price performance. The S&P Europe 350 Dividend Aristocrats delivers an annualized total return that is higher than the benchmark (the S&P Europe 350) over a one-, three-, five-, and 10-year period. The index does this with less volatility over each of those time periods, resulting in much higher risk-adjusted returns when compared with the benchmark. One of the benefits that comes with the tilt toward low beta is an attractive capture ratio, as the index participates much higher on the upside than on the downside. The five-year capture ratio of 1.73 (shown in Exhibit 13) comes from an up-capture of 86% and a down-capture of 50%<sup>1</sup> of the benchmark returns.

As was shown in Exhibit 8, the dividend strategy has a beta that is lower than the market's. This is due to the fact that companies that have the ability to grow their dividends over such a long period tend to have more predictable cash flows and hence, lower price volatility. Finally, equal weighting of the constituents provides a mechanism to select larger-cap names from the benchmark without introducing a large-cap bias within the index itself.

### Exhibit 13: Risk/Return Analysis for the S&P Europe 350 Dividend Aristocrats vs. the S&P Europe 350

Period	S&P Europe 350		S&P Europe 350 Dividend Aristocrats		S&P Europe 350 Dividend Aristocrats (w.r.t. the S&P Europe 350)		
	Annualized Return (%)	Annualized Risk (%)	Annualized Return (%)	Annualized Risk (%)	Tracking Error (%)	Beta	Capture Ratio
1-Year	15.56	-	16.79	-	-	-	-
3-Year	8.41	12.5	14.02	8.4	7.78	0.53	-
5-Year	14.57	14.5	19.45	13.6	7.36	0.80	1.73
10-Year	6.47	14.3	7.82	13.7	7.53	0.83	1.11

Source: S&P Dow Jones Indices. Data as of Jan. 31, 2014. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

<sup>1</sup> Up and down captures and the capture ratio (up-capture/down-capture) are computed according to <http://www.styleadvisor.com/content/and-down-capture>



**Exhibit 14: Calendar Year Performance Comparison of the S&P Europe 350 Dividend Aristocrats vs. the S&P Europe 350**

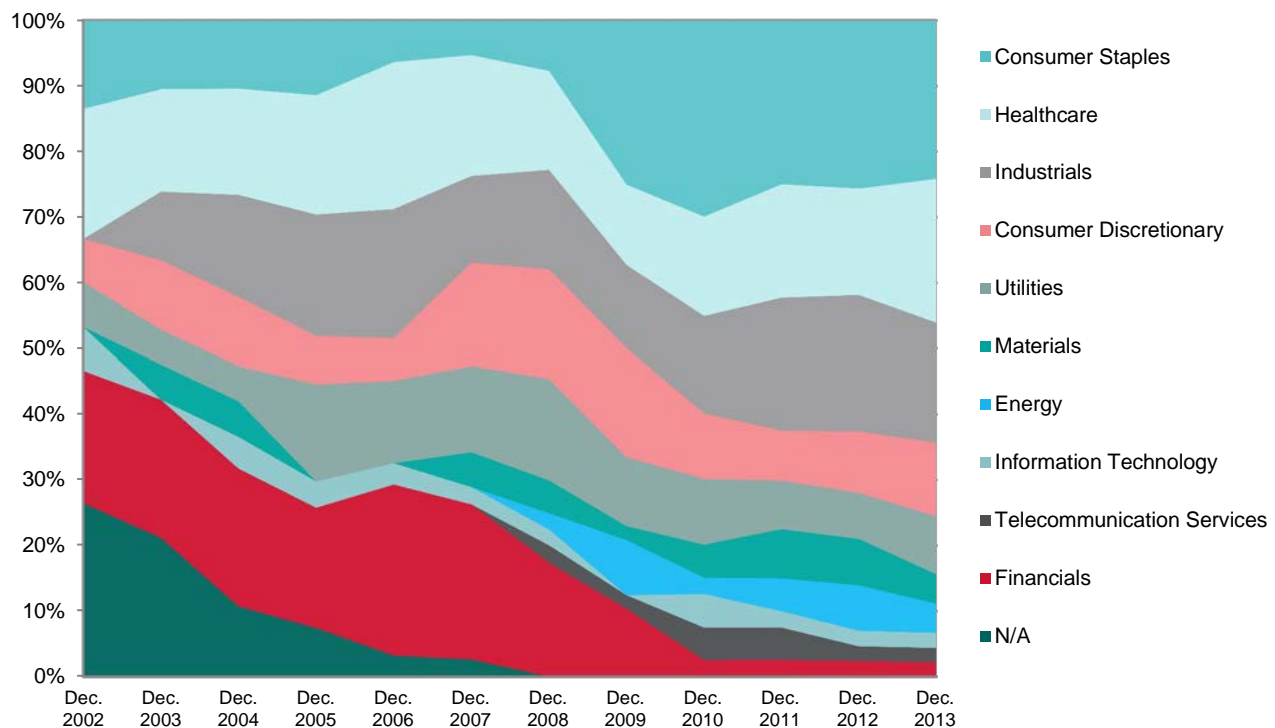
Index	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)
S&P Europe 350	15.5	11.9	26.6	20.0	3.5	-42.2	31.0	10.8	-7.3	18.0	21.0
S&P Europe 350 Dividend Aristocrats	10.0	12.7	18.5	22.9	-8.9	-37.8	41.2	13.1	9.4	14.6	20.2

Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

The composition of the S&P Europe 350 Dividend Aristocrats shows diversification across sectors. Traditional high payout sectors in Europe (utilities, energy and telecommunications) do not figure among the top sectors in the index. This is expected, because even though these sectors have paid highly, these payouts have not been consistent. In addition, all of these sectors tend to be more leveraged and are prone to distress as rates rise, which is a concern among many at this time. Sector history also reveals that the index has moved almost completely out of financials, as the sector cut dividends during and after the financial crisis of 2008.

Country exposures over time show that the index has traditionally been dominated by companies from the U.K. However, it is interesting to note that exposure to Spain has decreased considerably, as the financial crisis there caused many firms to cut dividends. In the case of Switzerland, although the country's weight has come down from the early years of the index, this is more a result of the index expanding and including more names: the same constituents from Switzerland have been a part of the index over the period shown in Exhibit 16.

**Exhibit 15: Historical Sector Composition for the S&P Europe 350 Dividend Aristocrats**



Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

**Exhibit 16: Historical Country Composition for the S&P Europe 350 Dividend Aristocrats**

Countries	Dec. 2002 (%)	Dec. 2003 (%)	Dec. 2004 (%)	Dec. 2005 (%)	Dec. 2006 (%)	Dec. 2007 (%)	Dec. 2008 (%)	Dec. 2009 (%)	Dec. 2010 (%)	Dec. 2011 (%)	Dec. 2012 (%)	Dec. 2013 (%)
U.K.	67	63	62	48	45	42	55	48	57	60	60	58
France	-	-	-	4	3	11	10	15	10	10	9	11
Switzerland	20	16	16	11	13	11	8	6	10	7	7	7
Denmark	-	-	-	-	3	3	2	2	3	5	5	4
Belgium	-	-	-	4	3	5	5	2	2	-	5	4
Germany	-	-	-	-	3	3	-	4	3	2	5	4
Spain	-	-	-	19	16	13	10	15	7	5	5	4
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	2
Sweden	6	16	16	8	7	5	5	4	3	3	2	2
Ireland	-	-	-	-	-	3	2	-	2	2	2	2
Norway	7	5	5	4	3	3	3	-	-	-	-	-
Greece	-	-	-	-	-	-	-	2	-	-	-	-
The Netherlands	-	-	-	-	-	-	-	2	3	2	-	-
Italy	-	-	-	4	3	3	-	-	-	3	-	-

Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

### The S&P Europe 350 Low Volatility Index

The existence of the low volatility anomaly and its causes have been widely discussed both among academics and practitioners.<sup>2</sup> Elsewhere,<sup>3</sup> we have discussed the existence of this anomaly in other regions of the world, including Europe. In this section, we delve more deeply into the characteristics of the S&P Europe 350 Low Volatility Index.

#### Methodology

The S&P Europe 350 Low Volatility Index, similar to other low-volatility indices from S&P Dow Jones Indices, follows a ranking-based approach. We select 100 of the least-volatile stocks from the S&P Europe 350 (excluding multiple share classes) based on trailing-12-month volatility. The issues are then weighted by the inverse of the calculated volatility to produce the index. The index rebalances quarterly to stay on top of the volatility signal.

There are two main approaches to constructing a low volatility portfolio, and S&P Dow Jones Indices has adopted the simpler, more transparent one. A discussion of the ranking-based approach vs. the other approach, which uses an optimizer and a factor model, could prove useful.<sup>4</sup> In this section, we will present the differences between the S&P Europe 350 Low Volatility Index and competing indices that use the constrained minimum variance approach.

<sup>2</sup> Baker, M., Bradley, B., and Wurgler, J. "Benchmarks as Limits to Arbitrage: Understanding the Low-Volatility Anomaly." *Financial Analysts Journal*, Vol. 67, No. 1 (January/February 2011), pp. 40-54

<sup>3</sup> Chan, F.M., Lazzara, C., "Is the Low Volatility Anomaly Universal?" S&P Dow Jones Indices, November 2013

<sup>4</sup> Soe, A. M. (2012). Low-Volatility Portfolio Construction: Ranking Versus Optimization. *Journal of Index Investing*, Winter 2012, Vol. 3, No. 3, pp. 63-73

**Exhibit 17: Comparison of Key Methodology Elements of the S&P Europe 350 Low Volatility Index and Competing Indices**

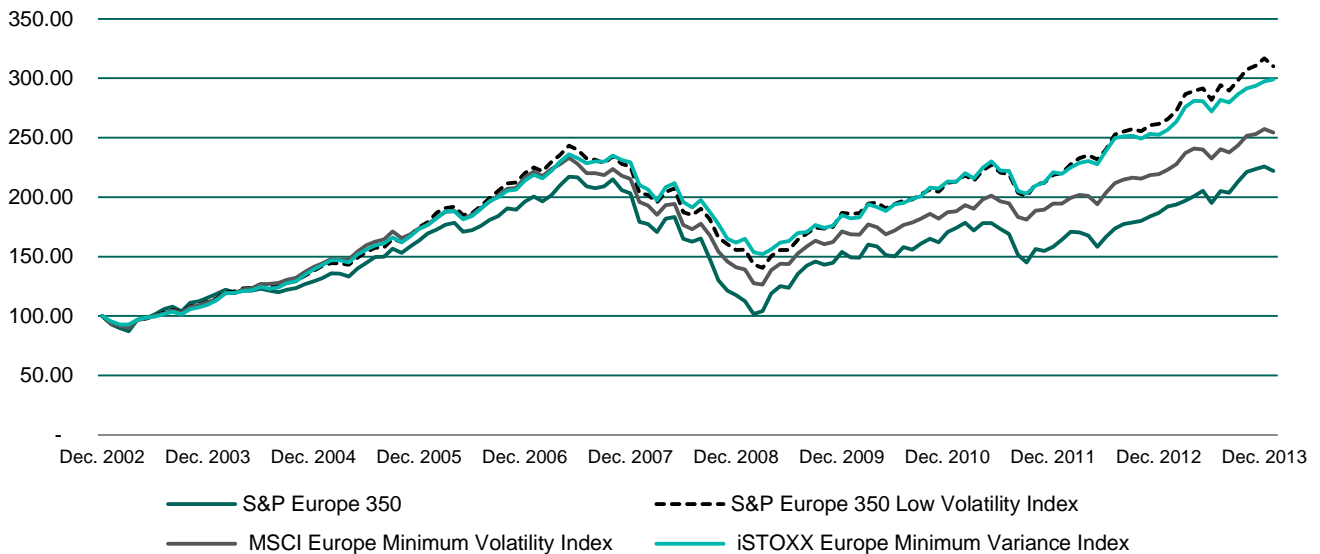
Methodology Component	S&P Europe 350 Low Volatility Index	iSTOXX Europe Minimum Variance Index	MSCI Europe Minimum Volatility Index
Selection and Weighting	Select stocks based on trailing-12-month price volatility. Weighting of constituents based on the inverse of the computed volatility	Select top 300 most-liquid stocks from the STOXX Europe 600 and then use an optimizer and factor model to select and weight stocks	Select and weight stocks using an optimizer and factor model. The benchmark used is MSCI Europe
Number of Components in Index/Benchmark	100/350	Variable/600	117/432 (as of Feb. 28, 2014)
Constraints	None	Components capped at 4.5%, sectors at 20%. There is also a diversification target in the optimization. Liquidity screen applied first to select top 300 liquid stocks on which the optimization is done.	Constraints around constituent weights (max weight is lower of 1.5% or 20 times weight in benchmark), country and sector weights (+/- 5% of parent), risk factor exposures (+/- 0.25 standard deviation), turnover (max one way turnover of 10%)

Source: S&P Dow Jones Indices, www.stoxx.com, www.msci.com. Data as of (or accessed as of) Feb. 28, 2014.

**Analysis of Performance**

All low-volatility indices, regardless of the approach used to construct them, have some basic characteristics. These indices tend to participate less on the downside and lag the benchmark on the upside. This is expected, as they target low-beta stocks by definition. However, the degree of the participation in the upside and downside depends on the approach. Historically, over the medium and long term, these strategies have outperformed the benchmark, as shown in Exhibit 18. All strategies have lower volatilities than the S&P Europe 350. Worth mentioning is that the competitor indices reduce volatility from different benchmarks but the characteristics of the benchmarks are similar; so we can broadly say that all of them reduce volatility to a similar degree compared to a broad underlying European benchmark. It should be noted that the S&P Europe 350 Low Volatility Index has historically produced higher annualized returns, while taking on similar risk as the other minimum volatility/variance indices. As a result, the index has produced superior risk adjusted returns over those periods (see Exhibit 19). We believe this is the case because the strategy used in its construction is unconstrained.

**Exhibit 18: Historical Performance of the S&P Europe 350 Low Volatility Index and Competing Indices**



Source: S&P Dow Jones Indices, Bloomberg. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

As discussed in Exhibit 17, the iSTOXX and MSCI minimum variance/volatility indices utilize an optimizer to derive the portfolios at rebalancing. The optimization process is constrained so that the portfolio remains close to the benchmark, except for the exposure to the low volatility factor. As such, both of those indices track the performance of their benchmark more closely than the S&P Europe 350 Low Volatility Index, which is unconstrained. From Exhibit 17, it can also be interpreted that the MSCI Europe Minimum Volatility Index is more constrained than the iSTOXX Europe Minimum Variance Index. As such, some of the statistics shown in Exhibits 19, 20 and 21 can be explained. In Exhibit 20, it can be seen that the MSCI Europe Minimum Volatility Index has historically participated more in the downside and the upside, as expected. It also exhibits higher drawdowns and needs more time to recover from that over a 10-year period (see Exhibit 21).

#### Exhibit 19: Risk/Return Analysis for the S&P Europe 350 Low Volatility Index vs. the S&P Europe 350 and Other Indices

Period	S&P Europe 350		S&P Europe 350 Low Volatility Index		MSCI Europe Minimum Volatility Index		iSTOXX Europe Minimum Variance Index	
	Annualized Return (%)	Annualized Risk (%)	Annualized Return (%)	Annualized Risk (%)	Annualized Return (%)	Annualized Risk (%)	Annualized Return (%)	Annualized Risk (%)
1-Year	15.56	-	16.68	-	14.07	-	16.45	-
3-Year	8.41	12.5	13.29	9.30	10.56	8.40	12.02	8.91
5-Year	14.57	14.5	14.76	9.95	12.81	10.24	12.63	9.10
10-Year	6.47	14.3	10.44	10.78	8.35	10.85	10.21	10.02

Source: S&P Dow Jones Indices, www.stoxx.com, www.msci.com. Data as of Jan. 31, 2014. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

#### Exhibit 20: Calendar Year Performance Comparison of the S&P Europe 350 Low Volatility Index and Other Indices

Index	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)
S&P Europe 350	15.5	11.9	26.6	20.0	3.5	-42.2	31.0	10.8	-7.3	18.0	21.0
S&P Europe 350 Low Volatility Index	12.1	23.1	26.8	25.8	2.5	-31.2	20.2	13.6	3.1	19.5	21.1
MSCI Europe Minimum Volatility Index	11.8	26.3	23.1	24.6	-0.6	-34.5	21.4	9.5	3.8	12.8	17.2
iSTOXX Europe Minimum Variance Index	9.6	26.8	24.7	23.4	7.1	-29.5	14.4	15.3	3.7	14.2	17.9

Source: S&P Dow Jones Indices, www.stoxx.com, www.msci.com. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

#### Exhibit 21: Drawdown Characteristics of the S&P Europe 350 Low Volatility Index and Other Indices

Characteristic	S&P Europe 350	S&P Europe 350 Low Volatility Index	MSCI Europe Minimum Volatility Index	iSTOXX Europe Minimum Variance Index
Maximum Drawdown (%)	53	42	46	36
Peak Date	May 31, 2007	May 31, 2007	May 31, 2007	May 31, 2007
Trough Date	Feb. 27, 2009	March 31, 2009	March 31, 2009	March 31, 2009
Recovery Date	Oct. 31, 2013	July 31, 2012	March 28, 2013	June 29, 2012
Trough to Recovery (No. of Months)	56	40	48	39

Source: S&P Dow Jones Indices, www.stoxx.com, www.msci.com. Data from Dec. 31, 2002, to Jan. 31, 2014. Monthly returns used for drawdowns. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

Since the turnover of the minimum volatility/variance indices is managed through constraints, the question of turnover always arises with the ranking-based approach employed by the S&P Europe 350 Low Volatility Index.

Historically, this turnover has been quite manageable (12%-18% at each quarterly rebalancing). This figure seems high, but it is comparable to the average of unconstrained, alternatively weighted strategies.

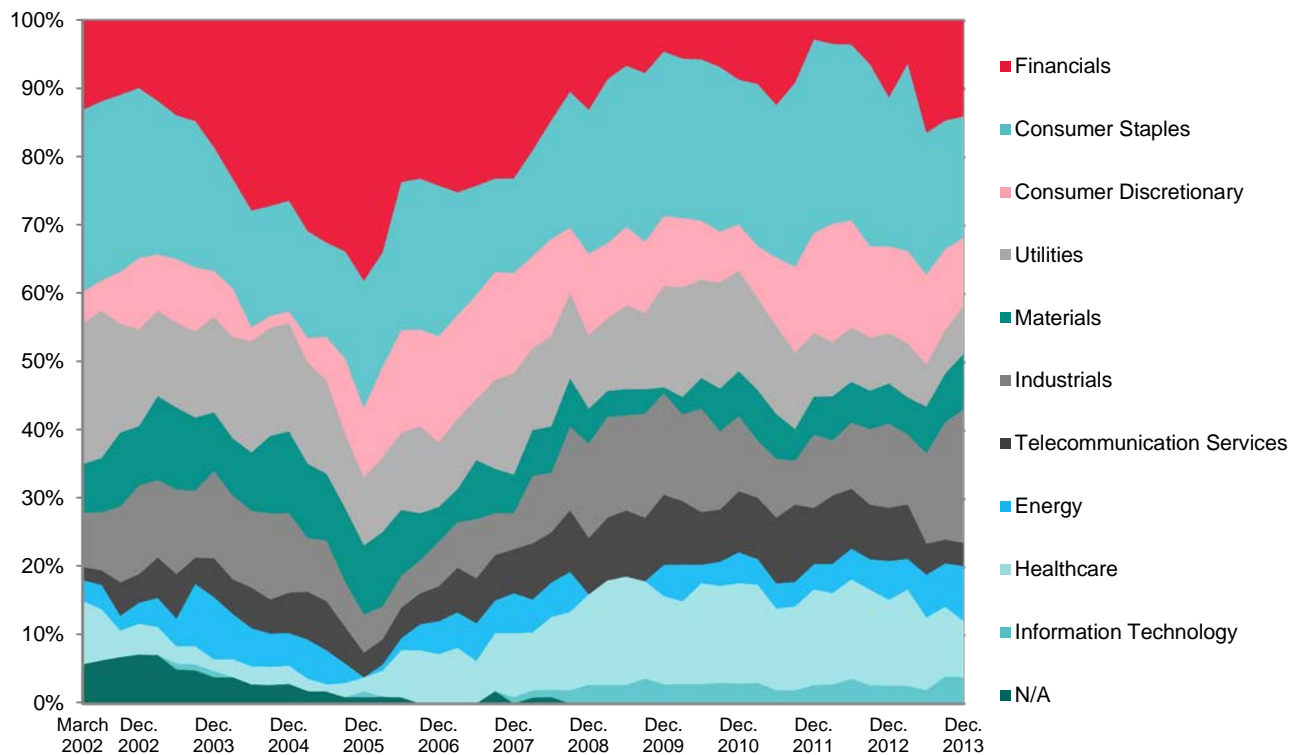
**Exhibit 22: Annual Turnover of the S&P Europe 350 Low Volatility Index**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Annual Turnover (%)	54	76	75	71	78	53	49	63	46	73

Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

Of particular interest is the sector history of the S&P Europe 350 Low Volatility Index over the last 10 years (see Exhibit 23). The sector history is well-diversified currently, but it has been quite dynamic in the past. Financials began to be volatile long before the onset of the financial crisis in 2008, and the index had reduced its position in the sector ahead of time. Looking at the country exposures (Exhibit 24) compared to the benchmark, the index has traditionally been overweight in the U.K. but retains the same top five country mix as the benchmark over time.

**Exhibit 23: Sector History of the S&P Europe 350 Low Volatility Index**



Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

**Exhibit 24: Country History of the S&P Europe 350 Low Volatility Index**

Countries	Dec. 2002 (%)	Dec. 2003 (%)	Dec. 2004 (%)	Dec. 2005 (%)	Dec. 2006 (%)	Dec. 2007 (%)	Dec. 2008 (%)	Dec. 2009 (%)	Dec. 2010 (%)	Dec. 2011 (%)	Dec. 2012 (%)	Dec. 2013 (%)
U.K.	47	36	34	34	36	22	32	40	34	45	46	40
Switzerland	7	6	7	10	8	11	8	9	12	9	14	13
Germany	4	2	4	6	6	10	7	7	12	8	8	11
Sweden	4	6	5	5	-	3	5	5	5	2	5	10
France	6	6	9	9	14	17	13	14	12	12	10	9
Norway	2	3	-	-	-	1	-	-	1	2	4	4
The Netherlands	6	4	5	7	6	6	6	6	8	8	6	4
Belgium	2	4	3	3	7	2	4	4	5	5	4	2
Italy	6	9	14	6	8	12	11	3	5	3	2	2
Finland	-	-	-	-	-	1	-	-	3	-	1	2
Spain	7	13	11	11	9	10	7	9	-	2	-	1
Ireland	-	2	3	1	1	-	-	-	-	1	-	1
Portugal	5	7	5	7	4	5	4	3	1	1	-	1
Austria	1	1	-	-	-	-	-	-	1	1	-	-
Luxembourg	-	-	-	-	-	-	1	1	1	1	2	-
Denmark	-	1	1	1	1	1	1	-	1	1	-	-
Greece	2	-	-	-	-	1	1	-	-	-	-	-

Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

### The S&P Europe 350 Risk Control Indices

Another approach to managing volatility is to limit the total risk of the index. This can be achieved by pursuing a target volatility approach, such as the one used in the S&P Risk Control Indices.

The S&P Dow Jones Indices risk control framework was created to allow for investments in standard, well-accepted investment tools but within predefined volatility parameters. The framework allows investors to access any underlying equity- or futures-based index, while limiting the investment's exposure to a set level. The ability to control risk at certain levels has a couple of advantages. First, it allows the investor to invest fully in an underlying index of their choice. The investor is able to gain exposure to the same constituents of the underlying index, albeit at a level that is scaled up or down. This is unlike volatility response strategies (such as volatility reduction and enhanced beta), which prune the securities from an underlying basket in order to isolate the risk factor. Second, risk control indices give investors the option to choose a desired target volatility level to match their appetite for risk. For example, a target volatility level of 10% would provide more room for upside potential, while a 5% volatility level would cater to a lower risk appetite. The details of the risk control framework can be found in our recent [white paper](#).<sup>5</sup>

In summary, the risk control index targets a certain volatility level. In the case of the S&P Europe 350, three such indices are available:

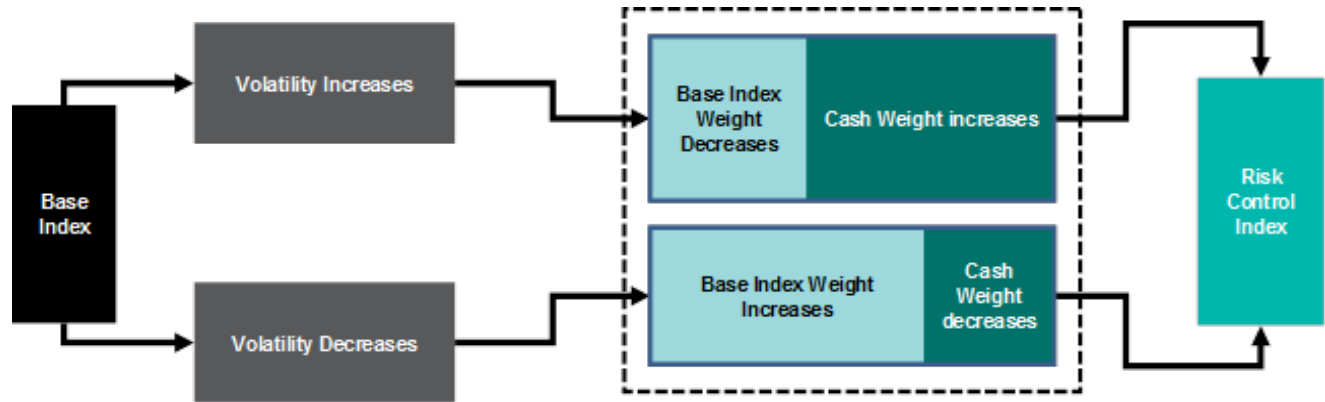
1. S&P Europe 350 Daily Risk Control 5% Index
2. S&P Europe 350 Daily Risk Control 10% Index
3. S&P Europe 350 Daily Risk Control 15% Index

The different parameters that are used in the construction of these indices can be found in Exhibit 26 and in the Risk Control Parameters [webpage](#). As shown in the exhibit, the risk control indices rebalance daily in response to

<sup>5</sup> [Limiting Risk Exposure with S&P Risk Control Indices](#), Alka Banerjee and Vinit Srivastava, S&P Dow Jones Indices, October 2013.

the changes in realized volatility of the underlying benchmark. The indices are published in two versions, Net Total Return (NTR) and Excess Return. The Excess Return version of the index represents the returns of an index in which the entire equity exposure is borrowed. The NTR index represents the returns of an index where borrowing is limited only to the leverage taken on the equity portion of the index; e.g., if the equity exposure goes above 100% (it is capped at 150%) when volatility is low, the excess above 100% needs to be borrowed.

**Exhibit 25: Risk Control Methodology**



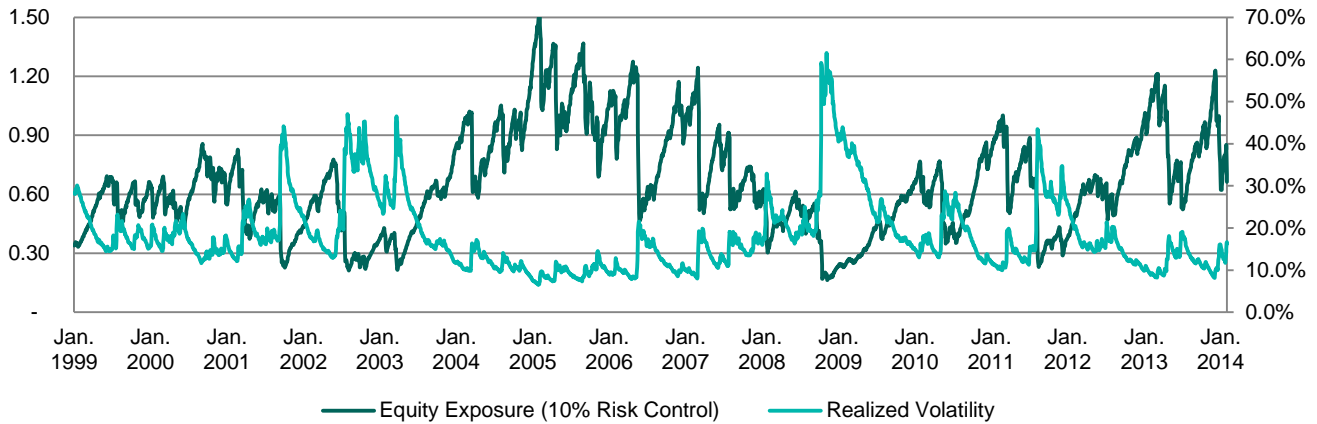
Source: S&P Dow Jones Indices.

Exhibit 26: Summary of the S&P Europe 350 Risk Control Indices										
Index Name	Risk Control Level	Maximum Leverage	Interest Rate	Volatility Calculation	Return Frequency for Volatility	Lag to Rebalance Date	Decay Factor Short-Term Volatility	Decay Factor Long-Term Volatility	Rebalance Frequency	Launch Date
S&P Europe 350 Daily Risk Control 5% Index	5%	150%	EONIA	Exponentially weighted	Weekly	2 days	94%	97%	Daily	Sept. 10, 2009
S&P Europe 350 Daily Risk Control 10% Index	10%	150%	EONIA	Exponentially weighted	Weekly	2 days	94%	97%	Daily	Sept. 10, 2009
S&P Europe 350 Daily Risk Control 15% Index	15%	150%	EONIA	Exponentially weighted	Weekly	2 days	94%	97%	Daily	Sept. 10, 2009

Source: S&P Dow Jones Indices. EONIA: Euro Overnight Index Average.

Exhibit 27 shows the historical allocation within the S&P Europe 350 Daily Risk Control 10% Index of the S&P Europe 350 equity and cash components. Also layered on the chart is the realized volatility that drives this allocation. As shown, in periods where realized volatility has been low (2003-2006 and 2012-present), the allocation to equity has been high. In periods of distress, the allocation moves rapidly away from equities into cash. The recovery from those periods is also fast, as the index rebalances daily.

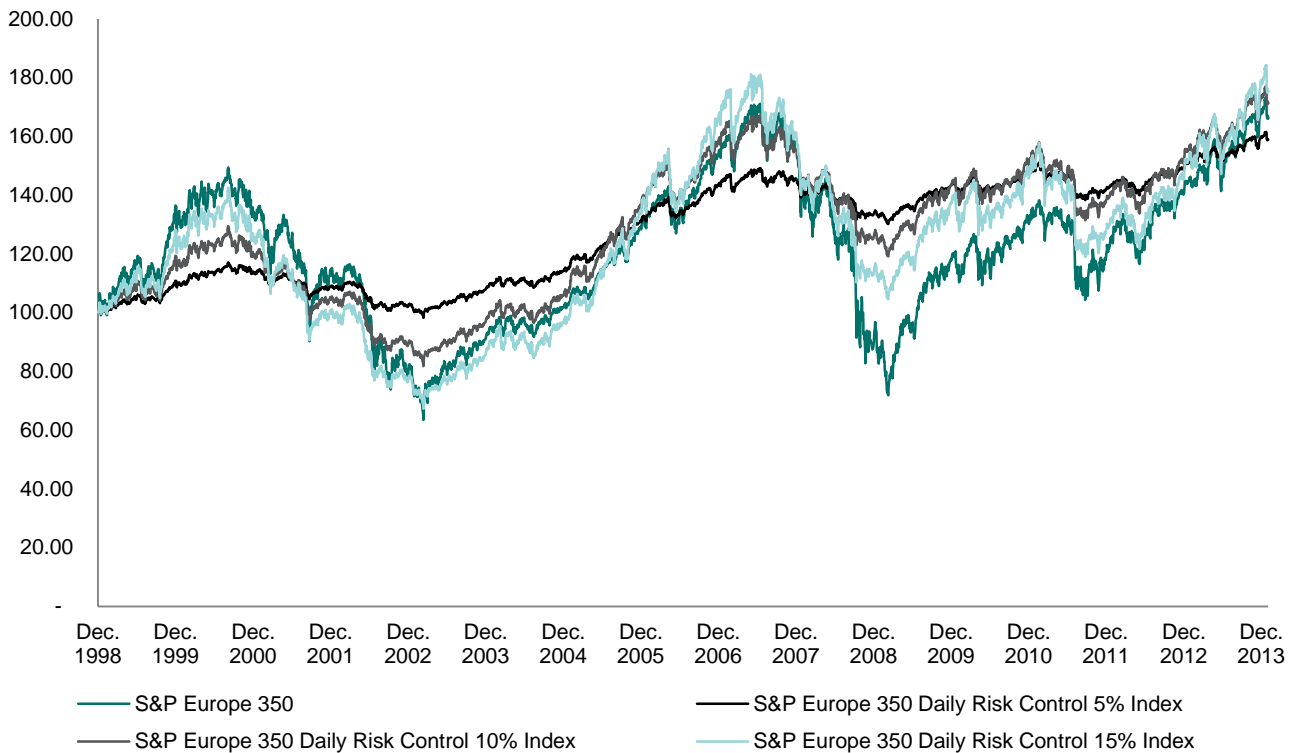
**Exhibit 27: Allocations to Cash and the S&P Europe 350 Over Time for the S&P Europe 350 Daily Risk Control 10% Index**



Source: S&P Dow Jones Indices. Data as of Jan. 31, 2014. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

Exhibit 28 and 29 show the performance, risk/return and drawdown characteristics of the S&P Risk Control Indices vs. the underlying S&P Europe 350 (NTR). The results are expected. As the volatility target is reduced, the performance of the index over a longer period of time is also reduced. However, the drawdowns of the index are lowered as the volatility target is lowered.

**Exhibit 28: Performance of the S&P Europe 350 Daily Risk Control Indices vs. the S&P Europe 350**



Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Index performance based on net total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.



**Exhibit 29: Performance and Drawdowns of the S&P Europe 350 Daily Risk Control Indices vs. the S&P Europe 350**

Period	S&P Europe 350 (NTR)	S&P Europe 350 Daily Risk Control 5% Index (NTR)	S&P Europe 350 Daily Risk Control 5% Index (ER)	S&P Europe 350 Daily Risk Control 10% Index (NTR)	S&P Europe 350 Daily Risk Control 10% Index (ER)	S&P Europe 350 Daily Risk Control 15% Index (NTR)	S&P Europe 350 Daily Risk Control 15% Index (ER)
<b>Annualized Return (%)</b>							
1-Year	14.93	5.18	5.07	10.19	10.08	15.19	15.07
3-Year	7.76	2.32	1.92	4.01	3.61	5.49	5.08
5-Year	13.87	3.57	3.11	6.51	6.03	9.27	8.78
10-Year	5.89	3.80	2.04	5.61	3.81	7.02	5.20
15-Year	3.27	3.08	0.76	3.57	1.24	3.70	1.36
<b>Drawdowns (%)</b>							
Maximum Daily Returns	-58.00	-16.15	-24.07	-36.82	-42.78	-52.75	-57.22

Source: S&P Dow Jones Indices. Data as of Jan. 31, 2014. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

### The S&P Dynamic Asset Exchange (Europe 350) Index

As mentioned in the past two sections, low volatility and risk control strategies focus on reduction of risk. In this section, we present a strategy that is focused on absolute return.

The S&P Dynamic Asset Exchange Index Series provides the best of index-based dynamic asset allocation strategy that has historically provided a high return with significantly reduced mid- to long-term risk. The strategy includes:

- Systematic and sustainable reduction of loss potential
- High upside potential
- Asymmetric, right-skewed return distributions
- Asymmetric correlations to the equity market (e.g., a low correlation in negative equity markets and a high correlation in strong upmarkets)

The S&P Dynamic Asset Exchange Index Series comprises long-only indices that dynamically allocate between two underlying, low-correlated asset classes. The series' goal is to obtain the returns of the better-performing assets minus the strategy costs. This is achieved by dynamically moving into the better-performing asset to participate in the upside, while trying to limit possible losses. Each index starts with an equal allocation of both underlying asset classes on the last trading day of a calendar year, and it typically rebalances into the better-performing asset class on the last trading day of each month. A detailed account of the methodology and the allocation process can be found in our [white paper](#) on this subject.<sup>6</sup> It would suffice to say that the strategy is rooted in the Margrabe Exchange Option.<sup>7</sup> The Dynamic Asset Exchange strategy aims synthetically to replicate the payout of that option (minus the cost of the option itself) through the returns of the combined portfolio of the two asset classes.

S&P Dow Jones Indices has created a conceptual strategy based on the above methodology using the S&P Europe 350 and the S&P Euro-Bund Futures Index, which we will discuss in this section. In fact, S&P Dow Jones Indices created the S&P Dynamic Asset Exchange – Europe that uses the S&P Euro 75 instead of the S&P Europe 350 and has similar characteristics as the concept presented herein

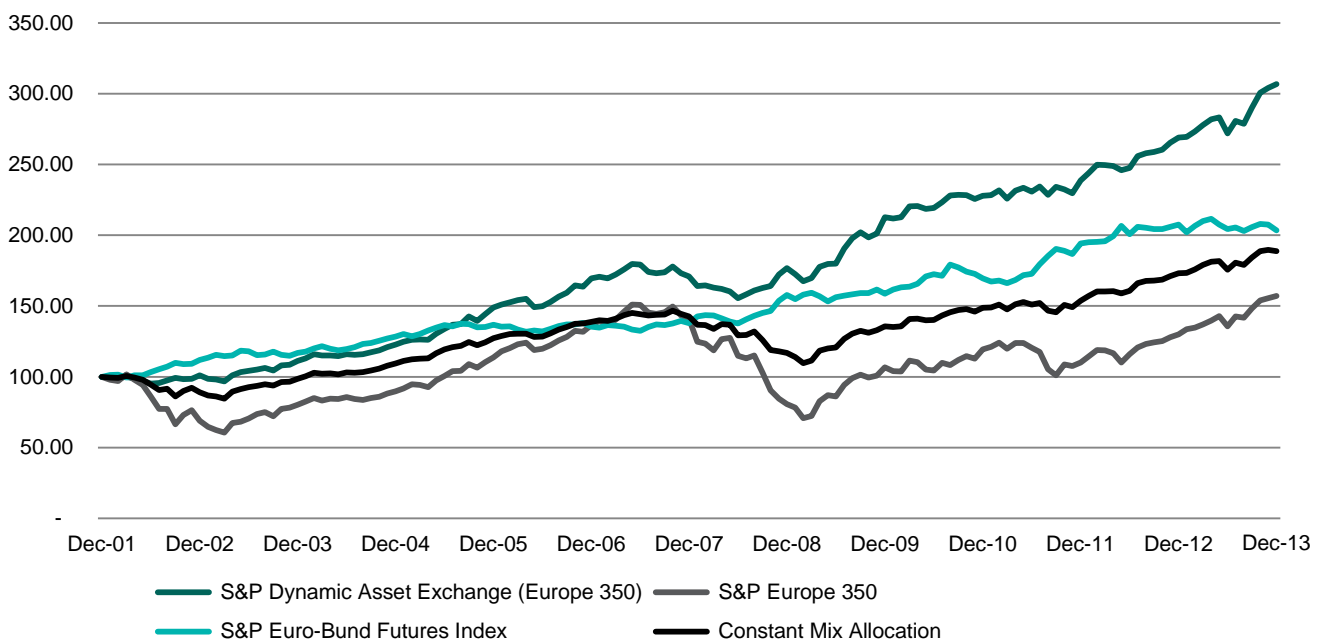
A look at the performance of the strategy (Exhibits 30, 32 and 33) vs. its components (the S&P Europe 350 and the S&P Euro-Bund Futures Index) shows some interesting characteristics. In the comparison, we have included a Constant Mix Allocation Index: a hypothetical combination of equal parts of the S&P Europe 350 and the S&P Euro-Bund Futures Index, which rebalances monthly. The comparison revealed the following conclusions:

<sup>6</sup> [Seeking Absolute Returns Using the S&P Dynamic Asset Exchange Index series](#), Alka Banerjee & Vinit Srivastava, S&P Dow Jones Indices, November 2011,

<sup>7</sup> The Value of an Option to Exchange One Asset for Another, William Margrabe, *The Journal of Finance*, Vol. XXXIII, No. 1, March 1978

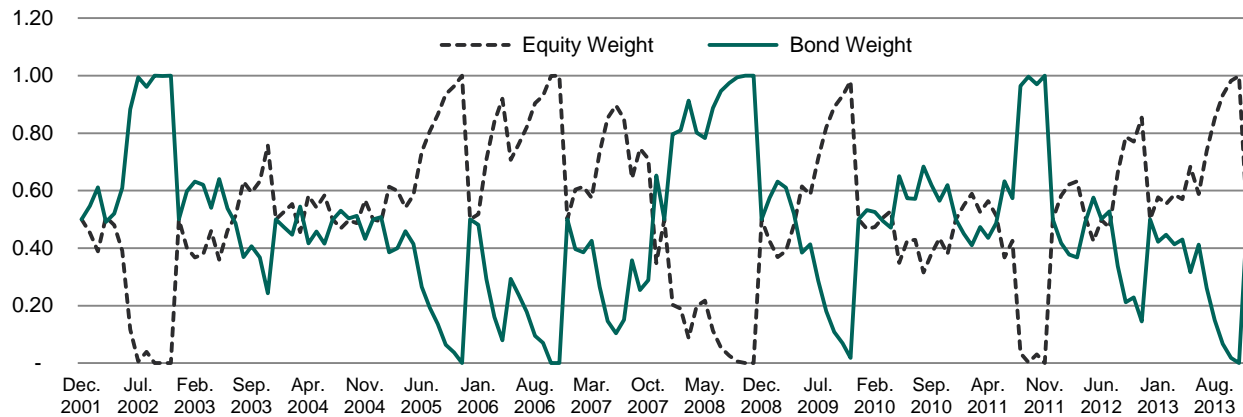
1. The Dynamic Asset Exchange strategy, similar to other strategies we have looked at, tends to outperform the constituent indices and the Constant Mix Allocation Index over the medium to long term.
2. The drawdowns of the index are much lower than the S&P Europe 350 and actually not much worse than the fixed income component of the strategy (the S&P Euro-Bund Futures Index). The index has generally outperformed, while taking on much lower levels of risk.
3. The strategy does well in trending markets (2001, 2006, 2008 and 2009) whether it is a bull or a bear market. Exhibit 31 shows that the index switches to the better-performing asset class relatively quickly. This allows the index to capture the gains from the asset class that is doing better as long as the correlations are still small, which they have been, historically.
4. In periods where the market lacks a trend (2004, 2011), the index does not necessarily perform as well. However, it still appears to perform as well (if not better) than the constant mix allocation strategy, that combines the S&P Europe 350 and the S&P Euro-Bund Futures index in equal parts rebalancing monthly.

**Exhibit 30: Performance of the S&P Dynamic Asset Exchange (Europe 350) Index vs. S&P Europe 350, S&P Euro-Bund Futures Index and a Constant Mix Allocation Index**



Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. Constant Mix Allocation Index is a hypothetical combination of equal parts of the S&P Europe 350 and the S&P Euro-Bund Futures Index, rebalanced monthly. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

### Exhibit 31: Allocation to the S&P Europe 350 (Equity) and the S&P Euro-Bund Futures Index (Bond) Over Time in the S&P Dynamic Asset Exchange (Europe 350) Index



Source: S&P Dow Jones Indices. Data as of Aug. 31, 2013. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

### Exhibit 32: Performance and Drawdowns of the S&P Dynamic Asset Exchange (Europe 350) Index vs. the S&P Europe 350, the S&P Euro-Bund Futures Index and a Constant Mix Allocation Index

Period	S&P Dynamic Asset Exchange (Europe 350) Index	S&P Europe 350	S&P Euro-Bund Futures Index	Constant Mix Allocation Index
<b>Annualized Return (%)</b>				
1-Year	14.06	20.97	-1.95	9.06
3-Year	10.42	9.59	6.29	8.25
5-Year	11.66	14.25	5.21	10.07
10-Year	10.69	6.95	5.70	6.72
12-Year	9.79	3.84	6.10	5.44
<b>Drawdowns (%)</b>				
Maximum Daily Returns	-15.0	-57.7	-8.3	-27.9

Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. Constant Mix Allocation Index is a hypothetical combination of equal parts of the S&P Europe 350 and the S&P Euro-Bund Futures Index, rebalanced monthly.

### Exhibit 33: Calendar Year Performance of the S&P Dynamic Asset Exchange (Europe 350) Index vs. the S&P Europe 350, the S&P Euro-Bund Futures Index and a Constant Mix Allocation Index

Index	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)
S&P Dynamic Asset Exchange (Europe 350) Index	1.0	10.0	10.4	21.3	13.8	0.9	3.4	20.3	7.1	4.7	12.7	14.1
S&P Europe 350	-31.0	16.3	11.9	26.8	20.0	3.4	-42.8	32.3	11.8	-7.8	18.0	21.0
S&P Euro-Bund Futures Index	11.9	4.4	9.9	6.5	-1.0	1.7	14.6	0.6	6.7	14.5	6.9	-1.9
Constant Mix Allocation Index	-11.0	10.7	10.9	16.3	9.2	2.8	-18.1	16.2	9.6	3.3	12.6	9.1

Source: S&P Dow Jones Indices. Data as of Dec. 31, 2013. Index performance based on total return. Charts and graphs are provided for illustrative purposes. Past performance is no guarantee of future results. Constant Mix Allocation Index is a hypothetical combination of equal parts of the S&P Europe 350 and the S&P Euro-Bund Futures Index, rebalanced monthly. These charts and graphs may reflect hypothetical historical performance. Please see the Performance Disclosures at the end of this document for information regarding the inherent limitations associated with backtested performance.

## Conclusion

Since its launch in 1998, the S&P Europe 350 has developed into a widely used benchmark supporting a variety of index-linked financial products, such as ETFs, index funds and structured products. Because the index methodology emphasizes matching the country and sector representation of the broad market, the index has historically performed in line with other broad European equity benchmarks with low tracking error. However, with just 350 highly-liquid stocks and a methodology focused on turnover reduction, the S&P Europe 350 would generally be less costly to replicate.

Following the adoption of the S&P Europe 350 as an investable European benchmark, S&P Dow Jones Indices introduced a variety of strategy indices based on the index to meet the needs of a variety of market participants. Some of these investable strategies provide access to factors like low volatility or dividend yield, or tilt the benchmark away from certain biases (such as equal weight). Other strategies, like risk control, provide a way to attempt to limit total risk. Finally, the Dynamic Asset Exchange concept provides an absolute return strategy. We believe that these investment tools can be utilized by a diverse mixture of market participants to construct investment strategies within these markets.

## ABOUT S&P DOW JONES INDICES

S&P Dow Jones Indices LLC, a part of McGraw Hill Financial, Inc., is the world's largest, global resource for index-based concepts, data and research. Home to iconic financial market indicators, such as the S&P 500® and the Dow Jones Industrial Average™, S&P Dow Jones Indices LLC has over 115 years of experience constructing innovative and transparent solutions that fulfill the needs of institutional and retail investors. More assets are invested in products based upon our indices than any other provider in the world. With over 830,000 indices covering a wide range of assets classes across the globe, S&P Dow Jones Indices LLC defines the way investors measure and trade the markets. To learn more about our company, please visit [www.spdji.com](http://www.spdji.com).

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