

## Revisiting Core Principles

The FTSE RAFI Low Volatility Index series efficiently reduces equity risk and offers the potential for outperformance relative to the cap-weighted benchmark, all while maintaining broadly diversified market exposures.

The index series is built using the RAFI™ Fundamental Index™ methodology which utilizes fundamental measures of company size (sales, cash flow, dividends and book value) to weight the lowest risk securities and serve as a rebalancing anchor to trade against the constantly shifting expectations of the market. In addition, the strategy employs a valuation screen to remove the most expensive low risk stocks from the index, ensuring that investors avoid the most overpriced securities.

As a rebalancing strategy that trades against recent winners, the Fundamental Index methodology will often face performance headwinds during periods of trending prices, sustained momentum, or extreme value underperformance – and benefit from performance tailwinds during periods of security mean reversion or value outperformance.

The FTSE RAFI Developed ex US Low Volatility Index is comprised of low volatility stocks in developed markets outside of the United States.

## Performance

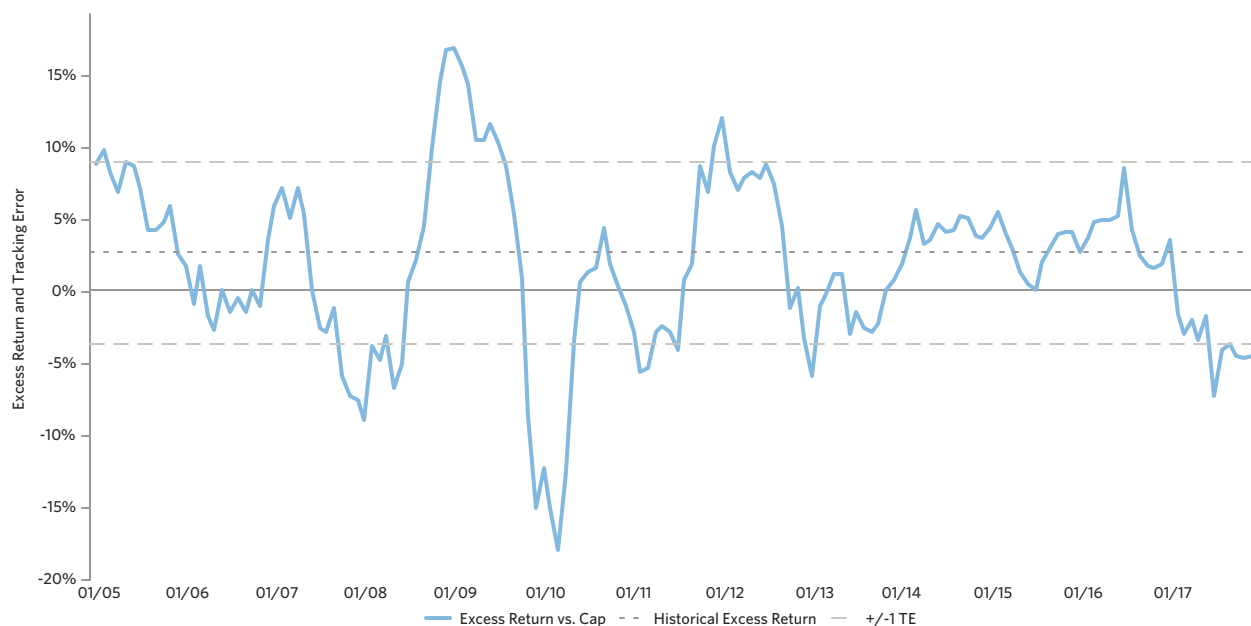
**Exhibit 1:**  
Performance Table

**Exhibit 2:**  
Rolling 1-Year Excess Returns

**Exhibit 1: Performance Table<sup>i</sup>**

	QTD	1-Yr	3-Yr	5-Yr	10-Yr	ITD*
FTSE RAFI™ Developed ex US Low Volatility Index	4.8%	20.7%	9.2%	9.8%	5.6%	4.9%
FTSE All World Developed ex US Index	4.9%	26.3%	8.6%	8.2%	2.6%	4.4%
Value Added	-0.1%	-5.6%	0.6%	1.6%	3.0%	0.5%
MSCI EAFE	4.3%	25.6%	8.3%	8.4%	2.4%	4.2%
Portfolio Standard Deviation		5.2%	10.2%	10.5%	14.0%	10.1%
Benchmark Standard Deviation		4.0%	11.8%	11.4%	18.6%	11.6%
Tracking Error		2.6%	4.5%	4.0%	6.9%	4.2%

**Exhibit 2: Rolling 1-Year Excess Returns<sup>ii</sup>**



i. Exhibit 1.  
Performance derived from FactSet. All returns are total returns in USD. All returns greater than one year are annualized. Standard deviation and tracking error require a minimum of 1 year return history.  
\*Inception to Date (ITD) returns are calculated starting the first full month of returns following June 26, 2014.

ii. Exhibit 2.  
Performance derived from FactSet. All returns are total returns in USD. Rolling 1-year excess returns and tracking error are calculated starting January 31, 2004. If applicable, strategy returns prior to inception are simulated. Inception date is June 26, 2014.

## The Low Volatility Effect

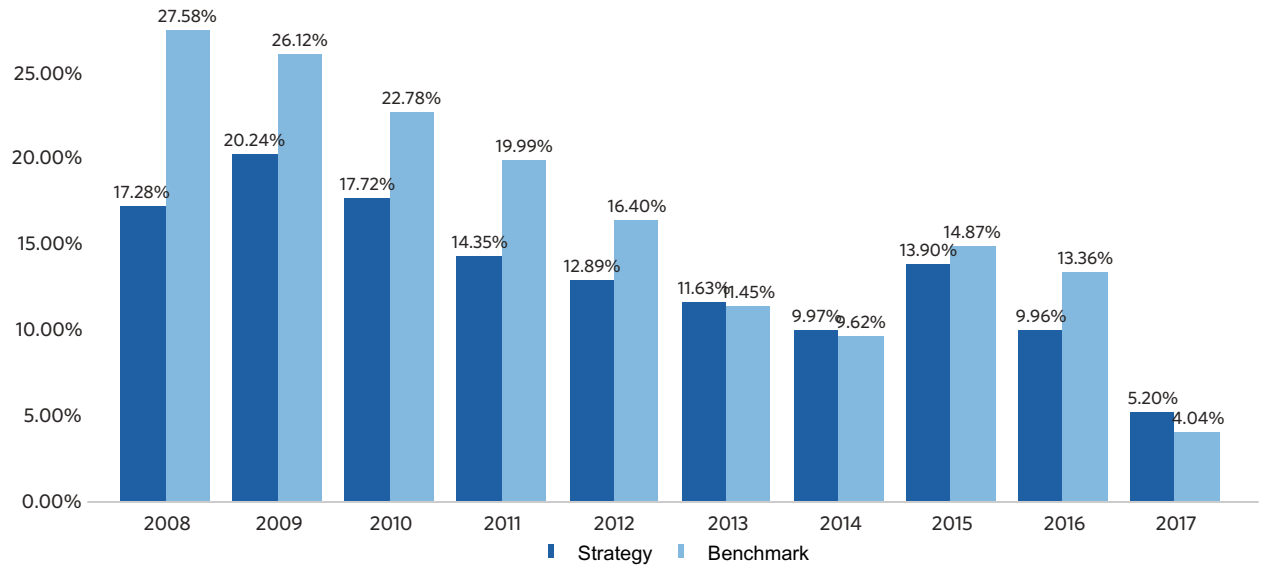
The strategy's construction methodology aims to provide superior long-term risk adjusted performance - relative to the cap-weighted benchmark - by reducing volatility without sacrificing the return expectations of traditional smart beta strategies.

For the ten years ending December 31, 2017, volatility has been 24.5% lower than the benchmark. In addition, the strategy has produced a ten year Sharpe Ratio of 0.38 vs. 0.12 for the benchmark.

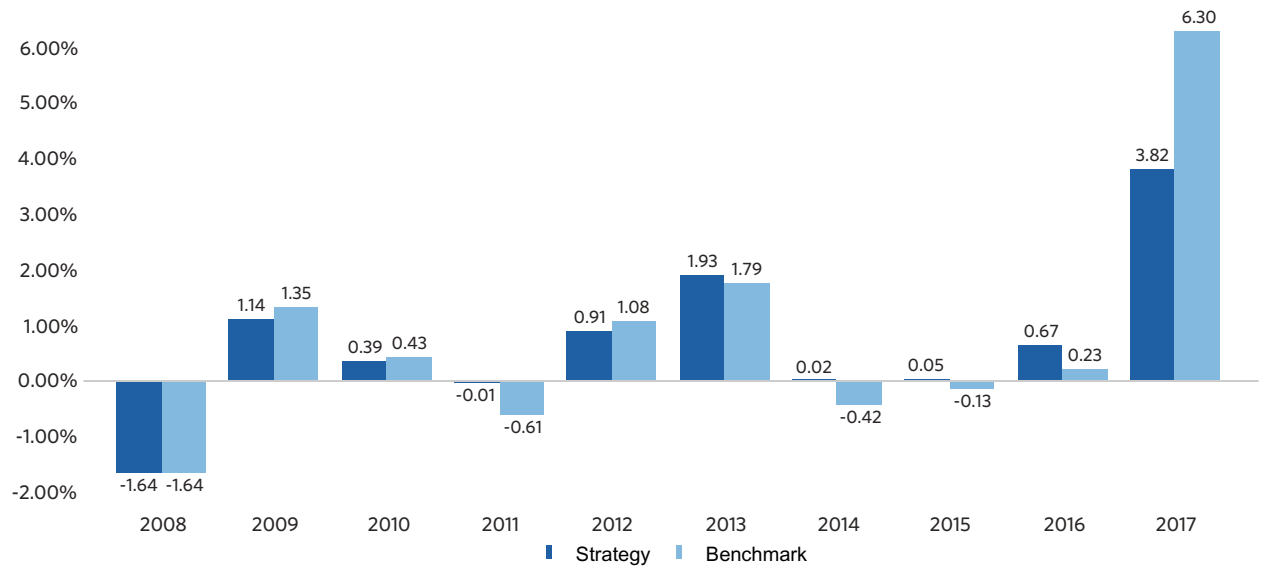
**Exhibit 3:**  
Calendar Year Volatility

**Exhibit 4:**  
Calendar Year Sharpe Ratios

**Exhibit 3: Calendar Year Volatility<sup>i</sup>**



**Exhibit 4: Calendar Year Sharpe Ratios<sup>ii</sup>**



i. Exhibit 3. FTSE RAFI™ Developed ex US Low Volatility Index calendar volatility measured against the FTSE All World Developed ex US Index. Returns prior to strategy inception are simulated. Strategy inception is June 26, 2014.

ii. Exhibit 4. Calendar Year Sharpe Ratios measured using the Citigroup 3-Month T-Bill as the risk free rate. Returns prior to strategy inception are simulated. Strategy inception is June 26, 2014.



## Portfolio Characteristics

The FTSE RAFI™ Developed ex US Low Volatility Index is attractively positioned relative to the cap-weighted benchmark.

**Exhibit 5:**  
Portfolio Characteristics

**Exhibit 6:**  
Historical Portfolio Characteristics

## Exhibit 5: Portfolio Characteristics<sup>i</sup>

	Number of Holdings	Active Share	Price to Sales	Price to Cash Flow	Price to Book	Div. Yield	Market Cap. (Billions)	Sharpe Ratio*	Info. Ratio*	Tracking Error*
FTSE RAFI™ Developed ex US Low Volatility Index	289	75.6	1.0	8.0	1.6	3.7%	68	0.46	0.12	4.2%
FTSE All-World Developed x US	1514	--	1.2	8.9	1.7	2.8%	61	0.35	--	--

## Exhibit 6: Historical Portfolio Characteristics<sup>ii</sup>

**Price to Book**



**Dividend Yield (%)**



**Price to Cash Flow**



**Price to Sales**



— FTSE RAFI™ Developed ex US Low Volatility Index (Left) — FTSE All-World Developed x US (Left)

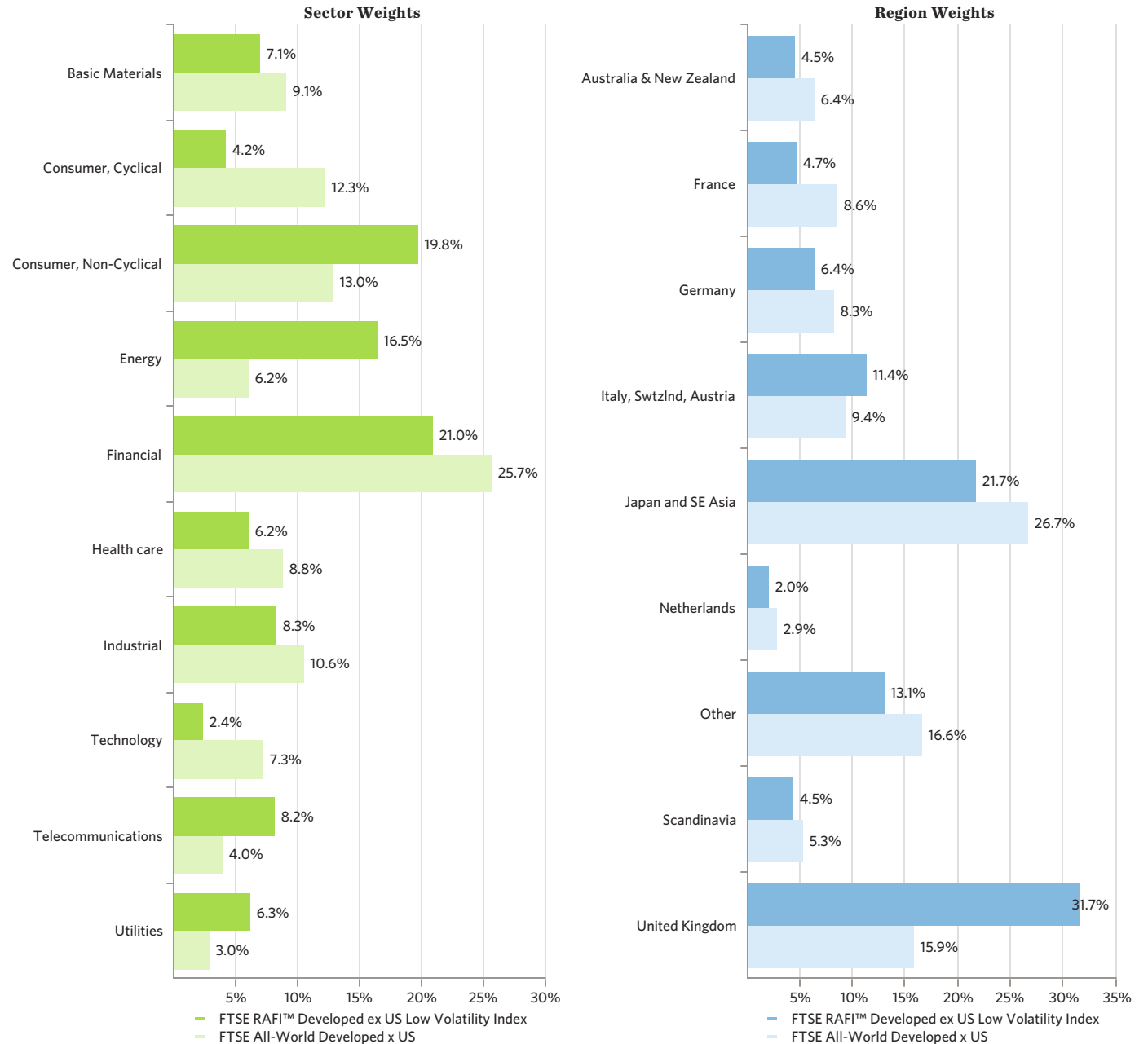
i. Exhibit 5.  
Portfolio characteristics data derived from FactSet.  
\*Sharpe Ratio, Information Ratio, and Tracking Error are calculated starting the first full month of returns following June 26, 2014. Minimum 1-year return history. The 3-mo US Treasury Bill return is used as a proxy for risk-free rate. If applicable, strategy returns prior to inception are simulated. Inception date is June 26, 2014.

ii. Exhibit 6.  
Portfolio characteristics derived from FactSet. Data prior to strategy inception is simulated. Strategy inception is June 26, 2014.

# Current Position

**Exhibit 7:**  
Sector and Region Weights

**Exhibit 7: Sector and Region Weights<sup>i</sup>**



<sup>i</sup>. Exhibit 7.  
Portfolio characteristics data derived from FactSet.



## Current Position

**Exhibit 8:**  
Top 10 Holdings

**Exhibit 9:**  
Top Over/Underweights

### Exhibit 8: Top 10 Holdings<sup>i</sup>

FTSE RAFI™ Developed ex US Low Volatility Index vs. FTSE All World Developed ex US Index					
Index	Weights	1-Yr Perf.	Benchmark	Weights	1-Yr Perf.
BP	5.7%	20.8%	Royal Dutch Shell	1.6%	28.3%
Royal Dutch Shell	5.6%	28.2%	Nestle	1.5%	23.8%
HSBC	4.9%	38.1%	Samsung Electronics	1.5%	61.7%
Nestle	3.7%	23.8%	HSBC	1.2%	38.1%
ENI	2.6%	8.3%	Novartis	1.1%	20.5%
GlaxoSmithKline	2.1%	-1.3%	Roche Holding	1.0%	14.2%
Mizuho Financial Group, Inc.	1.7%	4.9%	Toyota	0.9%	12.6%
Zurich Insurance Grp.	1.7%	18.1%	British American Tobacco	0.9%	26.1%
Deutsche Telekom	1.7%	7.5%	Unilever	0.9%	42.4%
British American Tobacco	1.6%	26.1%	BP	0.8%	20.8%

### Exhibit 9: Top Over/Underweights<sup>i</sup>

FTSE RAFI™ Developed ex US Low Volatility Index vs. FTSE All World Developed ex US Index					
Top Overweights	Active Weights	1-Yr Total Effect	Top Underweights	Active Weights	1-Yr Total Effect
BP	4.9%	-0.3%	Samsung Electronics	-1.5%	-0.4%
Royal Dutch Shell	4.1%	0.0%	Novartis	-1.1%	0.1%
HSBC	3.7%	0.3%	Roche Holding	-1.0%	0.1%
ENI	2.3%	-0.5%	Toyota	-0.9%	0.2%
Nestle	2.2%	-0.1%	Total	-0.7%	-0.5%
GlaxoSmithKline	1.6%	-0.4%	Royal Bank of Canada	-0.7%	0.0%
Mizuho Financial Group, Inc.	1.5%	0.0%	BHP Billiton	-0.7%	0.0%
Zurich Insurance Grp.	1.4%	-0.1%	Comm. Bank of Australia	-0.6%	0.1%
Deutsche Telekom	1.4%	-0.2%	Toronto-Dominion Bank	-0.6%	0.0%
Muenchener RG	1.2%	-0.1%	Siemens	-0.6%	0.1%

i. Exhibit 8, Exhibit 9.  
Portfolio characteristics and securities data derived from FactSet. 1-Yr Total Effect is calculated using a holdings based attribution, and measures the impact that a security had on relative performance. It is a function of the active weight of a company as well as that company's performance versus the overall benchmark.



## Attribution

### Exhibit 10: Sector Attribution

### Exhibit 11: Region Attribution

### Exhibit 10: Sector Attribution <sup>i</sup>

1-Quarter Ending 12/31/2017

Sector	Portfolio Weight	Bench. Weight	Sector Excess Return	Allocation Effect	Selection + Interaction Effect	Total Effect
Basic Materials	7.08%	9.12%	2.92%	-0.07%	0.37%	0.31%
Consumer, Cyclical	4.23%	12.25%	-0.42%	-0.10%	0.72%	0.62%
Consumer, Non-Cyclical	19.81%	12.98%	0.58%	0.03%	-0.18%	-0.15%
Energy	16.50%	6.17%	4.52%	0.32%	-2.39%	-2.07%
Financial	21.00%	25.74%	0.01%	0.04%	-0.65%	-0.62%
Health care	6.15%	8.84%	-5.62%	0.09%	0.03%	0.12%
Industrial	8.29%	10.61%	-0.03%	0.00%	0.00%	0.00%
Technology	2.44%	7.31%	1.44%	-0.11%	0.59%	0.48%
Telecommunications	8.21%	3.99%	-3.03%	-0.20%	0.44%	0.23%
Utilities	6.28%	3.01%	-6.90%	-0.15%	1.16%	1.01%
Excess Return						-0.06%

1-Year Ending 12/31/2017

Sector	Portfolio Weight	Bench. Weight	Sector Excess Return	Allocation Effect	Selection + Interaction Effect	Total Effect
Basic Materials	7.08%	9.12%	6.94%	-0.14%	0.05%	-0.09%
Consumer, Cyclical	4.23%	12.25%	-12.95%	0.01%	-0.51%	-0.50%
Consumer, Non-Cyclical	19.81%	12.98%	-2.24%	-0.05%	-0.30%	-0.36%
Energy	16.50%	6.17%	-6.14%	-1.15%	0.57%	-0.58%
Financial	21.00%	25.74%	-2.85%	0.05%	-0.43%	-0.38%
Health care	6.15%	8.84%	-13.14%	0.15%	-0.50%	-0.36%
Industrial	8.29%	10.61%	-1.15%	-0.09%	-0.46%	-0.55%
Technology	2.44%	7.31%	7.63%	-1.04%	-0.39%	-1.43%
Telecommunications	8.21%	3.99%	-7.89%	-0.52%	0.35%	-0.17%
Utilities	6.28%	3.01%	-19.96%	-0.19%	-0.97%	-1.16%
Excess Return						-5.58%

### Exhibit 11: Region Attribution <sup>i</sup>

1-Quarter Ending 12/31/2017

Region	Portfolio Weight	Bench. Weight	Country Excess Return	Allocation Effect	Selection + Interaction Effect	Total Effect
Australia & New Zealand	4.50%	6.38%	2.45%	-0.04%	0.02%	-0.02%
France	4.67%	8.60%	-2.39%	0.09%	0.11%	0.20%
Germany	6.39%	8.30%	-2.82%	0.03%	-0.08%	-0.04%
Italy, SwtZlnd, Austria	11.38%	9.42%	-2.60%	-0.06%	0.15%	0.08%
Japan and SE Asia	21.70%	26.67%	2.04%	-0.20%	-0.57%	-0.77%
Netherlands	2.04%	2.91%	4.00%	0.03%	0.22%	0.25%
Other	13.14%	16.58%	1.10%	0.00%	0.17%	0.17%
Scandinavia	4.46%	5.28%	-4.53%	0.06%	0.11%	0.17%
United Kingdom	31.73%	15.86%	0.28%	0.14%	-0.24%	-0.10%
Excess Return						-0.06%

1-Year Ending 12/31/2017

Region	Portfolio Weight	Bench. Weight	Country Excess Return	Allocation Effect	Selection + Interaction Effect	Total Effect
Australia & New Zealand	4.50%	6.38%	-8.27%	0.13%	-0.12%	0.00%
France	4.67%	8.60%	-2.86%	-0.02%	-0.57%	-0.59%
Germany	6.39%	8.30%	-4.67%	-0.05%	-0.55%	-0.61%
Italy, SwtZlnd, Austria	11.38%	9.42%	-8.64%	0.00%	-0.99%	-0.99%
Japan and SE Asia	21.70%	26.67%	-3.92%	-0.05%	-0.98%	-1.04%
Netherlands	2.04%	2.91%	14.69%	-0.05%	0.18%	0.13%
Other	13.14%	16.58%	-5.97%	0.02%	-0.70%	-0.67%
Scandinavia	4.46%	5.28%	-4.44%	0.00%	-0.21%	-0.21%
United Kingdom	31.73%	15.86%	-6.82%	-0.61%	-1.00%	-1.61%
Excess Return						-5.58%

i. Exhibit 10, Exhibit 11. Portfolio characteristics and securities data derived from FactSet. The attributions have been normalized to match the return of the strategy, as presented in the performance table on page 2. Data prior to strategy inception is simulated. Strategy inception is June 26, 2014.

## Disclosures

Source: FactSet based on data from FTSE Russell.

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Prior to 11/1/2016, the 1-yr performance values reported in the Top 10 Holdings exhibit and the Top Over/Underweights exhibit were incorrect. The calculation has been modified to report the appropriate values moving forward.

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