

## Revisiting Core Principles

The FTSE RAFI QSR Index series utilizes fundamental measures of company size (sales, cash flow, dividends, and book value) as a rebalancing anchor to trade against the constantly shifting expectations of the market.

This approach results in overweights to out-of-favor securities, which are often undervalued, and underweights to popular securities, which are often overvalued.

Over the short term, these exposures can cause relative performance to vary, but this simple, disciplined approach has historically outperformed the cap-weighted benchmark over the long-term.

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 1000 - QSR Index is comprised of the largest 1,000 developed country companies by RAFI fundamental score at the time of reconstitution. The index is reconstituted annually and rebalanced quarterly using a staggered approach.

## Performance

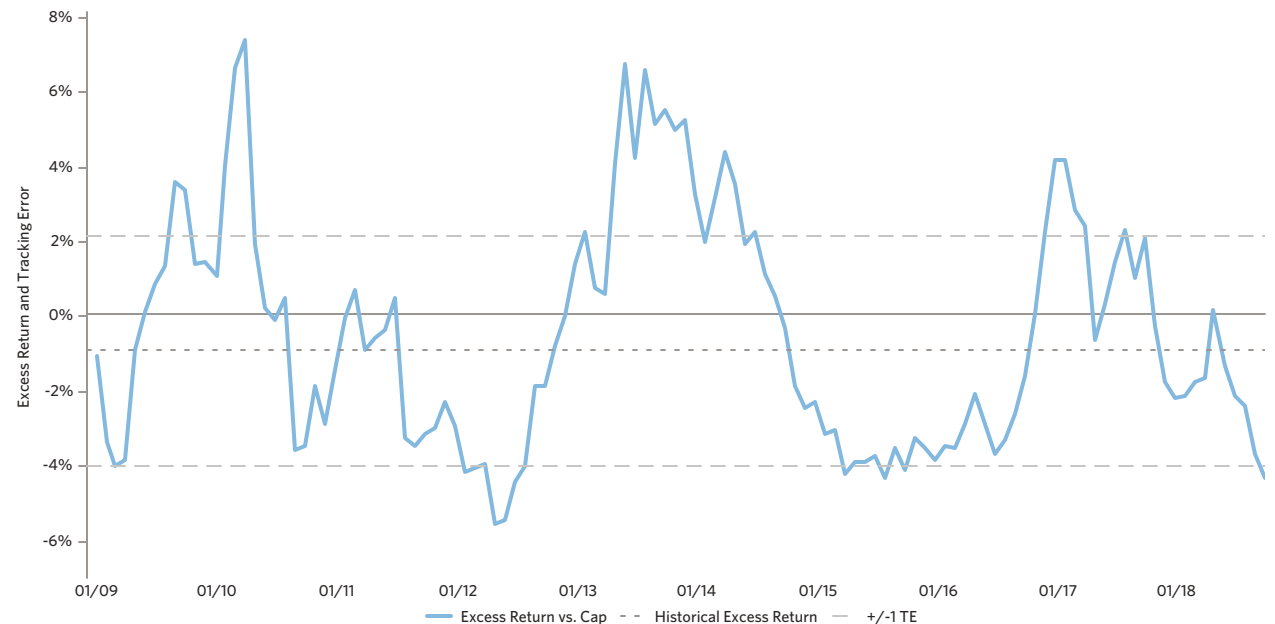
**Exhibit 1:**  
Performance Table

**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 1000 - QSR Index	5.2%	10.4%	18.7%	12.9%	11.6%	12.7%
FTSE All World Developed Index	6.2%	14.8%	20.1%	14.7%	12.6%	13.8%
Value Added	-1.0%	-4.4%	-1.4%	-1.8%	-1.0%	-1.0%
MSCI Daily Total Return Gross World	6.4%	15.1%	20.0%	14.8%	12.6%	13.8%
Portfolio Standard Deviation		8.0%	8.5%	8.9%	14.3%	9.3%
Benchmark Standard Deviation		7.8%	8.4%	8.8%	12.9%	9.0%
Tracking Error		3.1%	2.9%	2.4%	3.1%	2.5%

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



i. Exhibit 1.  
Performance derived from FactSet. All returns are total returns in GBP. 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 March 18, 2013.

ii. Exhibit 2.  
Performance derived from FactSet. All returns are total returns in GBP. Rolling 1-year excess returns and tracking error are calculated starting January 31, 2008. If applicable, strategy returns prior to inception are simulated. Inception date is March 18, 2013.

## The Value Premium

The strategy invests broadly across the entire economy; however a byproduct of the strategy's rebalancing process is a value tilt.

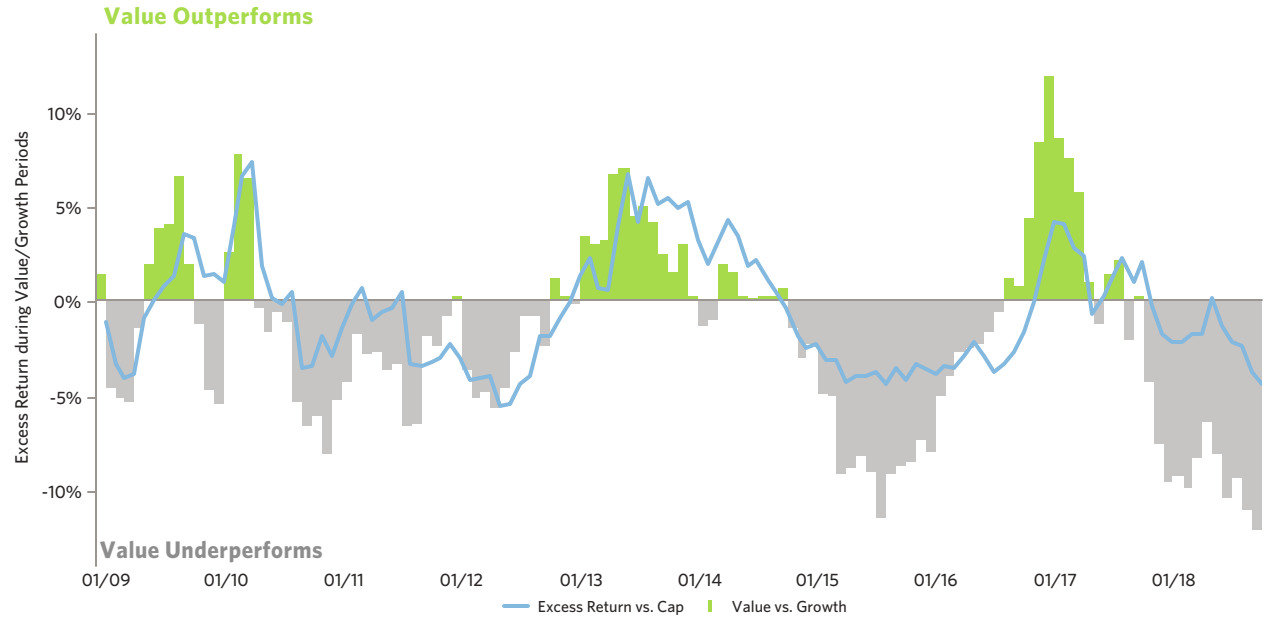
On a one-year rolling basis, the FTSE RAFI™ Developed 1000 - QSR Index outperformed 79% of the time when value won and 19% of the time when growth won.

Generally, excess returns were achieved by taking advantage of mean reversion in stock prices which can sometimes take several years to run its course.

The FTSE RAFI™ Developed 1000 - QSR Index delivered consistent outperformance over full market cycles, with positive excess returns in 41% of rolling 1-year periods, 26% of rolling 3-year periods, and 21% of rolling 5-year periods.

### Exhibit 3: Rolling 1-Year Excess Returns

Exhibit 3: Rolling 1-Year Excess Returns<sup>i</sup>



i. Exhibit 3. FTSE RAFI™ Developed 1000 - QSR Index rolling 1-year excess returns are measured against FTSE All World Developed Index. Value / Growth periods measured by rolling 1-year excess returns of MSCI The World Index Value vs. MSCI The World Index Growth. Calculation starts on January 31, 2008. Strategy returns prior to inception are simulated. Strategy inception is March 18, 2013.

## Portfolio Characteristics

The FTSE RAFI™ Developed 1000 - QSR Index is attractively positioned relative to the cap-weighted benchmark.

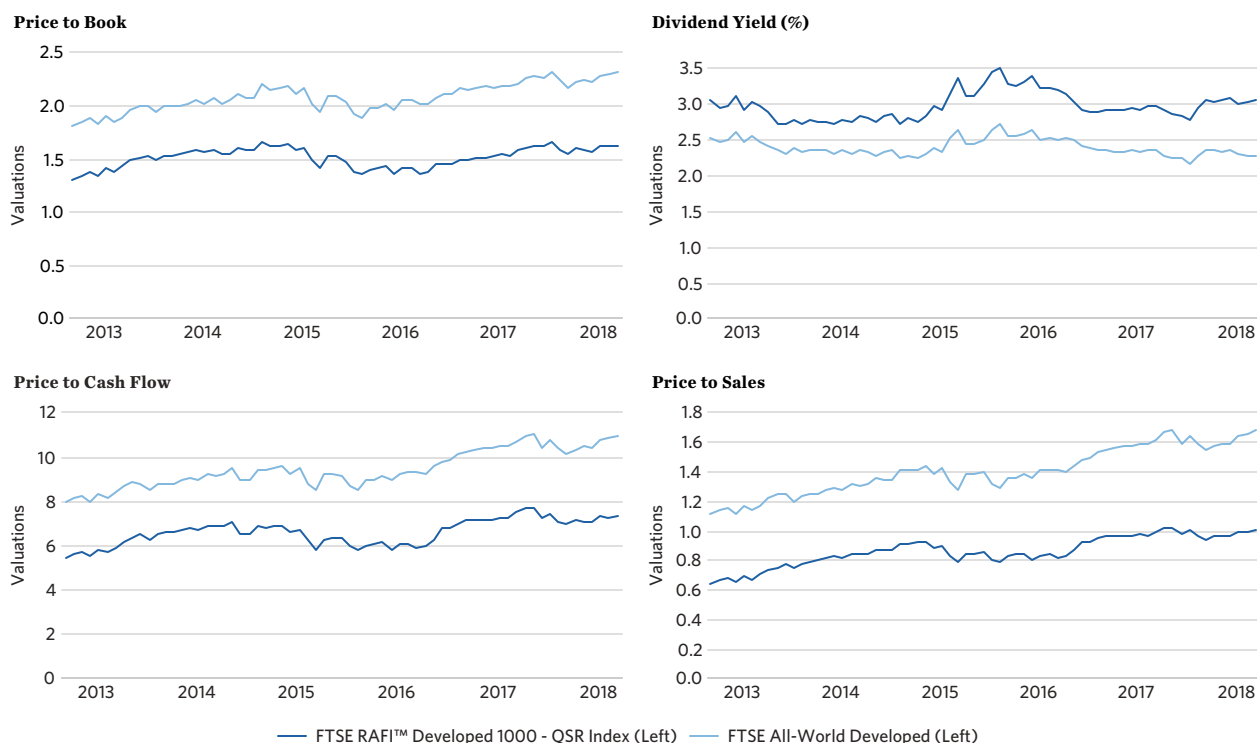
[Exhibit 4:](#)  
Portfolio Characteristics

[Exhibit 5:](#)  
Historical Portfolio Characteristics

## Exhibit 4: 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 1000 - QSR Index	1070	32.3	1.0	7.3	1.6	3.1%	122	1.02	-0.41	2.5%
FTSE All-World Developed	2196	--	1.7	11.0	2.3	2.3%	160	1.16	--	--

## Exhibit 5: Historical Portfolio Characteristics<sup>ii</sup>



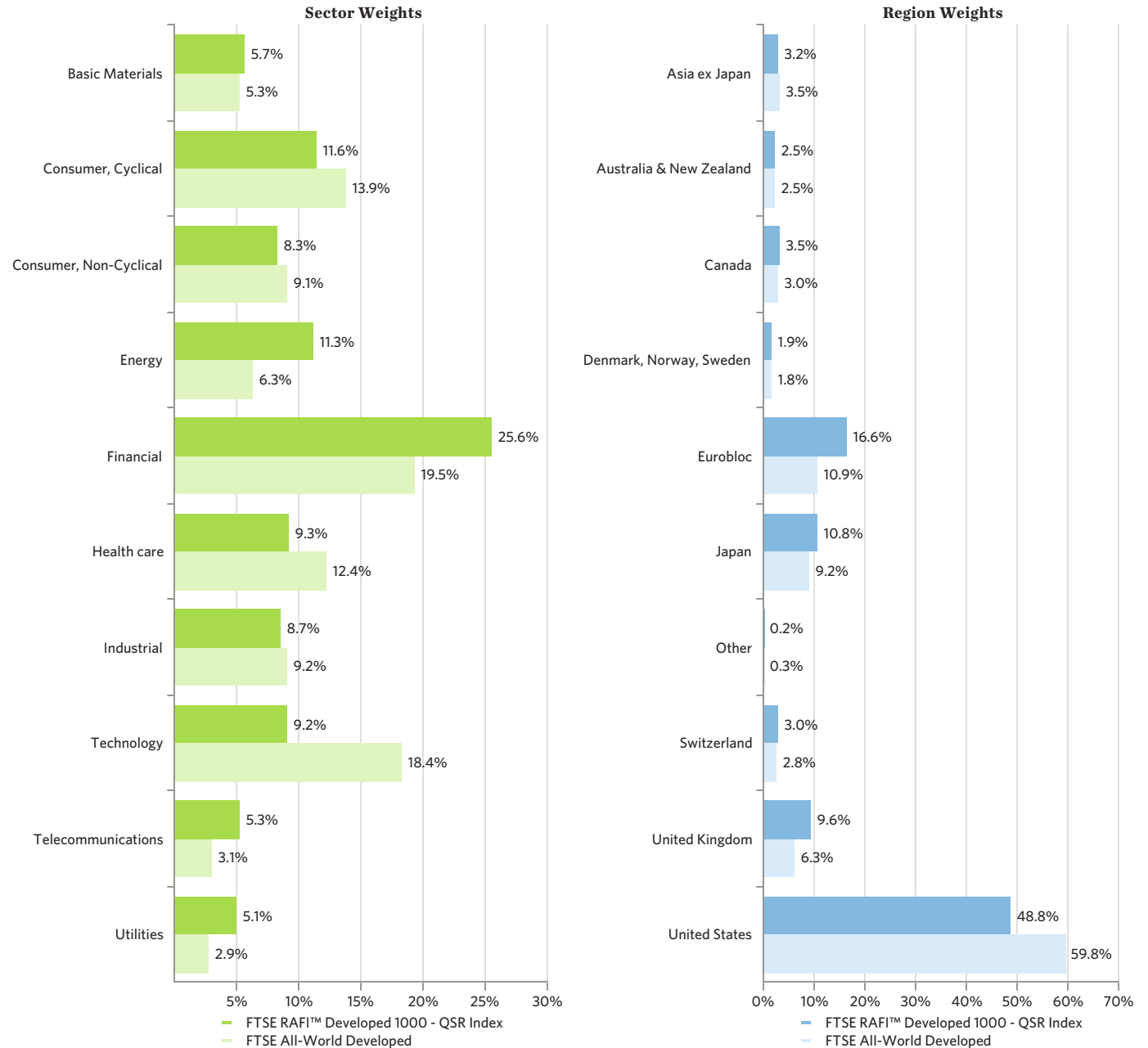
i. Exhibit 4.  
Portfolio characteristics data derived from FactSet.  
\*Sharpe Ratio, Information Ratio, and Tracking Error are calculated starting the first full month of returns following March 18, 2013. Minimum 1-year return history. The 3-mo US Treasury Bill return is used as a proxy for risk-free rate. If applicable, strategy returns prior to inception are simulated. Inception date is March 18, 2013.

ii. Exhibit 5.  
Portfolio characteristics derived from FactSet. Data prior to strategy inception is simulated. Strategy inception is March 18, 2013.

# Current Position

## Exhibit 6: Sector and Region Weights<sup>i</sup>

Exhibit 6:  
Sector and Region Weights



i. Exhibit 6.  
Portfolio characteristics data derived from FactSet.



## Current Position

Exhibit 7:  
Top 10 Holdings

Exhibit 8:  
Top Over/Underweights

### Exhibit 7: Top 10 Holdings<sup>i</sup>

FTSE RAFI™ Developed 1000 - QSR Index vs. FTSE All World Developed Index					
Index	Weights	1-Yr Perf.	Benchmark	Weights	1-Yr Perf.
Royal Dutch Shell	1.6%	24.5%	Apple	2.5%	54.1%
Apple	1.5%	54.1%	Microsoft	2.0%	62.5%
Exxon Mobil	1.5%	11.0%	Amazon	1.9%	115.9%
Berkshire Hathaway	1.1%	20.4%	Alphabet	1.7%	29.3%
AT&T	1.1%	-6.3%	Berkshire Hathaway	1.0%	20.4%
Chevron	1.0%	11.3%	Facebook, Inc. Class A	0.9%	0.5%
JPMorgan Chase	1.0%	24.6%	JPMorgan Chase	0.9%	24.6%
BP	0.9%	31.0%	Johnson & Johnson	0.9%	13.0%
Microsoft	0.9%	62.5%	Exxon Mobil	0.8%	11.0%
Total	0.9%	31.9%	Royal Dutch Shell	0.7%	24.5%

### Exhibit 8: Top Over/Underweights<sup>i</sup>

FTSE RAFI™ Developed 1000 - QSR Index vs. FTSE All World Developed Index					
Top Overweights	Active Weights	1-Yr Total Effect	Top Underweights	Active Weights	1-Yr Total Effect
Royal Dutch Shell	0.9%	0.1%	Amazon	-1.6%	-0.8%
Exxon Mobil	0.6%	0.0%	Microsoft	-1.1%	-0.3%
BP	0.6%	0.1%	Alphabet	-1.1%	-0.1%
Chevron	0.5%	0.0%	Apple	-1.0%	-0.3%
AT&T	0.5%	-0.1%	Facebook, Inc. Class A	-0.8%	0.1%
Total	0.5%	0.1%	Visa	-0.5%	-0.1%
Banco Santander	0.4%	-0.2%	MasterCard	-0.4%	-0.1%
HSBC	0.4%	-0.1%	Netflix, Inc.	-0.4%	-0.2%
Toyota	0.3%	0.0%	NVIDIA Corporation	-0.4%	-0.1%
ENI	0.3%	0.0%	Adobe Systems Incorporated	-0.3%	-0.1%

<sup>i</sup> Exhibit 7, Exhibit 8.  
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 9: Sector Attribution

### Exhibit 10: Region Attribution

### Exhibit 9: Sector Attribution<sup>i</sup>

1-Quarter Ending 09/30/2018

Sector	Portfolio Weight	Bench. Weight	Sector Excess Return	Allocation Effect	Selection + Interaction Effect	Total Effect
Basic Materials	5.72%	5.32%	-4.87%	-0.02%	0.01%	-0.01%
Consumer, Cyclical	11.55%	13.90%	-2.49%	0.01%	-0.23%	-0.22%
Consumer, Non-Cyclical	8.31%	9.12%	-2.40%	0.02%	0.02%	0.04%
Energy	11.29%	6.32%	-2.38%	-0.19%	0.15%	-0.04%
Financial	25.64%	19.47%	-2.35%	-0.14%	0.03%	-0.12%
Health care	9.30%	12.35%	6.54%	-0.19%	0.01%	-0.19%
Industrial	8.65%	9.16%	0.74%	-0.01%	-0.07%	-0.08%
Technology	9.17%	18.41%	2.90%	-0.24%	0.02%	-0.22%
Telecommunications	5.29%	3.08%	0.59%	0.07%	-0.14%	-0.07%
Utilities	5.09%	2.88%	-4.71%	-0.10%	-0.02%	-0.12%
Excess Return						-1.02%

1-Year Ending 09/30/2018

Sector	Portfolio Weight	Bench. Weight	Sector Excess Return	Allocation Effect	Selection + Interaction Effect	Total Effect
Basic Materials	5.72%	5.32%	-5.90%	-0.05%	0.14%	0.09%
Consumer, Cyclical	11.55%	13.90%	-3.38%	-0.15%	-1.22%	-1.37%
Consumer, Non-Cyclical	8.31%	9.12%	-10.72%	0.14%	-0.09%	0.05%
Energy	11.29%	6.32%	9.45%	0.24%	0.51%	0.75%
Financial	25.64%	19.47%	-12.13%	-0.51%	-0.85%	-1.37%
Health care	9.30%	12.35%	2.94%	-0.12%	-0.06%	-0.18%
Industrial	8.65%	9.16%	-5.72%	0.02%	-0.16%	-0.14%
Technology	9.17%	18.41%	10.80%	-1.35%	-0.37%	-1.71%
Telecommunications	5.29%	3.08%	-11.77%	-0.16%	-0.15%	-0.31%
Utilities	5.09%	2.88%	-9.91%	-0.22%	0.03%	-0.19%
Excess Return						-4.38%

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

1-Quarter Ending 09/30/2018

Region	Portfolio Weight	Bench. Weight	Country Excess Return	Allocation Effect	Selection + Interaction Effect	Total Effect
Asia ex Japan	3.21%	3.47%	-4.00%	0.02%	0.03%	0.05%
Australia & New Zealand	2.47%	2.51%	-5.95%	0.00%	0.00%	-0.01%
Canada	3.53%	2.96%	-3.41%	-0.02%	0.01%	-0.01%
Denmark, Norway, Sweden	1.93%	1.76%	2.65%	0.00%	0.04%	0.04%
Eurobloc	16.57%	10.91%	-4.42%	-0.26%	0.06%	-0.20%
Japan	10.75%	9.21%	0.49%	-0.02%	0.19%	0.17%
Other	0.17%	0.32%	-7.26%	0.00%	-0.02%	-0.02%
Switzerland	2.96%	2.81%	1.92%	0.00%	0.00%	0.00%
United Kingdom	9.57%	6.28%	-7.41%	-0.23%	-0.05%	-0.28%
United States	48.84%	59.77%	1.62%	-0.28%	-0.47%	-0.75%
Excess Return						-1.02%

1-Year Ending 09/30/2018

Region	Portfolio Weight	Bench. Weight	Country Excess Return	Allocation Effect	Selection + Interaction Effect	Total Effect
Asia ex Japan	3.21%	3.47%	-11.82%	0.03%	-0.09%	-0.06%
Australia & New Zealand	2.47%	2.51%	-9.37%	-0.01%	-0.06%	-0.08%
Canada	3.53%	2.96%	-8.04%	-0.04%	0.05%	0.01%
Denmark, Norway, Sweden	1.93%	1.76%	-9.34%	-0.02%	0.04%	0.02%
Eurobloc	16.57%	10.91%	-16.31%	-0.82%	-0.53%	-1.35%
Japan	10.75%	9.21%	-1.00%	-0.01%	0.00%	-0.02%
Other	0.17%	0.32%	11.87%	0.00%	0.00%	0.00%
Switzerland	2.96%	2.81%	-10.36%	0.00%	-0.03%	-0.03%
United Kingdom	9.57%	6.28%	-6.50%	-0.32%	0.25%	-0.07%
United States	48.84%	59.77%	1.87%	-0.74%	-2.06%	-2.80%
Excess Return						-4.38%

<sup>i</sup> Exhibit 9, Exhibit 10. 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 March 18, 2013.

## Disclosures

Source: FactSet based on data from FTSE Russell.

Broad-based securities indexes are unmanaged, cannot be invested in directly, and are not subject to fees and expenses typically associated with managed accounts or investment funds. Past performance is no guarantee of future results. The material contained in this document is for information purposes only. This material is not intended as an offer or solicitation for the purchase or sale of any security or financial instrument, nor is it advice or a recommendation to enter into any transaction. The information contained herein should not be construed as financial or investment advice on any subject matter.

Research Affiliates and its related entities do not warrant the accuracy of the information provided herein, either expressed or implied, for any particular purpose. Nothing contained in this material is intended to constitute legal, tax, securities or investment advice, nor an opinion regarding the appropriateness of any investment, nor a solicitation of any type. The general information contained in this material should not be acted upon without obtaining specific legal, tax and investment advice from a licensed professional. Investors should be aware of the risks associated with data sources and quantitative processes used in our investment management process. Errors may exist in data acquired from third party vendors, the construction of model portfolios, and in coding related to the index and portfolio construction process. While Research Affiliates takes steps to identify data and process errors so as to minimize the potential impact of such errors on index and portfolio performance, we cannot guarantee that such errors will not occur.

The index data published herein may be simulated and in such instances, no allowance has been made for trading costs, management fees, or other costs, are not indicative of any specific investment, are unmanaged and cannot be invested in directly. Past performance, including simulated performance, is no guarantee of future performance and actual investment results may differ. Any information and data pertaining to an index contained in this document relate only to the index itself and not to any asset management product based on the index. With the exception of the data on Research Affiliates Fundamental Index, all other information and data are based on information and data from third party sources.

Frank Russell Company is the source and owner of the Russell index data contained or reflected in this material and copyrights related thereto. Frank Russell Company and Research Affiliates, LLC have entered into a strategic alliance with respect to the Russell RAFI Indexes. Subject to Research Affiliates, LLC's intellectual property rights in certain content, Frank Russell Company is the owner of all copyrights related to the Russell RAFI Indexes. Russell® is a trademark of Frank Russell Company.

Frank Russell Company and Research Affiliates, LLC jointly own all trademark and service mark rights in and to the Russell RAFI Indexes. Research Affiliates, LLC is the owner of the trademarks, service marks, patents and copyrights related to the Fundamental Index® and the Fundamental Index methodology. The presentation may contain confidential information and unauthorized use, disclosure, copying, dissemination, or redistribution is strictly prohibited. This is a presentation of Research Affiliates, LLC. Frank Russell Company is not responsible for the formatting or configuration of this material or for any inaccuracy in Research Affiliates' presentation thereof.

The FTSE Research Affiliates Fundamental Indexes are calculated by FTSE International Limited ("FTSE") in conjunction with Research Affiliates, LLC, ("RA"). All rights and interests in the FTSE Research Affiliates Fundamental Indexes vest in FTSE. All rights in and to the RA Fundamental Index™ weighting methodology used in the calculation of the FTSE Research Affiliates Fundamental Indexes vest in RA. All rights in the FTSE indexes and / or FTSE ratings (together the "FTSE Data") vest in FTSE and/or its licensors. Except to the extent disallowed by applicable law, neither FTSE nor RA nor their licensors shall be liable (including in negligence) for any loss arising out of use of the FTSE Research Affiliates Fundamental Indexes, the FTSE Data or underlying data by any person. "FTSE®" is a trademark of the London Stock Exchange Plc and is used by FTSE under license. "Research Affiliates" and "Fundamental Index" are trademarks of RA. FTSE is not an investment adviser and makes no representation regarding the advisability of investing in any security. Inclusion of a security in an index is not a recommendation to buy, sell or hold such security. No further distribution of FTSE Data is permitted without FTSE's express written consent.

Copyright MSCI. All Rights Reserved. Without prior written permission of MSCI, this information and any other MSCI intellectual property may only be used for your internal use, may not be reproduced or disseminated in any form and may not be used to create any financial instruments or products or any indices. This information is provided on an "as is" basis, and the user of this information assumes the entire risk of any use made of this information. Neither MSCI nor any third party involved in or related to the computing or compiling of the data makes any express or implied warranties, representations or guarantees concerning the MSCI index-related data, and in no event will MSCI or any third party have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) relating to any use of this information. All MSCI returns information provided under license through MSCI. All returns based calculations are calculated by Research Affiliates.

The trademarks Fundamental Index™, RAFI™, Research Affiliates Equity™, RAE™, and the Research Affiliates™ trademark and corporate name and all related logos are the exclusive intellectual property of Research Affiliates, LLC and in some cases are registered trademarks in the U.S. and other countries.

Various features of the Fundamental Index™ methodology, including an accounting data-based non-capitalization data processing system and method for creating and weighting an index of securities, are protected by various patents, and patent-pending intellectual property of Research Affiliates, LLC. (See all applicable US Patents, Patent Publications, Patent Pending intellectual property and protected trademarks located at [http://www.researchaffiliates.com/en\\_us/about-us/legal.html#d](http://www.researchaffiliates.com/en_us/about-us/legal.html#d), which are fully incorporated herein.) Any use of these trademarks, logos, patented or patent pending methodologies without the prior written permission of Research Affiliates, LLC, is expressly prohibited. Research Affiliates, LLC, reserves the right to take any and all necessary action to preserve all of its rights, title, and interest in and to these marks, patents or pending patents.

Neither Research Affiliates, LLC nor its related entities provide investment advice outside of the United States, Canada, and Ireland, or offer or sell any securities, commodities or derivative instruments or products. Any such business may only be conducted through registered or licensed entities and individuals permitted to do so within the respective jurisdiction and only in conjunction with the legally required disclosure documents and subject to the all legally required regulatory filings.

Research Affiliates, LLC, its affiliates, agents, and each of their respective officers, directors, employees, agents, representatives and licensors (collectively "RA") shall not be liable to any third party for any loss or damage, direct, indirect or consequential, arising from or related to (i) any inaccuracy or incompleteness in, errors or omissions in the provided information or (ii) any decision made or action taken by any third party in reliance upon this information. RA does not make any warranties, express or implied, to anyone regarding the information, including, without limitation, any warranties with respect to the timeliness, sequence, accuracy, completeness, currentness, merchantability, quality or fitness for a particular purpose or any warranties as to the results to be obtained by any third-party in connection with the use of the information. RA shall not be liable to anyone for loss of business revenues, lost profits or any indirect, consequential, special or similar damages whatsoever, whether in contract, tort or otherwise, even if advised of the possibility of such damages.

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.

© 2018 Research Affiliates, LLC. All rights reserved. Duplication or dissemination prohibited without prior written permission.