

RAFI™ Fundamental Index Series

Attribution Summary: 2023

Performance

Performance Analysis	QTD Return	QTD Excess Return	YTD Return	1-Year Return
RAFI Fundamental Global Index	10.03%	-1.05%	19.19%	19.19%
<i>Solactive GBS Global Markets Large & Mid Cap Index</i>	<i>11.08%</i>	<i>---</i>	<i>23.05%</i>	<i>23.05%</i>
RAFI Fundamental US Index	11.39%	-0.55%	19.12%	19.12%
<i>Solactive GBS United States Large & Mid Cap Index</i>	<i>11.94%</i>	<i>---</i>	<i>27.73%</i>	<i>27.73%</i>
RAFI Fundamental Developed Index	10.14%	-1.33%	19.43%	19.43%
<i>Solactive GBS Dev Markets Large & Mid Cap Index</i>	<i>11.48%</i>	<i>---</i>	<i>24.55%</i>	<i>24.55%</i>
RAFI Fundamental Developed ex US Index	8.39%	-2.08%	19.95%	19.95%
<i>Solactive GBS Dev ex US Large & Mid Cap Index</i>	<i>10.47%</i>	<i>---</i>	<i>18.15%</i>	<i>18.15%</i>
RAFI Fundamental Emerging Markets Index	9.41%	1.41%	17.92%	17.92%
<i>Solactive GBS EM Large & Mid Cap Index</i>	<i>8.00%</i>	<i>---</i>	<i>12.04%</i>	<i>12.04%</i>

In Q4 2023, outside of Emerging Markets, the RAFI Fundamental Index Series underperformed the cap-weighted benchmark. As for the overall performance of 2023, performance of the benchmark was mixed. The RAFI Fundamental Emerging Markets index was the standout performer, beating the benchmark by 5.9% for the year. On the flip side, the RAFI Fundamental US Index lagged the benchmark by -8.6% in 2023. Notably, RAFI has outperformed cap-weighted Broad and Value indices outside of the US (i.e. Emerging and Developed ex US) from 2007 to 2023.

Global

The RAFI Fundamental Global Index underperformed its benchmark by -1.0% in Q4 and by -3.9% for the full year. In 2023, growth stocks, particularly in the US market, demonstrated strong performance. The MSCI AC World Growth Index gained 33.5% in 2023, while the MSCI AC World Value Index posted a more modest 12.7% 1-year return. The RAFI Fundamental Global Index, which inherently tilts toward value as it weighs constituents based on their fundamental size, outpaced the value benchmark by 6.5% in 2023.

The Q4 underperformance of the RAFI Fundamental Global Index compared to the cap-weighted index benchmark was predominantly driven by the allocation effect in both the Technology and Energy sectors. Remarkably, three of the bottom five contributors to the return were stocks from the Technology sector in the US market.

Stock Analysis

Top Five/Bottom Five Contributors to Excess Return

	Portfolio Weight	Active Weight	2023 FY Return	Excess Return Contribution
Top Five Contributors to Return				
Intel Corporation	0.75%	0.52%	94.64%	0.31%
Petroleo Brasileiro SA Pfd	0.22%	0.18%	112.05%	0.11%
Meituan Class B	0.03%	-0.10%	-53.14%	0.11%
Samsung Electronics Co., Ltd.	0.91%	0.50%	42.27%	0.08%
UnitedHealth Group Incorporated	0.50%	-0.27%	0.79%	0.07%
Bottom Five Contributors to Return				
NVIDIA Corporation	0.17%	-1.25%	239.02%	-1.18%
Microsoft Corporation	1.37%	-2.44%	58.19%	-0.72%
Apple Inc.	2.21%	-2.13%	49.00%	-0.52%
Amazon.com, Inc.	0.70%	-1.09%	80.88%	-0.50%
Tesla, Inc.	0.06%	-0.92%	101.72%	-0.45%

The largest contributor to excess return in both Q4 and the entire year of 2023 was Intel, posting +41.8% in Q4 and +94.6% for the year. An average overweight of 0.5% contributed 31 bps to excess return for 2023. Intel achieved impressive returns fueled by revenue growth in its foundry business amid the heightened interest in artificial intelligence (AI). Intel Foundry Services (IFS), which manufactures chips, recorded \$311 million in revenue, marking a remarkable 299% year-over-year growth. Collectively, the top five contributors held an active weight of +0.8% in 2023, contributing +70bps to excess return in 2023.

Microsoft stands out as the sole stock consistently present in either the top five or bottom five contributors to returns in every quarter of 2023. The performance of this prominent software giant throughout the year serves as a noteworthy example of mean reversion for investors. Microsoft was among the bottom five contributors in both Q1 and Q2. After emerging as the top contributor in Q3, it subsequently became a notable detractor in Q4, trailing the benchmark by -21 bps with a -2.7% underweight for the quarter. Overall, Microsoft stands as the second largest detractor for the full year of 2023, subtracting -72 bps from excess return with a -2.4% underweight. Microsoft's Azure Cloud was poised to capitalize on the benefits of the company's AI initiatives, with its cloud revenue growing by 29% year over year (YoY), surpassing the growth rates of both Amazon Web Services (12% YoY) and Alphabet's Google Cloud (22% YoY). The integration of AI technology also provides the company with additional ways to establish valuable recurring revenue streams through subscriptions.

For the full year, the bottom five contributors all came from the “Magnificent Seven” stocks (aka Amazon, Apple, Google, Meta, Microsoft, Nvidia, and Tesla), which were the main market drivers of 2023. Nvidia, buoyed by the surging popularity of AI, experienced a remarkable 239% climb over the year. A -1.3% underweight to the chipmaker resulted in a -118 bps reduction in excess return for 2023. In aggregate, the bottom five contributors held an active weight of -1.6% in 2023 and contributed to a -336bps reduction in excess return in 2023.

Sector Analysis

12/30/2022 to 12/29/2023	RAFI Fundamental Global Index		Solactive GBS Global Markets Large & Mid Cap Index		Attribution Analysis		
	Port. Average Weight	Port. Total Return	Bench. Average Weight	Bench. Total Return	Allocation Effect	Selection + Interaction	Total Effect
Total	100.00	19.21	100.00	23.06	-3.06	-0.79	-3.85
Basic Materials	7.29	17.64	5.01	14.11	-0.19	0.27	0.08
Communications	7.64	28.26	7.90	35.81	-0.05	-0.54	-0.59
Consumer Cyclical	9.64	25.00	10.61	32.64	-0.05	-0.70	-0.75
Consumer Non-Cyclical	8.17	5.33	7.66	3.76	-0.10	0.14	0.04
Energy	7.82	11.86	5.05	5.59	-0.52	0.57	0.06
Financials	20.61	18.82	14.35	17.30	-0.36	0.36	-0.01
Healthcare	9.43	0.68	12.10	4.43	0.54	-0.41	0.13
Industrial	9.81	22.51	9.55	20.73	-0.01	0.18	0.17
Real Estate	1.86	5.74	2.20	9.48	0.07	-0.08	-0.01
Technology	14.13	44.08	22.77	52.65	-2.21	-0.94	-3.15
Utilities	3.61	10.27	2.80	1.52	-0.18	0.36	0.18

Examining performance by sector, the Technology sector (-8.6% underweight) and Consumer Cyclical sector (-1.0% underweight) were the main detractors of excess return for 2023, subtracting -315 bps and -75 bps, respectively. The Technology sector experienced a robust year, particularly in Q4 as the US Federal Reserve hinted at potential interest rate cuts in 2024. Within the Technology sector, allocation effects accounted for -221bps, while selection effects accounted for -94 bps to performance. Nvidia, Microsoft, and Apple played a role in the reduction of -242 bps out of the sector’s total impact of -315 bps. Meanwhile, in the Consumer Cyclical sector, performance was predominantly driven by selection effects, which removed -70bps in excess return. Additionally, allocation effects further diminished excess return by -5bps in 2023. Notably, Amazon and Tesla detracted -95 bps of the segment’s total effect of -75 bps. The Nasdaq Composite surged by 43% in 2023, with the booming demand for AI technology being a major investing theme driving investor enthusiasm. The market in 2023 was highly concentrated, and the bulk of performance was explained by the “Magnificent Seven”.

Geographic Analysis

12/30/2022 to 12/29/2023	RAFI Fundamental Global Index		Solactive GBS Global Markets Large & Mid Cap Index		Attribution Analysis		
	Port. Average Weight	Port. Total Return	Bench. Average Weight	Bench. Total Return	Allocation Effect	Selection + Interaction	Total Effect
Total	100.00	19.21	100.00	23.06	-1.18	-2.68	-3.85
Developed Asia Pacific	13.83	17.98	9.36	15.30	-0.35	0.39	0.04
Developed Europe	23.38	21.59	16.39	20.77	-0.17	0.17	0.00
Emerging Americas	1.42	44.26	1.02	34.33	0.05	0.12	0.17
Emerging Asia	10.06	15.25	8.91	10.29	-0.15	0.53	0.37
Emerging EMEA	1.20	9.76	1.59	8.64	0.07	0.01	0.08
United States	46.69	19.16	59.20	27.64	-0.59	-3.82	-4.41
Other Developed	3.41	13.26	3.36	15.53	0.01	-0.08	-0.07
[Unassigned]	0.00	--	0.18	49.26	-0.04	-0.00	-0.04

At the regional level, the prevailing theme was quarter-over-quarter mean reversion, where the largest contributors in Q3 became the primary drivers of underperformance in the final quarter of the year. Looking at the full year of 2023, the US market explained the bulk of underperformance. This region alone accounted for -441 bps of the index's -385 bps in excess return compared to the cap-weighted benchmark. Selection effects (-382 bps) played a significant role and outweighed the impact of allocation effect (-59bps) in 2023. The underweight of the "Magnificent Seven", the major contributors to the market's gains over the year, is the main reason for the underperformance. The RAFI Fundamental Index approach offers investors the opportunity to capture rebalancing alpha by contra trading against a cap-weighted index's biggest bets. However, during periods of trending markets and strong growth outperformance, the strategy will face headwinds.

United States

Stock Analysis

Top Five/Bottom Five Contributors to Excess Return

	Portfolio Weight	Active Weight	2023 FY Return	Excess Return Contribution
Top Five Contributors to Return				
Intel Corporation	1.60%	1.22%	94.64%	0.68%
Meta Platforms Inc. Class A	2.05%	0.47%	194.13%	0.28%
General Electric Company	0.54%	0.23%	96.66%	0.15%
Danaher Corporation	0.19%	-0.25%	-12.45%	0.15%
Moderna, Inc.	0.02%	-0.10%	-44.63%	0.12%
Bottom Five Contributors to Return				
NVIDIA Corporation	0.37%	-2.00%	239.02%	-1.85%
Microsoft Corporation	2.94%	-3.41%	58.19%	-0.87%
Tesla, Inc.	0.13%	-1.50%	101.72%	-0.71%
Amazon.com, Inc.	1.50%	-1.49%	80.88%	-0.64%
Apple Inc.	4.75%	-2.49%	49.00%	-0.56%

Sector Attribution

12/30/2022 to 12/29/2023	RAFI Fundamental US Index		Solactive GBS United States Large & Mid Cap Index		Attribution Analysis		
	Port. Average Weight	Port. Total Return	Bench. Average Weight	Bench. Total Return	Allocation Effect	Selection + Interaction	Total Effect
Total	100.00	19.20	100.00	27.75	-4.53	-4.02	-8.56
Basic Materials	3.14	18.61	2.37	13.37	-0.10	0.17	0.07
Communications	9.78	43.39	8.91	57.84	0.15	-1.13	-0.98
Consumer Cyclical	8.54	29.53	10.71	44.04	-0.25	-1.15	-1.39
Consumer Non-Cyclical	7.91	0.35	6.66	0.74	-0.35	-0.05	-0.40
Energy	6.82	1.43	4.49	-2.12	-0.76	0.32	-0.44
Financials	17.76	15.68	10.34	16.66	-0.76	-0.15	-0.91
Healthcare	12.45	-3.27	13.72	2.59	0.36	-0.93	-0.57
Industrial	8.68	19.11	7.83	17.73	-0.12	0.14	0.02
Real Estate	1.66	17.80	2.34	12.52	0.13	0.09	0.22
Technology	19.91	47.74	30.05	57.11	-2.54	-1.44	-3.98
Utilities	3.34	-4.95	2.57	-7.20	-0.29	0.09	-0.20

Developed

Stock Analysis

Top Five/Bottom Five Contributors to Excess Return

	Portfolio Weight	Active Weight	2023 FY Return	Excess Return Contribution
Top Five Contributors to Return				
Intel Corporation	0.86%	0.60%	94.64%	0.35%
UnitedHealth Group Incorporated	0.57%	-0.30%	0.79%	0.09%
NextEra Energy, Inc.	0.14%	-0.12%	-25.30%	0.08%
Moderna, Inc.	0.01%	-0.07%	-44.63%	0.08%
Thermo Fisher Scientific Inc.	0.15%	-0.24%	-3.36%	0.08%
Bottom Five Contributors to Return				
NVIDIA Corporation	0.20%	-1.41%	239.02%	-1.32%
Microsoft Corporation	1.57%	-2.72%	58.19%	-0.77%
Apple Inc.	2.54%	-2.36%	49.00%	-0.55%
Amazon.com, Inc.	0.81%	-1.22%	80.88%	-0.54%
Tesla, Inc.	0.07%	-1.03%	101.72%	-0.50%

Sector Attribution

12/30/2022 to 12/29/2023	RAFI Fundamental Developed Index		Solactive GBS Developed Markets Large & Mid Cap Index		Attribution Analysis		
	Port. Average Weight	Port. Total Return	Bench. Average Weight	Bench. Total Return	Allocation Effect	Selection + Interaction	Total Effect
Total	100.00	19.44	100.00	24.56	-3.63	-1.49	-5.12
Basic Materials	6.60	19.59	4.42	16.61	-0.16	0.21	0.05
Communications	7.69	32.55	7.51	45.85	0.02	-0.90	-0.89
Consumer Cyclical	9.63	27.67	10.48	37.19	-0.05	-0.85	-0.91
Consumer Non-Cyclical	8.66	5.28	7.86	3.54	-0.17	0.17	-0.01
Energy	7.80	8.22	4.96	2.87	-0.67	0.52	-0.16
Financials	19.99	19.96	13.38	18.29	-0.41	0.38	-0.03
Healthcare	10.63	0.45	13.10	4.65	0.54	-0.52	0.02
Industrial	10.42	23.02	10.05	21.45	-0.02	0.17	0.15
Real Estate	1.75	14.65	2.26	11.18	0.10	0.06	0.16
Technology	13.15	44.17	23.20	54.40	-2.58	-1.05	-3.62
Utilities	3.67	8.60	2.79	0.79	-0.22	0.33	0.11

Geographic Attribution

12/30/2022 to 12/29/2023	RAFI Fundamental Developed Index		Solactive GBS Developed Markets Large & Mid Cap Index		Attribution Analysis		
	Port. Average Weight	Port. Total Return	Bench. Average Weight	Bench. Total Return	Allocation Effect	Selection + Interaction	Total Effect
Total	100.00	19.44	100.00	24.56	-0.99	-4.13	-5.12
Developed Asia Pacific x JP	3.69	6.95	3.55	6.62	-0.02	0.00	-0.01
Europe - Non-EU	4.68	20.19	4.67	20.27	0.00	-0.01	-0.01
European Union	15.03	25.29	9.58	24.29	-0.03	0.14	0.11
Japan	12.03	21.68	6.97	20.37	-0.20	0.16	-0.04
United Kingdom	7.08	15.02	4.24	13.86	-0.31	0.08	-0.23
United States	53.57	19.16	66.80	27.64	-0.43	-4.41	-4.84
Other Developed	3.92	13.27	3.79	15.53	0.01	-0.09	-0.08
Other	--	--	0.19	8.84	0.03	--	0.03
[Unassigned]	0.00	--	0.19	50.11	-0.04	-0.00	-0.04

Developed ex US

Stock Analysis

Top Five/Bottom Five Contributors to Excess Return

	Portfolio Weight	Active Weight	2023 FY Return	Excess Return Contribution
Top Five Contributors to Return				
Nestle S.A.	0.90%	-0.94%	2.62%	0.15%
AIA Group Limited	0.35%	-0.31%	-20.00%	0.14%
Diageo plc	0.19%	-0.35%	-15.10%	0.13%
AstraZeneca PLC	0.47%	-0.72%	2.25%	0.12%
Stellantis N.V.	0.47%	0.24%	79.85%	0.12%
Bottom Five Contributors to Return				
Novo Nordisk A/S Class B	0.34%	-1.23%	55.63%	-0.40%
ASML Holding NV	0.30%	-1.22%	41.45%	-0.26%
Shopify, Inc. Class A	0.04%	-0.32%	125.49%	-0.21%
Vodafone Group Plc	0.51%	0.36%	-4.24%	-0.10%
Tokyo Electron Ltd.	0.18%	-0.17%	87.00%	-0.09%

Sector Attribution

12/30/2022 to 12/29/2023	RAFI Fundamental Developed ex US Index		Solactive GBS Dev Markets ex US Large & Mid Cap Index		Attribution Analysis		
	Port. Average Weight	Port. Total Return	Bench. Average Weight	Bench. Total Return	Allocation Effect	Selection + Interaction	Total Effect
Total	100.00	19.90	100.00	18.11	-0.57	2.37	1.80
Basic Materials	10.63	20.02	8.68	18.63	0.03	0.15	0.18
Communications	5.18	12.81	4.58	7.29	-0.08	0.30	0.23
Consumer Cyclical	11.91	26.77	9.97	22.82	0.08	0.47	0.55
Consumer Non-Cyclical	9.58	11.42	10.35	7.49	0.07	0.41	0.48
Energy	8.60	14.88	5.95	11.19	-0.21	0.36	0.15
Financials	21.94	23.43	19.72	19.96	-0.01	0.77	0.76
Healthcare	8.15	7.60	11.83	9.97	0.32	-0.22	0.10
Industrial	12.50	26.90	14.68	25.60	-0.16	0.16	-0.00
Real Estate	1.96	8.57	2.09	8.12	0.03	0.01	0.04
Technology	5.32	29.07	8.88	37.02	-0.62	-0.38	-1.00
Utilities	4.22	23.68	3.27	15.48	-0.03	0.34	0.32

Geographic Attribution

12/30/2022 to 12/29/2023	RAFI Fundamental Developed ex US Index		Solactive GBS Dev Markets ex US Large & Mid Cap Index		Attribution Analysis		
	Port. Average Weight	Port. Total Return	Bench. Average Weight	Bench. Total Return	Allocation Effect	Selection + Interaction	Total Effect
Total	100.00	19.90	100.00	18.11	0.63	1.17	1.80
Developed Asia Pacific x JP	8.47	6.50	10.80	5.82	0.33	0.05	0.38
Europe - Non-EU	9.51	20.31	14.19	19.63	-0.08	0.06	-0.02
European Union	30.56	25.23	28.47	24.51	0.13	0.22	0.34
Japan	28.92	22.75	21.52	20.37	0.17	0.70	0.88
United Kingdom	14.62	15.24	13.05	13.64	-0.08	0.25	0.16
Other Developed	7.91	13.21	11.43	14.67	0.14	-0.11	0.03
Other	--	--	0.52	15.43	0.02	--	0.02

Emerging Markets

Stock Analysis

Top Five/Bottom Five Contributors to Excess Return

	Portfolio Weight	Active Weight	2023 FY Return	Excess Return Contribution
Top Five Contributors to Return				
Meituan Class B	1.66%	1.27%	112.05%	0.91%
Tencent Holdings Ltd.	0.23%	-0.90%	-53.14%	0.87%
Wuxi Biologics (Cayman) Inc.	1.19%	0.87%	80.67%	0.47%
SK hynix Inc.	1.66%	-2.19%	-6.89%	0.42%
Petroleo Brasileiro SA Pfd	1.13%	0.50%	87.23%	0.28%
Bottom Five Contributors to Return				
PDD Holdings Inc. Sponsored ADR Class A	0.20%	-0.55%	79.41%	-0.42%
Ping An Insurance (Group) Company of China, Ltd	1.33%	0.76%	-27.81%	-0.31%
Baidu, Inc. Class A	0.22%	0.18%	-70.80%	-0.29%
PetroChina Company Limited Class H	0.43%	0.43%	0.00%	-0.22%
POSCO Holdings Inc.	0.00%	-0.35%	89.33%	-0.21%

Sector Attribution

12/30/2022 to 12/29/2023	RAFI Fundamental Emerging Markets Index		Solactive GBS Emerging Markets Large & Mid Cap Index		Attribution Analysis		
	Port. Average Weight	Port. Total Return	Bench. Average Weight	Bench. Total Return	Allocation Effect	Selection + Interaction	Total Effect
Total	100.00	17.86	100.00	12.01	1.80	4.05	5.85
Basic Materials	11.86	10.86	9.55	5.59	-0.14	0.67	0.52
Communications	6.99	1.27	10.88	-7.68	0.84	0.69	1.53
Consumer Cyclical	9.42	8.43	11.68	5.20	0.19	0.30	0.49
Consumer Non-Cyclical	4.62	5.19	6.13	5.68	0.10	-0.03	0.07
Energy	7.96	39.40	5.78	24.90	0.24	1.01	1.25
Financials	25.18	12.68	21.89	12.74	0.00	-0.02	-0.01
Healthcare	1.25	14.30	4.34	-0.50	0.42	0.20	0.62
Industrial	5.49	16.15	5.64	11.16	0.00	0.27	0.27
Real Estate	2.59	-28.78	1.74	-6.93	-0.19	-0.77	-0.97
Technology	21.40	43.65	19.46	37.20	0.37	1.17	1.53
Utilities	3.26	23.44	2.89	6.06	-0.02	0.56	0.54

Geographic Attribution

12/30/2022 to 12/29/2023	RAFI Fundamental Emerging Markets Index		Solactive GBS Emerging Markets Large & Mid Cap Index		Attribution Analysis		
	Port. Average Weight	Port. Total Return	Bench. Average Weight	Bench. Total Return	Allocation Effect	Selection + Interaction	Total Effect
Total	100.00	17.86	100.00	12.01	1.25	4.60	5.85
Brazil	7.80	48.26	5.63	36.37	0.55	0.74	1.29
China	27.75	-5.35	28.17	-9.52	0.09	1.43	1.52
Emerging Europe	3.37	21.41	1.85	10.36	-0.04	0.33	0.29
India	10.62	36.29	15.78	24.37	-0.74	1.12	0.38
Latin America x Brazil	2.99	32.01	3.36	31.55	-0.04	0.02	-0.01
Middle East and Africa	6.08	4.31	11.38	6.12	0.32	-0.10	0.22
South Korea	20.51	29.20	12.19	25.61	1.11	0.68	1.79
Southeast Asia	20.82	23.28	21.31	21.58	-0.05	0.36	0.31
Other	0.07	6.80	0.28	-15.45	0.06	0.01	0.08
[Unassigned]	0.00	--	0.04	35.41	-0.01	0.00	-0.01

Important Information

The material contained in this document is for informational 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. RAFI Indices, LLC ("RI"), its affiliates, agents, and each of their respective officers, directors, employees, agents, representatives and licensors (collectively "Research Affiliates") does not make any warranties, express or implied, to anyone regarding the information provided herein, 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. 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 registered professional. Investors should be aware of the risks associated with data sources and quantitative processes used to create the content contained herein or the investment management process. Errors may exist in data acquired from third party vendors, the construction or coding of indices or model portfolios, and the construction of the spreadsheets, results or information provided. Research Affiliates takes reasonable steps to eliminate or mitigate errors, and to identify data and process errors so as to minimize the potential impact of such errors, however Research Affiliates cannot guarantee that such errors will not occur. Use of this material is conditioned upon, and evidence of, the user's full release of Research Affiliates from any liability or responsibility 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 information or (ii) any decision made or action taken by any third party in reliance upon this information. Research Affiliates 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.

Past performance is not indicative of future results. Certain performance information presented represents simulated performance or performance based on combined simulated index data (pre-index launch) and live index data (post-index launch). Past simulated performance is no guarantee of future performance and does not represent actual performance of an investment product based on an index. No allowance has been made for trading costs, management fees, or other costs associated with asset management, as the information provided relates only to the index itself. Performance data includes reinvestment of all dividends and income. Indexes are unmanaged and cannot be invested in directly. Actual investment results will differ. The simulated data may have under- or over- compensated for the impact, if any, of certain market factors. Simulated returns may not reflect the impact that material economic and market factors might have had on an investor's decision making. Simulated data is subject to the fact that it is designed with the benefit of hindsight. Simulated returns carry the risk that actual performance is not as depicted is not due to inaccurate predictive modeling. Simulated returns cannot predict how an investment strategy will perform in the future. Investors may experience loss of all or some of their investment.

Any applicable financial instruments are not sponsored, promoted, sold or supported in any other manner by RI or Solactive AG nor does RI or Solactive AG offer any express or implicit guarantee or assurance either with regard to the results of using the Index and/or Index trade mark or the Index Price at any time or in any other respect. The Index is calculated and published by RI and Solactive AG. RI and Solactive AG use their best efforts to ensure that the Index is calculated correctly. Irrespective of their obligations towards Licensee, neither RI nor Solactive AG has any obligation to point out errors in the Index to third parties including but not limited to Licensee, investors and/or financial intermediaries of the financial instrument. Neither publication of the Index nor the licensing of the Index or Index trade mark for the purpose of use in connection with the financial instrument constitutes a recommendation by RI or Solactive AG to invest capital in said financial instrument nor does it in any way represent an assurance or opinion of RI or Solactive AG with regard to any investment in the financial instrument.

The trademarks Fundamental Index™, RAFI™, Research Affiliates Equity™, RAET™ and the Research Affiliates™ trademark and corporate name and all related logos are the exclusive intellectual property of Research Affiliates, LLC ("RA") 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 of RA. (See applicable US Patents, Patent Publications and protected trademarks located at <https://www.researchaffiliates.com/legal/disclosures#patent-trademarks-and-copyrights>, which are fully incorporated herein.) Any use of these trademarks, logos or patented methodologies without the prior written permission of RA is expressly prohibited. RA reserves the right to take any and all necessary action to preserve all of its rights, title, and interest in and to these marks or patents.

RI does not offer or provide investment advice 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 regulatory filings.

© 2024 RAFI Indices, LLC. All rights reserved. Duplication or dissemination prohibited without prior written permission.