

RAFI Roadmap: A guide to better investor outcomes

RAFI™ Multi-Factor Global Index

BENCHMARK Global Cap-Weight Large+Mid
ASSET CLASS Equity

What Is the Process?

1. Separate the universe into large companies and small companies.
2. Form individual factor sleeves:

RAFI Factor Index Construction

Factor	Measures	Select	Weighting	Rebalance
Momentum	Standard, Idiosyncratic, and Fresh Momentum	Top 50% by weight	Cap Weight	Full Quarterly
Value	RAFI / Cap	Top 25% by weight	RAFI Weight	Quarterly staggered
Low Volatility	Global, Industry, and Country Systematic Risk	Top 25% by weight	RAFI Weight	Quarterly staggered
Quality	Profitability and Investment	Top 25% by weight	RAFI Weight	Quarterly Staggered
Size	Average of four factor portfolios (value, quality, low volatility, momentum) built within small universe and rebalanced quarterly.		Due to lack of liquidity, size is excluded from the Emerging Markets Index.	

3. Implement trading controls to minimize turnover.
4. Equally weight the five factor sleeves.

Will the Strategy Deliver?

This strategy is expected to deliver excess returns in the future because it is theoretically and empirically robust. Every investor should ask five questions before investing:

1. Who is on the other side of the trade?
2. Has the strategy worked over long and varying time periods net of changes in valuation?
3. Does the strategy produce similar results across different regions?
4. Does the the strategy produce similar results across slightly different definitions (e.g., P/B vs. P/S)?
5. Is the strategy investable in the real world net of costs?

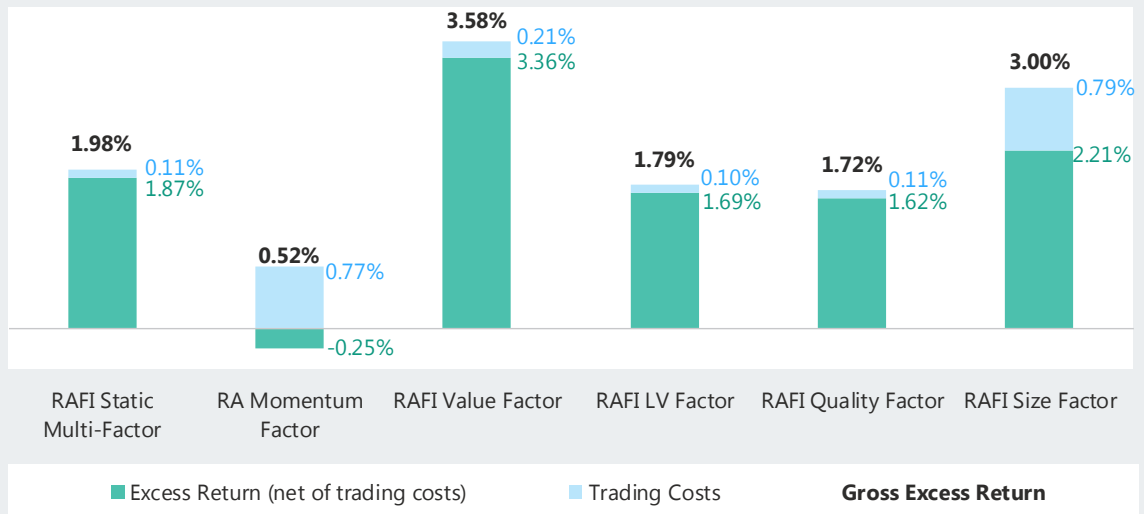
Why This Strategy Delivers

	Theory	Empirical Evidence			
Factor	1. Who's on the Other Side of the Trade?	2. Excess Return*	3. Regions That Worked	4. Definitions That Worked	5. Trading Costs**
RA Momentum Factor	The Patsy Momentum premium delivers because uninformed investors are slow to react to new information about a company.	0.52%	5 of 5	3 of 3	0.77%
RAFI Value Factor	The Performance Chaser Value premium delivers because <i>performance chasers</i> under-own value securities (preferring fast-growing glamour stocks), driving prices down, yields up, and future returns higher.	3.58%	5 of 5	3 of 4	0.21%
RAFI Low Volatility Factor	The Gambler Low volatility premium delivers because investors' preference for gambling leads them to over-own high volatility securities as "lottery tickets."	1.79%	5 of 5	4 of 4	0.10%
RAFI Quality Factor	The Empire Builder Quality premium delivers because investors are drawn to the glamour of <i>empire building</i> companies and underappreciate conservative capital allocators with wide economic moats.	1.72%	5 of 5	5 of 5	0.11%
RAFI Size Factor	All of the Above <i>All of the factor premiums above</i> tend to work better in small-capitalization markets because these markets tend to be less efficient and experience larger pricing errors.	3.00%	3 of 3	N/A	0.79%

SOURCE: CRSP/Compustat and Worldscope/Datastream | DATA: From 7/1/2002 to 06/30/2018 | *Gross of trading costs.

**Annualized trading costs are estimated as the market impact of transactions, assuming \$10B in AUM.

Historical Excess Return, by Global Factor Index



SOURCE: CRSP/Compustat and Worldscope/Datastream | DATA: From 7/1/2002 to 06/30/2018 | NOTE: Annualized trading costs are estimated as the market impact of transactions, assuming \$10B in AUM.

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SEPTEMBER 2016

[Will Your Factor Deliver? An Examination of Robustness and Implementation Costs](#)

JASON HSU, VITALI KALESNIK, NOAH BECK, AND HELGE KOSTKA

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FEBRUARY 2017

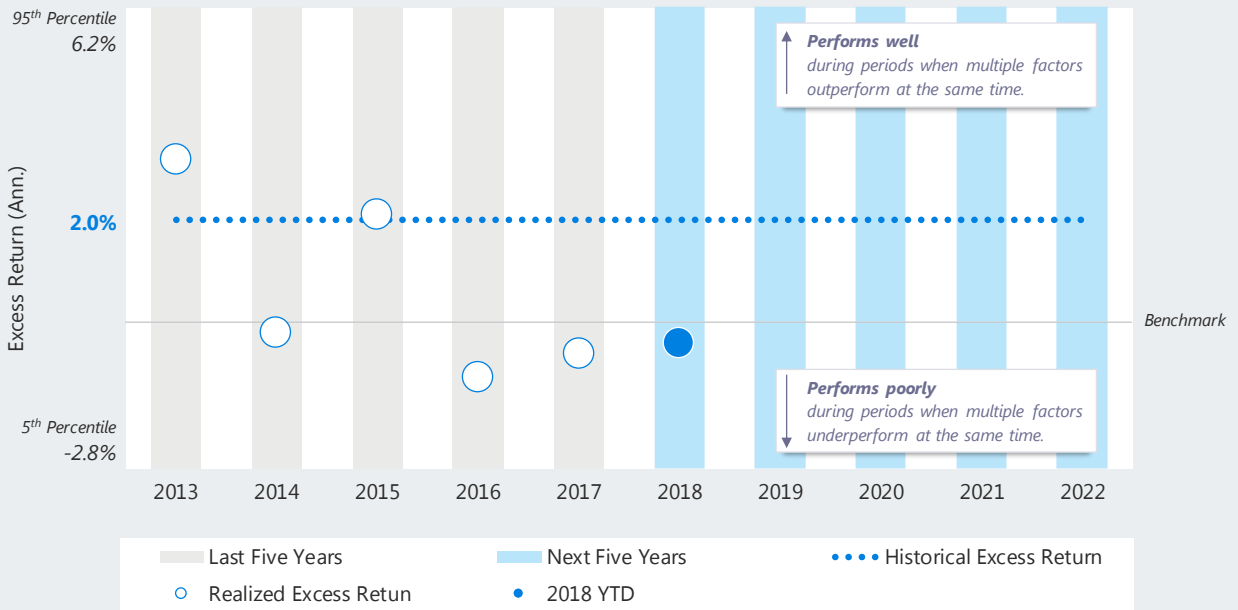
[Forecasting Factor and Smart Beta Returns \(Hint: History Is Worse than Useless\)](#)

ROB ARNOTT, NOAH BECK, AND VITALI KALESNIK

What to Expect?

The RAFI Multi-Factor Global Index shows 2.0% in annualized excess returns since 2002. However, those results have come with a wide range of outcomes (+/- 5% or more) in any given year.

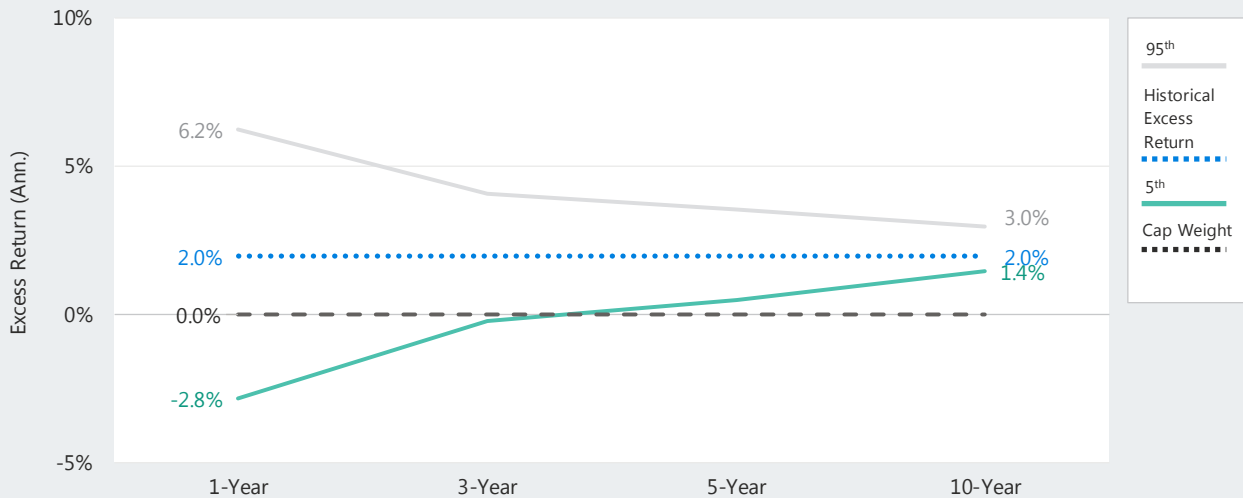
Calendar Excess Returns



NOTE: Based on rolling returns from simulated data | SOURCE: CRSP/Compustat and Worldscope/Datastream | DATA: As of 06/30/2018

Rolling Excess Returns

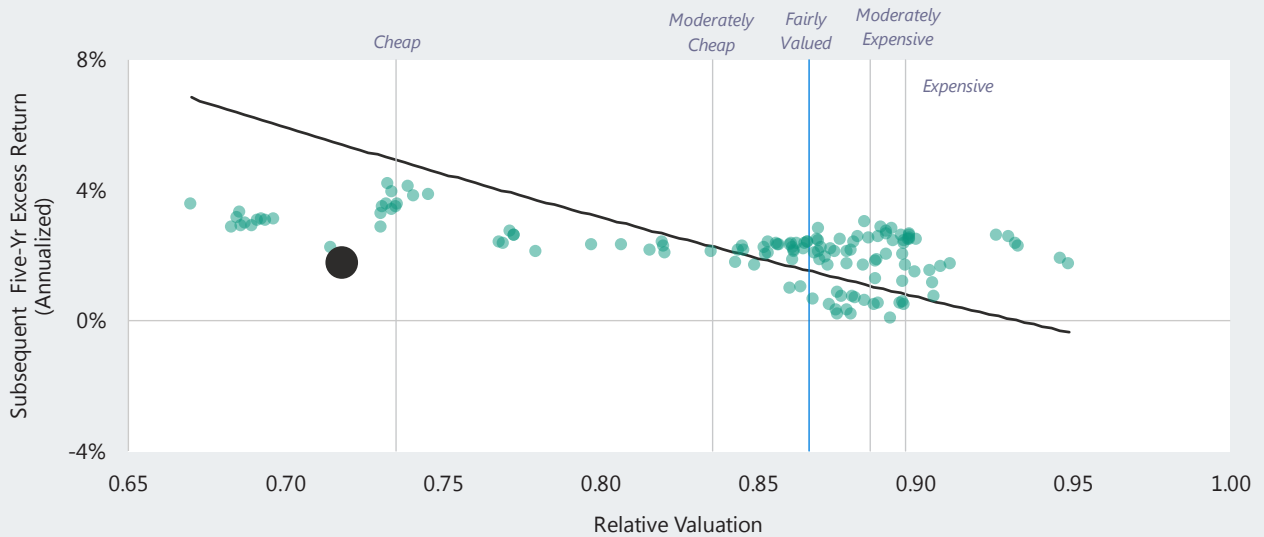
Longer investment horizons produce more predictable returns.



NOTE: Based on rolling returns from simulated data | SOURCE: CRSP/Compustat and Worldscope/Datastream | DATA: As of 06/30/2018

The Index trades at a **discount of 15% (0.85x)** the relative valuation of its cap-weighted benchmark. This is **fairly valued** relative to its **median discount of 13% (0.87x)**. Given current valuations, our [Smart Beta Interactive](#) website forecasts an annualized excess return of **1.8%** over the next five years (gross of costs).

Valuations & Return Expectations



SOURCE: CRSP/Compustat and Worldscope/Datastream | DATA: From 7/1/2002 to 06/30/2018

The screenshot shows the Smart Beta Interactive website interface. The central logo reads 'Smart Beta INTERACTIVE'. On the left, there is a navigation menu with categories: INCOME, LOW VOLATILITY, QUALITY, MOMENTUM, and MULTI-FACTOR. The main content area displays several charts and data tables. One table shows 'EXPECTED RETURNS (ANN.)' with values for 'Expected Excess Return Over Market Benchmark' (0.15%) and 'Estimated Trading Cost'. Another table shows 'HISTORICAL RETURNS (ANN.)' with values for 'Excess Return Over Market Benchmark' (0.85%) and 'Real Return' (1.27%). A line chart shows 'Return Over Market' from 1975 to 1985. A scatter plot at the bottom shows a positive correlation between two variables.

Learn More

JULY 2014

[Finding Smart Beta in the Factor Zoo](#)

JASON HSU AND VITALI KALESNIK

Past Performance & Characteristics

AS OF 09-30-2018

Quarterly Commentary

The RAFI Multi-Factor Global Index underperformed the MSCI AC World Index All Cap by 15 bps for the quarter ending September 2018. The RAFI Low Volatility Factor Global Index was the only single-factor strategy that outperformed its benchmark for the quarter. The RAFI Momentum Factor Global Index was the worst performing single-factor strategy during the quarter.

Attributions and performance commentary: <https://www.rafi.com/investor-support/resources>

Trailing Returns

Index	QTD	1 Yr	3 Yr	5 Yr	10 Yr	ITD*	10-Yr Volatility	10-Yr TE**
RAFI Multi-Factor Global Index	3.8%	9.7%	13.0%	8.9%	9.9%	14.6%	15.1%	2.1%
MSCI AC World Index All Cap	4.0%	10.1%	14.1%	9.3%		16.0%		N/A
RAFI Value Factor Global Index	3.6%	11.6%	14.8%	9.0%	11.1%	14.0%	17.5%	4.5%
RAFI Low Volatility Factor Global Index	4.9%	7.2%	10.3%	8.6%	9.3%	11.9%	12.4%	5.9%
RAFI Quality Factor Global Index	4.3%	8.8%	13.1%	8.3%	9.8%	13.6%	14.8%	2.5%
RA Momentum Factor Global Index	3.4%	9.4%	12.9%	8.7%	8.5%	16.8%	15.0%	3.3%
MSCI AC World Index	4.4%	10.3%	14.0%	9.2%	8.8%	16.1%	15.8%	N/A
RAFI Size Factor Developed Index	2.0%	10.0%	13.3%	10.0%	11.1%	15.3%	16.9%	4.5%
MSCI World Index Small Cap	2.1%	10.6%	15.2%	10.1%	11.5%	15.9%	17.7%	N/A

SOURCE: FactSet | Data: As of 09/30/2018 in USD | INCEPTION DATE: 01/31/2017

* Inception to Date (ITD) uses the first full month of returns after inception date. All returns prior to inception are simulated. Please see disclosures for important information regarding simulated performance.

** Annualized Tracking Error calculated against each index's appropriate benchmark using the first full month of returns following index inception. Index returns prior to inception are simulated.

Characteristics

Index	Number of Holdings	P/E	P/B	P/S	Dividend Yield	Market Cap / \$B
RAFI Multi-Factor Global Index	3375	15.61	1.99	1.01	2.63	75.24
RAFI Value Factor Global Index	734	11.63	1.13	0.52	3.06	49.50
RAFI Low Volatility Factor Global Index	986	16.09	1.96	1.05	3.01	68.46
RAFI Quality Factor Global Index	953	15.79	2.87	1.30	2.90	95.87
RA Momentum Factor Global Index	911	17.13	2.50	1.55	2.08	128.81
RAFI Size Factor Developed Index	1,728	18.10	2.18	1.16	2.16	7.65

SOURCE: FactSet | Data: As of 09/30/2018 in USD | INCEPTION DATE: 01/31/2017

NOTE: Portfolio characteristics derived from FactSet. Data prior to launch are simulated. One-way turnover data are historical averages based on simulated history. Capacity is estimated at 50-basis-point market-impact level.

Correlation of Excess Returns

Global (6/2007-9/2018)	RAFI Value Factor Global	RAFI Low Volatility Factor Global	RAFI Quality Factor Global	RA Momentum Factor Global	RAFI Size Factor Developed	Tracking Error*
RAFI Value Factor Global	1	-0.23	-0.03	-0.21	0.38	4.36%
RAFI Low Volatility Factor Global	N/A	1	0.54	-0.08	-0.11	6.06%
RAFI Quality Factor Global	N/A	N/A	1	0.51	-0.11	2.60%
RA Momentum Factor Global	N/A	N/A	N/A	1	0.05	3.44%
RAFI Size Factor Developed	N/A	N/A	N/A	N/A	1	4.59%
RAFI Multi-Factor Global						2.08%

SOURCE: FactSet | DATA: As of 09/30/2018 in USD | *Annualized Tracking Error calculated against each index's appropriate benchmark using the first full month of returns following index inception. Index returns prior to inception are simulated.

Top 10 Holdings

RAFI Multi-Factor Global Index	Weights (%)	Value Factor	Low Vol. Factor	Quality Factor	Mom. Factor	Size Factor
1 Walmart	1.08	2.14	2.28	-	0.56	-
2 IBM	1.04	0.96	2.06	2.03	-	-
3 Verizon	0.88	-	1.02	2.12	0.93	-
4 CVS Caremark	0.77	1.85	1.68	-	-	-
5 Target	0.76	1.22	1.10	1.13	0.20	-
6 Johnson & Johnson	0.72	-	2.20	1.12	-	-
7 Chevron	0.66	2.06	-	-	0.98	-
8 Express Scripts Holding Company	0.60	1.29	1.28	-	0.22	-
9 ConocoPhillips	0.56	2.23	-	-	0.38	-
10 Apple	0.56	-	-	2.59	-	-

SOURCE: FactSet | DATA: As of 09/30/2018 in USD

Sectors

Sector	RAFI Multi-Factor Global Index	RAFI Value Factor Global Index	RAFI Low Volatility Factor Global Index	RAFI Quality Factor Global Index	RA Momentum Factor Global Index
1 Basic Materials	8.03%	10.81%	4.31%	8.64%	7.34%
2 Consumer, Cyclical	17.31%	15.99%	13.85%	20.71%	17.06%
3 Consumer, Non-Cyclical	12.68%	7.41%	21.47%	15.81%	6.95%
4 Energy	9.74%	28.67%	1.75%	2.33%	11.05%
5 Financial	13.98%	8.98%	17.22%	7.42%	14.31%
6 Health Care	8.12%	3.50%	11.05%	7.24%	8.98%
7 Industrial	10.73%	6.31%	10.59%	14.21%	10.81%
8 Technology	10.94%	5.35%	6.14%	13.79%	18.92%
9 Telecommunications	4.89%	5.14%	8.25%	7.80%	2.21%
10 Utilities	3.57%	7.85%	5.39%	2.05%	2.36%

SOURCE: FactSet | DATA: As of 09/30/2018 in USD

Disclosures (1/2)

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