

## RAFI Roadmap: A guide to better investor outcomes

# RAFI™ Dynamic Multi-Factor US Index

**BENCHMARK** US Cap-Weight 500  
**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. Use value and momentum measures to determine the weight to each factor.

## 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?

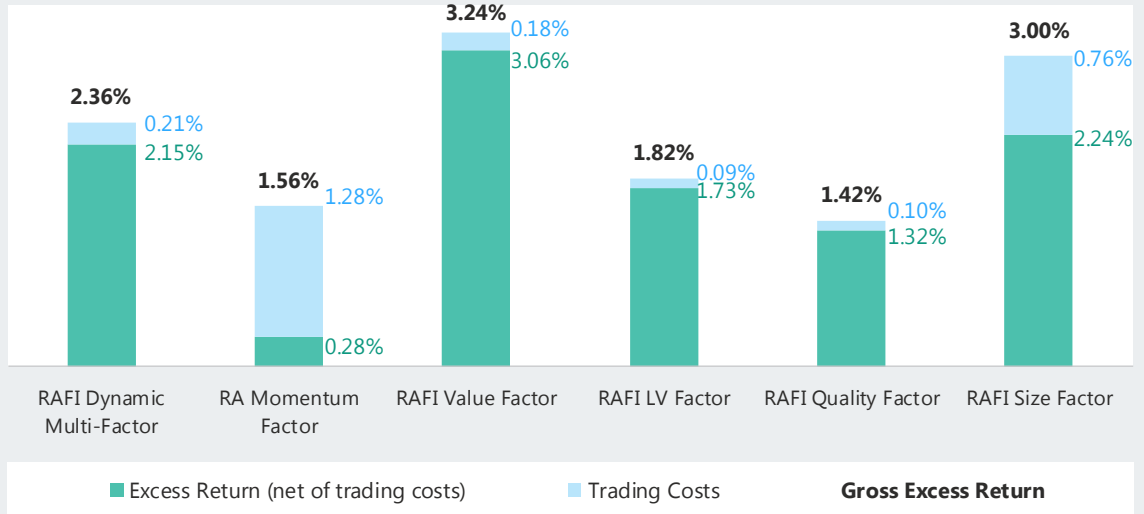
### Why This Strategy Delivers

	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.	1.56%	5 of 5	3 of 3	1.28%
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.	3.24%	5 of 5	4 of 4	0.18%
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."	1.82%	5 of 5	4 of 4	0.09%
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.	1.42%	5 of 5	4 of 5	0.10%
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	0.76%

SOURCE: CRSP/Compustat and Worldscope/Datastream | DATA: From 7/1/1968 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 US Factor Index



SOURCE: CRSP/Compustat and Worldscope/Datastream | DATA: From 7/1/1968 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

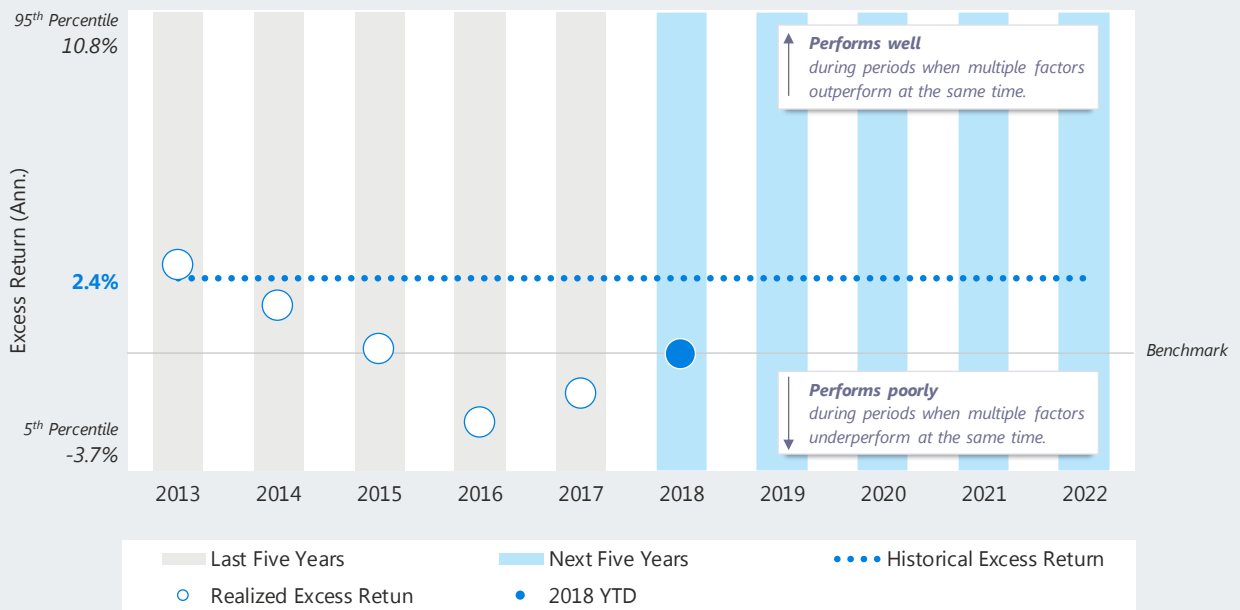
[Forecasting Factor and Smart Beta Returns \(Hint: History Is Worse than Useless\)](#)

ROB ARNOTT, NOAH BECK, AND VITALI KALESNIK

## What to Expect?

The RAFI Dynamic Multi-Factor US Index shows 2.4% in annualized excess returns since 1968. However, those results have come with a wide range of outcomes (+- 8% or more) in any given year.

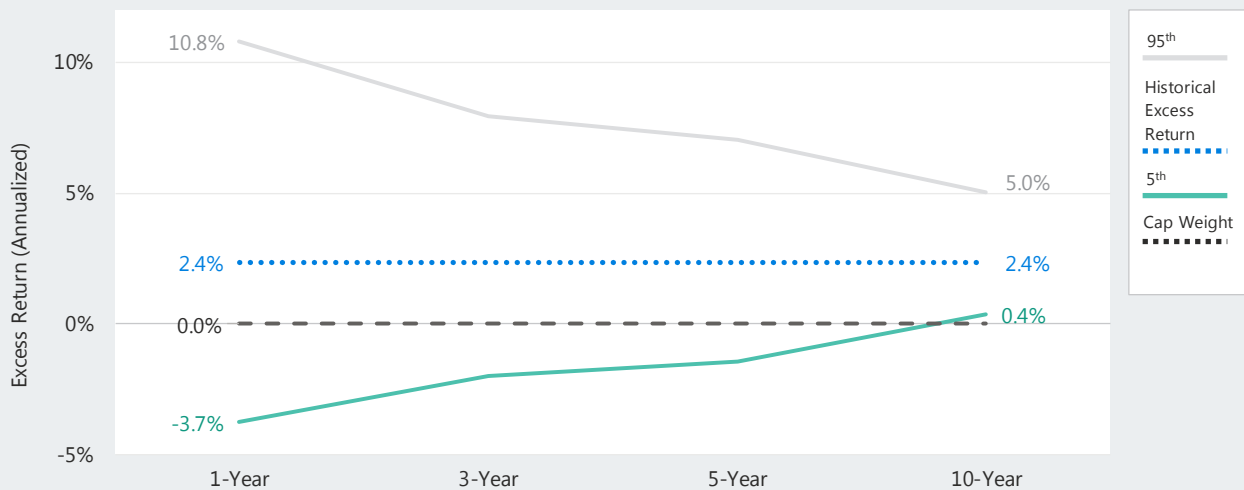
### Calendar Excess Returns



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

### Rolling Excess Returns

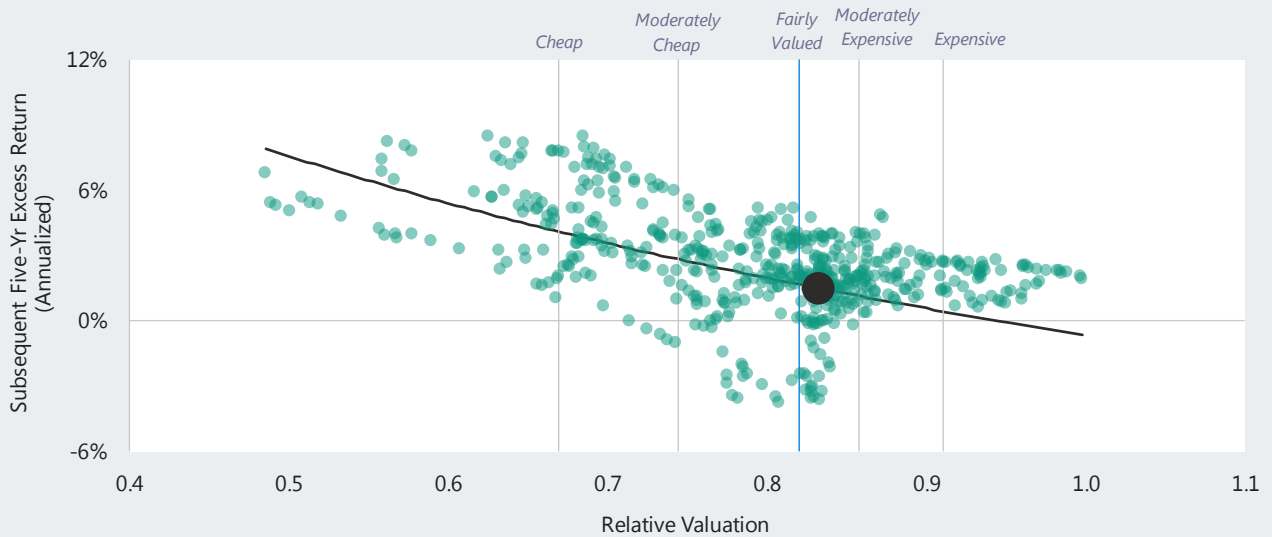
Longer investment horizons produce more predictable returns.



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 17% (0.83x)** the relative valuation of its cap-weighted benchmark. This is **fairly valued** relative to its **median discount of 18% (0.82x)**. Given current valuations, our [Smart Beta Interactive](#) website forecasts an annualized excess return of **1.5%** over the next five years (gross of costs).

### Valuations & Return Expectations



SOURCE: CRSP/Compustat and Worldscope/Datastream | DATA: From 7/1/1968 to 06/30/2018

The screenshot shows the Smart Beta Interactive website interface. It features a navigation menu on the left with categories like INCOME, LOW VOLATILITY, QUALITY, MOMENTUM, and MULTI-FACTOR. The main content area displays several charts and data tables. A central white box contains the Smart Beta INTERACTIVE logo. Other visible elements include 'Estimated Trading Cost' (0.02%), 'EXPECTED RETURNS (ANN.)' (0.15%), and 'HISTORICAL RETURNS (ANN.)' (0.85%).

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JULY 2014

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

JASON HSU AND VITALI KALESNIK

# Past Performance & Characteristics

AS OF 09-30-2018

## Quarterly Commentary

RAFI Dynamic Multi-Factor US Index underperformed the Russell 3000 Index by 79bps for the quarter. Individual factor performance was quite dispersed with the RAFI Value Factor US Index underperforming its benchmark by 211bps, while the RAFI Low Volatility Factor US Index outperformed by 129bps. From a stock-level perspective, the five biggest contributors to excess return were CVS, Express Scripts, Wells Fargo, Target, and Facebook. A large underweight to Apple was by far the biggest detractor to excess return, at 31bps.

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

## Factor Sleeve Allocation

Momentum	23.5%
Quality	22.9%
Value	23.9%
Size	20.3%
Low Volatility	9.3%

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

## Trailing Returns

Index	QTD	1 Yr	3 Yr	5 Yr	10 Yr	ITD*	10-Yr Volatility	10-Yr TE**
RAFI Dynamic Multi-Factor US Index	6.3%	18.1%	15.4%	13.0%	13.1%	16.0%	14.0%	2.7%
Russell 3000	7.1%	17.6%	17.1%	13.5%	12.0%	18.2%	14.9%	N/A
RAFI Value Factor US Index	5.3%	20.3%	14.6%	11.8%	14.2%	13.5%	16.8%	5.9%
RAFI Low Volatility Factor US Index	8.7%	11.6%	12.3%	12.4%	11.8%	11.2%	11.6%	6.9%
RAFI Quality Factor US Index	7.7%	19.8%	17.1%	13.6%	13.9%	18.3%	13.3%	3.3%
RAFI Momentum Factor US Index	7.3%	21.1%	18.8%	15.4%	12.8%	21.5%	13.9%	3.2%
Russell 1000	7.4%	17.8%	17.1%	13.7%	12.1%	18.4%	14.6%	N/A
RAFI Size Factor US Index	4.0%	16.3%	14.4%	11.8%	12.1%	14.0%	17.4%	11.0%
Russell 2000	3.6%	15.2%	17.1%	11.1%	11.1%	15.1%	19.4%	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 Dynamic Multi-Factor US Index	871	18.56	2.94	1.21	2.07	124.28
RAFI Value Factor US Index	137	13.34	1.79	0.64	2.50	74.16
RAFI Low Volatility Factor US Index	140	19.10	3.39	1.28	2.70	115.90
RAFI Quality Factor US Index	151	19.21	5.96	1.91	2.40	160.90
RA Momentum Factor US Index	176	22.92	4.41	2.40	1.38	221.15
RAFI Size Factor US Index	517	20.11	2.53	1.28	1.82	10.08

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

United States (6/1992-9/2018)	RAFI Value Factor US	RAFI Low Vol Factor US	RAFI Quality Factor US	RA Momentum Factor US	RAFI Size Factor US	Tracking Error*
RAFI Value Factor US	1	0.56	0.49	-0.06	0.32	7.76%
RAFI Low Vol Factor US	N/A	1	0.73	0.13	0.07	8.82%
RAFI Quality Factor US	N/A	N/A	1	0.07	-0.08	5.76%
RA Momentum Factor US	N/A	N/A	N/A	1	0.16	4.49%
RAFI Size Factor US	N/A	N/A	N/A	N/A	1	8.16%
RAFI Dynamic Multi-Factor US						4.50%

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 Dynamic Multi-Factor US Index		Weights (%)	Value Factor	Low Vol. Factor	Quality Factor	Mom. Factor	Size Factor
1	Walmart	2.11	4.94	5.25	-	1.31	-
2	Chevron	1.91	4.75	-	-	2.28	-
3	Verizon	1.81	-	2.36	4.80	2.15	-
4	IBM	1.74	2.22	4.73	4.58	-	-
5	Amazon	1.53	-	-	-	5.75	-
6	CVS Caremark	1.47	4.27	3.87	-	-	-
7	Microsoft	1.44	-	-	-	5.42	-
8	ConocoPhillips	1.42	5.14	-	-	0.88	-
9	Home Depot	1.38	-	-	3.47	2.33	-
10	Exxon Mobil	1.32	4.82	-	-	-	-

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

### Sectors

Sector	RAFI Dynamic Multi-Factor US Index	RAFI Value Factor US Index	RAFI Low Volatility Factor US Index	RAFI Quality Factor US Index	RA Momentum Factor US Index	RAFI Size Factor US Index
1 Basic Materials	4.71%	7.49%	1.95%	3.02%	2.43%	8.30%
2 Consumer, Cyclical	21.52%	20.97%	16.75%	28.78%	18.82%	20.27%
3 Consumer, Non-Cyclical	9.27%	7.33%	24.56%	13.44%	1.98%	10.14%
4 Energy	11.72%	33.04%	--	1.52%	8.41%	4.27%
5 Financial	11.56%	9.95%	15.03%	3.31%	10.15%	23.47%
6 Health Care	9.23%	6.94%	16.18%	6.30%	12.19%	8.75%
7 Industrial	10.42%	2.29%	11.63%	16.42%	11.11%	12.76%
8 Technology	16.68%	7.42%	5.48%	19.84%	30.69%	10.72%
9 Telecommunications	3.21%	1.56%	7.75%	6.89%	2.35%	0.25%
10 Utilities	1.68%	3.01%	0.66%	0.48%	1.87%	1.07%

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



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