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ARTICLE

Trifecta: A Fundamental Revolution in Indexing

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In a sometimes boring field like indexing, revolutions tend to be quiet and slow. But they still happen. Standard and Poor's debuted the first broad-market capitalization-weighted (CW) index, the S&P 500, in 1957, which sowed the seeds for the first index funds some 15 years later. Capital International – MSCI's predecessor – pioneered international indices in 1970. Russell took the lead on growth and value and large- and small-cap indices in 1978. These legacy index providers were all trailblazers, preparing the ground for a bumper crop of further innovations by these pioneers and others in the years since. It is a privilege to build on such a sturdy foundation.

When we launched the Research Affiliates Fundamental Index (RAFI) in 2005, we could not have imagined how such a remarkably simple concept would inspire the ingenuity of the indexing world in the subsequent decades. RAFI challenged cap weighting's primacy by offering a fundamentals-weighted and hence value-tilted broad-market index. Live results[1] show RAFI has performed well against CW value indices all over the world. As we demonstrate here, the same idea extends naturally beyond value investing and can reshape how we think about CW growth and CW core indices as well.

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That the CW index is the best proxy for all types of equity markets is predicated on efficient markets, among other strong assumptions. But what if markets are not perfectly efficient? Then breaking the connection between weight and price may create opportunities for better investment outcomes. Our innovation seeks to retain indexing's benefits while redefining how we conceive of selection and weighting.[2] Fundamental measures can help select companies, weight them, or both *for value, core, and growth indices*. If we can develop indices that have historically outperformed[3]* in all three domains – value, core and growth, all over the world – the term "Trifecta" is hardly an exaggeration.

The essential elements of RAFI are fundamental *selection* and fundamental *weighting*. Fundamental *selection* means that we determine index membership based on objective measures of the underlying companies' economic influence – such as sales,

Key Points

- The conventional wisdom, that market capitalization is the best metric for selecting and weighting stocks in equity market indices, hinges on the assumption that markets are efficient. If markets are not efficient, specifically if pricing errors mean revert, there will be ways to improve all categories of stock market indices.
- The Research Affiliates Fundamental Index (RAFI) uses fundamental selection and fundamental weighting. Price moves do not influence either selection or stock weighting, leading to a compelling alternative to conventional value indices. The same principles can be applied to core (RACWI) and growth (RAFIG) to form the Research Affiliates Trifecta of fundamentals-based indices.
- The Research Affiliates Trifecta design produces three forms of alpha: alpha from a dynamic value tilt, a rebalancing alpha, and a stock selection alpha.

**Special Note:* Here and throughout this paper, unless we specifically indicate that results are from live published indices, they are simulations – backtests – of our principles of fundamental selection and fundamental weighting. Live results may not be representative of performance across a full market cycle, and outcomes over longer horizons could differ materially as market conditions evolve. This is particularly notable for RACWI and RAFIG, which have relatively short live performance periods relative to the back-tested period.

cash flow, dividends, and book value – while deliberately ignoring share price and market value, which already reflect consensus expectations of future growth. Fundamental *weighting* means that we size each holding according to those same measures of economic scale. Periodically rebalancing our portfolio to these fundamental weights can deliver an additional *rebalancing alpha* over time, when price movements are not supported by changes in underlying fundamentals.

The **Research Affiliates "Trifecta"** thus counters indexing orthodoxy by severing the tie between price and portfolio construction across the value, core, and growth segments. Its reliance on fundamental selection and fundamental weighting produces three distinct strategies: **Research Affiliates Fundamental Index (RAFI)**, a value index that uses fundamentals for both selection and weighting; the **Research Affiliates Cap-Weighted Index (RACWI)**, a core index that applies fundamental selection but retains cap weighting; and the **RAFI Growth Index (RAFIG)**, a reimagined growth index that selects and weights based on the degree of actual business expansion rather than valuation multiples.

In RAFI's early days, we observed that CW core indices studiously mirror the composition of the stock market, while RAFI studiously mirrors the composition of the publicly traded macroeconomy. RAFI therefore serves as an economy-weighted alternative to CW indexing. It can also complement conventional cap weighting, as Schwab[4] and others have advocated, and provide an alternative value strategy. While RAFI introduces a stark value tilt, it differs from CW value indices by down-weighting growth stocks to their economic footprint rather than excluding them outright and by systematically contra-trading price movements not supported by changes in fundamentals.

SideBar: **Is RAFI Just Value Investing?**

RAFI is often characterized as a value strategy. That description isn't wrong: By design, RAFI reduces exposure to high-multiple stocks and increases exposure to cheaper ones as measured relative to the CW market. The distinction lies in how we create that value tilt. Traditional value indices define value through prices and simply discard the stocks trading at premium multiples. RAFI considers the entire opportunity set (value and growth companies), and anchors portfolio construction to measures of a company's fundamental economic influence so that valuation effects emerge as a byproduct rather than a design choice. This shift – from prices to fundamentals – proved sufficiently novel to earn multiple patents and allows RAFI to function not only as a value strategy but also as a complement to cap-weighted portfolios.

RAFI is sometimes criticized as backward-looking because it pays no explicit attention to a company's expected future growth. While directionally correct, this assessment misses the point. Share prices already embed the consensus market expectations about a company's future prospects. Precisely because those expectations are reflected in prices, they offer no reliable source of future return unless they prove incorrect. By building portfolios based on fundamentals rather than forecasts, fundamental selection and weighting systematically lean against speculative narratives and can potentially harvest a reliable risk- and style-adjusted alpha when expectations are wrong.

The intuitive logic that inspired RAFI can also inform the way we manage growth and core investing. When we buy a stock, we are buying a stake in a tangible business with observable sales, R&D, profit, net worth, dividends, and distributions to shareholders. We are *not* speculating on the future price appreciation of a set of factors or a ticker symbol. By moving beyond market value data to focus on the observable characteristics of a company's real business, we create better-informed indices in *all* segments of the market.

Growth in this sense is not a valuation multiple or a narrative. It is an observable economic phenomenon measured by the rate and magnitude at which a company expands its contribution to the macroeconomy. When we apply these ideas systematically, something striking happens. A single guiding principle gives rise to three distinct expressions that each address a different area of the equity

market. In value investing, it offers a disciplined alternative to price-based indexing. In core investing, the same selection logic – combined with cap weighting – yields an index that reflects the evolving structure of the economy rather than the market's shifting enthusiasms. When viewed through the lens of business growth, the result is an entirely new way to think about growth investing.[5]

These strategies constitute the ***Trifecta***, our unified framework that reshapes value, core, and growth investing into a potentially better total equity experience. As **Table 1** shows, across nearly three decades, all three strategies have performed well, with remarkable statistical significance,[6] and offer a robust alternative to traditional CW indexing.

Table 1. Simulated Historical Performance of RAFI US, RACWI US, and RAFI Growth US

Apr 1998 – Dec 2025	Return	Volatility	Sharpe Ratio	Excess Return	Tracking Error	Info Ratio
RAFI US	10.1%	15.4%	0.52	2.5%	2.4%	1.00
Russell 1000 Value	7.6%	15.4%	0.36			
RACWI US	9.5%	15.1%	0.49	0.7%	1.5%	0.47
Russell 1000	8.8%	15.6%	0.43			
RAFI Growth US	14.2%	19.6%	0.62	4.7%	7.1%	0.67
Russell 1000 Growth	9.5%	17.7%	0.42			

Notes: Performance prior to index inception is simulated. Past simulated performance is no guarantee of future results. Indices are unmanaged and cannot be invested in directly. Please see the disclosures for more information.

Source: Research Affiliates, based on data from Compustat, CRSP, and FactSet.

In short, the basic insights that gave rise to RAFI have far more general applications than we initially imagined. Reframing index construction around the real economy – rather than market prices – reveals a simple but surprisingly powerful way to think about equity investing. Our analysis of the underlying dynamics begins by examining how these ideas first took root in RAFI before exploring how they extend naturally across the equity landscape and, ultimately, why they have the potential to work so well.

Trifecta, Step 1: Research Affiliates Fundamental Index

Transformative ideas are often the result of challenging conventional thinking. RAFI is a testament to that insight. For years, much of the investment industry accepted the premise that markets are efficient, and as a consequence, that the market-clearing CW portfolio offers the highest risk-adjusted returns and maximizes investor utility in the context of mean-variance optimality.[7] Moreover, if the market is efficient, by extension, alternatives to cap weighting are inherently sub-optimal and therefore wastes of time. This is what academic finance has been teaching for 60 years with varying degrees of stridency depending on the era and institution. It's no wonder then that the RAFI concept angered so many people when we first proposed it 20 years ago.

The original Fundamental Index transformed our theoretical departure from cap weighting into a practical application through its four measures of company size: sales, cash flow, dividends, and book value. Subsequent variants have applied different metrics, but the core principle, that portfolio construction should be driven by a company's measured role in the real economy, not by fluctuations in its market price, is unchanged.

"The original Fundamental Index transformed our theoretical departure from cap weighting into a practical application through its four measures of company size: sales, cash flow, dividends, and book value."

This has translated into statistically meaningful outperformance across markets and regions. **Table 2** shows the track records of various RAFI strategies from April 1998 through December 2025.[8] Over this span, the RAFI US Large Index beat the Russell 1000 Value Index by an annualized 2.5%. With only 2.4% tracking error relative to Russell 1000 Value, this index provided an information ratio of 1.01, and a t-Statistic of 5.

Table 2. Performance Characteristics of RAFI Strategies by Region (April 1998–December 2025)

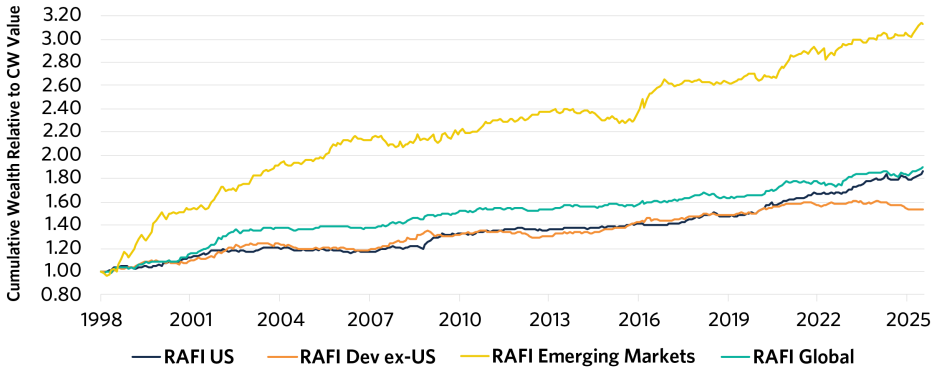
RAFI Family	Return	Volatility	Sharpe Ratio	Excess Return	Tracking Error	Info Ratio
RAFI US	10.1%	15.4%	0.52	2.5%	2.4%	1.00
Russell 1000 Value	7.6%	15.4%	0.36			
RAFI Dev ex-US	8.3%	16.6%	0.37	1.6%	2.5%	0.66
MSCI World ex-US Value	6.6%	17.3%	0.26			
RAFI Emerging Markets	11.8%	23.3%	0.42	4.6%	4.5%	1.02
MSCI Emerging Markets Value	7.2%	21.6%	0.24			
RAFI Global	9.3%	15.7%	0.46	2.6%	2.4%	1.10
MSCI ACWI Value	6.7%	15.8%	0.29			

Source: Research Affiliates, based on data from Compustat, CRSP, and FactSet. Performance prior to index inception is simulated. Past simulated performance is no guarantee of future results. Indices are unmanaged and cannot be invested in directly. Please see the appendix and disclosures for more information.

Figure 1 shows the wealth advantage that investing in RAFI has produced over the CW value indices in Table 2. Live RAFI index results span roughly two-thirds of this period, with launch dates ranging from late 2005 to late 2007.[9]

Several features in **Figure 1** stand out. The most obvious is the sheer economic magnitude of the effect. In emerging markets, RAFI compounds to more than three times the total wealth of the cap-weighted value benchmark over the sample. Even in developed markets, with presumably more efficient pricing, the cumulative gains remain substantial, reaching about 60% to 80% in both the US and developed ex-US markets. These results are not incremental; they are the long-run consequence of modest but persistent differences in annual returns and outperformance in roughly three of every four years. Further, their cross-regional ordering feels entirely intuitive. The strongest effects occur in emerging markets, where price signals are noisier, index reconstitutions are costlier, and pricing errors tend to be more pronounced. Developed markets offer fewer such opportunities yet still reward the same discipline over time.

Figure 1. Simulated Cumulative Relative Wealth: RAFI vs. CW Value Benchmark (April 1998–December 2025)



Notes: Performance prior to index inception is simulated. Past simulated performance is no guarantee of future results. Indices are unmanaged and cannot be invested in directly. Please see the disclosures for more information.

Source: Research Affiliates, based on data from Compustat, CRSP, and FactSet.

Trifecta, Step 2: Research Affiliates Cap-Weighted Index

CW indices were a remarkable innovation and have continued to improve over the years. But they retain an Achilles heel: While selection rules differ by index provider, the typical catalyst for adding a stock is a substantial run-up in price, leading to a market value that's too large to ignore, while a tumbling price is the proximate cause for most discretionary deletions.[10] Traditional CW index additions perform brilliantly before being added to the index but often fall behind in the years just after their inclusion. Deletions perform abysmally before being dropped from the index but on average outperform after elimination.[11] RACWI seeks to exclude the performance drag of buying high and selling low when stocks are added or nixed while retaining the market exposure, liquidity, and low turnover of the legacy CW indices.

We construct RACWI by selecting stocks according to measures of the fundamental size of the underlying companies rather than their much more volatile market prices and then weighting the stocks based on their market capitalization or float. In the US market, this CW index has historically delivered long-term outperformance. As both RACWI and legacy CW indices are market-cap weighted, this is entirely attributable to the "difference portfolio," the roughly 5% to 10% of the index where RACWI diverges from its conventional CW peers.

SideBar: **Is RACWI Just Active Investing?**

There is no unwritten rule that says an index fund must add or nix stocks based on their market cap and that anything else is an active strategy. Indeed, no legacy CW index provider relies purely on market cap for stock selection. For example, S&P Global uses its Index Committee and Russell employs banding to reduce the risk of fast flip-flops. Fundamental selection drives RACWI's alpha. Or, more accurately, we seek to remove the negative alpha from chasing recent momentum in order to add or drop stocks with surging or plunging market caps, respectively. We merely require fundamentals to validate the price move that triggers other index providers to add or drop a stock. Our turnover is also lower than the legacy CW core.[11]

Table 3 shows RACWI's performance characteristics from April 1998 through December 2025.[12] Across all regions, RACWI delivered higher returns than its traditional CW counterparts with virtually indistinguishable volatility.

RACWI US outperformed the Russell 1000 by 0.7% per year. With a tracking error of 1.5%, this excess return delivers an information ratio of 0.47 – a strong result for a strategy with an overwhelmingly market-like construction. Very similar international results provide independent validation, and emerging markets again show the strongest results. Fundamental selection beats market value selection for cap-weighted indices all over the world.

Table 3. Simulated Performance of RACWI Strategies by Region (April 1998–December 2025)

RACWI Family	Return	Volatility	Sharpe Ratio	Excess Return	Tracking Error	Info Ratio
RACWI US	9.5%	15.1%	0.49	0.7%	1.5%	0.47
Russell 1000	8.8%	15.6%	0.43			
RACWI Dev ex-US	6.7%	16.1%	0.28	0.7%	1.2%	0.57
MSCI World ex-US	6.0%	16.4%	0.24			
RACWI Emerging Markets	8.4%	21.5%	0.29	1.2%	2.5%	0.49
MSCI Emerging Markets	7.1%	21.6%	0.23			
RACWI Global	8.3%	15.4%	0.40	0.8%	1.0%	0.78
MSCI ACWI	7.5%	15.6%	0.34			

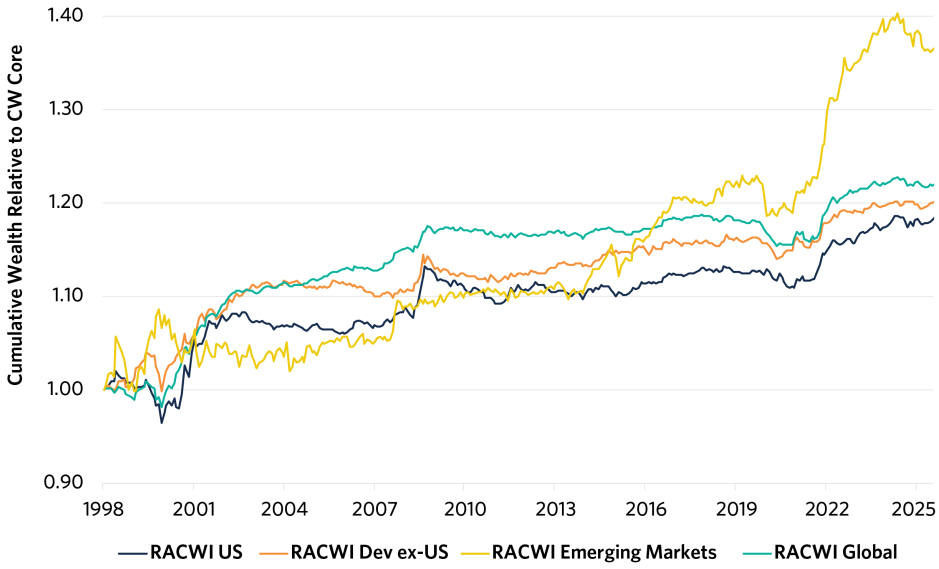
Notes: The inception date of RACWI Global Index is September 17, 2021. Regional indices are carve-outs from RACWI Global Index. Performance prior to index inception is simulated. Past simulated performance is no guarantee of future results. Indices are unmanaged and cannot be invested in directly.

Source: Research Affiliates, based on data from Compustat, CRSP, and FactSet.

These results are especially compelling because they are achieved without introducing systematic factor tilts or materially altering portfolio risk. The gains do not come from loading on value, size, or momentum. Instead, they arise from a quiet source: avoiding the inherent buy-high, sell-low bias of cap-weighted index reconstitutions. Again, selecting stocks based on fundamental size rather than market capitalization helps RACWI sidestep this drag while otherwise behaving like a conventional market index.

Figure 2 shows how RACWI's excess returns over **Table 3**'s benchmark indices compound over time. In the US and developed ex-US markets, RACWI delivers about 20% more cumulative wealth than conventional CW benchmarks over the sample. Emerging markets exhibit an even larger effect, consistent with the greater frictions associated with cap-weighted index reconstitutions.

Figure 2. Simulated Cumulative Relative Wealth: RACWI vs. CW Core Benchmark (April 1998–December 2025)



Notes: Inception date of RACWI Global Index is September 17, 2021. Regional indices are carve-outs from RACWI Global Index. Performance prior to index inception is simulated. Past simulated performance is no guarantee of future results. Indices are unmanaged and cannot be invested in directly. Please see the disclosures for more information.

Source: Research Affiliates, based on data from Compustat, CRSP, and FactSet.

RACWI's live performance has been especially impressive. Since its September 2021 launch, RACWI US has gained roughly 167 basis points (bps) per annum in excess return relative to the Russell 1000 (and by half as much relative to the S&P 500).[14] For a passive CW index, *changing only the rules by which stocks enter or leave the index* highlights how a small tweak in index construction can produce economically meaningful gains. For investors seeking market-like performance with a modest but persistent edge, RACWI offers a compelling refinement of traditional cap-weighted indexing.

Trifecta, Step 3: RAFI Growth

RAFIG corrects what we believe is a critical flaw in traditional growth investing, which conflates "expensive" with "growth." The binary duality of growth versus value – where cheap means value and expensive means growth – is nonsense. Expensive does not equate to growth, it equates to expensive. We may be the first to have created a growth index that selects stocks on their percentage growth rates and then weights them on the dollar magnitude of that growth. This is RAFI's fundamental selection and fundamental weighting reimagined into the growth arena. Big growth stocks get more weight, jointly proportioned to the size of their business and their percentage growth rates, without any regard for valuation multiples or price. With this simple concept, RAFIG may serve growth investors in the next 20 years as well as its RAFI predecessor has served value investors for the previous 20.

"The binary duality of growth versus value – where cheap means value and expensive means growth – is nonsense. Expensive does not equate to growth, it equates to expensive."

Standard growth indices select stocks partly based on price-to-earnings (P/E) ratios or other high valuation multiples as well as projected growth, which is already reflected in share price. This effectively defines growth as high prices. RAFIG selects stocks based on the observed historical growth of the underlying companies; it chooses companies that are really growing rather than those priced for future growth. We construct RAFIG by selecting stocks based on the growth rate of the sales, profitability, and R&D spending of their underlying companies and then weighting by the dollar value of that growth.

SideBar: **Why Does the World Need RAFIG, a New Growth Index?**

Growth index performance has been stupendous for years. Why mess with a fabulous thing? Growth is classically defined as some mix of expensive, fast-paced growth, and fast expected growth. Why does it have to be expensive to qualify? Why should we weight these stocks in proportion to their valuation multiples? The more expensive the stock, the more it dominates our portfolio – this simply makes no sense. Expensive isn't growth. Growth is growth. Why include stocks with anemic growth merely because they're expensive? RAFIG redefines growth to mean GROWTH, and only growth!

Table 4 shows how RAFIG strategies fared by region from April 1998 through December 2025.[15] The results are striking. Across all regions, RAFIG substantially outpaced traditional cap-weighted growth benchmarks, delivering large excess returns with only moderately higher volatility and superior risk-adjusted performance.

RAFIG US provided a 14.2% annualized return, beating Russell 1000 Growth by 4.7%. Although its volatility is somewhat higher, 19.6% to 17.7%, the improvement in returns more than compensates, with a 0.62 Sharpe ratio to Russell 1000 Growth's 0.42. The 7.1% tracking error reflects RAFIG's deliberate departure from valuation-based growth definitions. RAFIG's 0.67 information ratio is also impressive.

Table 4. Simulated Performance of RAFIG Strategies by Region (April 1998–December 2025)

RACWI Family	Return	Volatility	Sharpe Ratio	Excess Return	Tracking Error	Info Ratio
RAFI Growth US	14.2%	19.6%	0.62	4.7%	7.1%	0.67
Russell 1000 Growth	9.5%	17.7%	0.42			
RAFI Growth Dev ex-US	8.0%	18.6%	0.32	2.9%	7.3%	0.39
MSCI World ex-US Growth	5.1%	16.5%	0.18			
RAFI Growth Emerging Markets	10.0%	25.9%	0.31	3.1%	9.9%	0.31
MSCI Emerging Markets Growth	6.9%	22.2%	0.22			
RAFI Growth Global	12.2%	20.3%	0.50	4.3%	8.8%	0.48
MSCI ACWI Growth	7.9%	16.6%	0.35			

Notes: RAFIG launched July 17, 2025. Performance prior to index inception is simulated. Indices are unmanaged and cannot be invested in directly. Please see the disclosures for more information.

Source: Research Affiliates, based on data from Compustat, CRSP, and FactSet.

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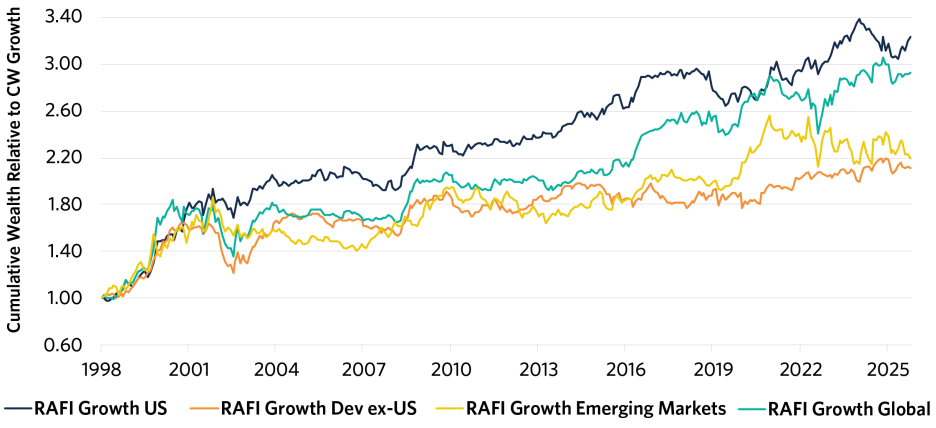
International markets reinforce these findings. Developed ex-US outperformed the MSCI World ex-US Growth index by 2.9% per year, while the excess return of RAFIG Emerging Markets relative to MSCI Emerging Markets Growth reached 3.1% per year. In both cases, the improved returns came with higher – but not disproportionate – volatility and produced consistently better Sharpe ratios than those of legacy growth benchmarks.[16]

Figure 3 shows the cumulative relative wealth of RAFIG strategies versus the conventional growth benchmarks in Table 4. The patterns are unmistakable. In all regions, RAFIG steadily outperformed cap-weighted growth indices, with no extended reversal periods. In the US and globally, RAFIG compounded to roughly three times the relative wealth of the Russell 1000 Growth benchmark over the full sample. Developed ex-US and emerging markets show similarly persistent advantages, effectively doubling the wealth gains of their conventional peers. These are not short-lived episodes tied to a particular market cycle or style rotation; they reflect the long-run consequence of anchoring growth exposure to actual business expansion rather than to stocks priced for growth.

Figure 3. Simulated Cumulative Relative Wealth: RAFIG vs. CW Growth Benchmark (April 1998–December 2025)



Notes: RAFIG launched July 17, 2025. Performance prior to index inception is simulated. Past simulated performance is no guarantee of future results. Indices are unmanaged and cannot be invested in directly. Please see the appendix and disclosures for more information.

Source: Research Affiliates, based on data from Compustat, CRSP, and FactSet.

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Taken together, **Table 4** and **Figure 3** demonstrate that redefining growth as an observable economic phenomenon – rather than a collection of expensive stocks – could lead to a comprehensively different and far more effective approach to growth investing. RAFIG seeks to capture growth when it actually occurs, which is often before the market fully recognizes or prices it.

Where Does the Alpha Come From?

Our fundamental selection and fundamental weighting methodology introduces three alphas:

- RAFI earns one alpha from its *dynamic value tilt* – its value exposure changes over time. To be sure, since 2007, value has had its longest and deepest span of underperformance in at least the past half-century. From its relative performance peak in early 2007 to its nadir in summer 2020, Russell 1000 Value lagged the Russell 1000 by 38%, or roughly 3.5% per annum compounded. That means Russell Growth beat Russell Value by 7% per year over these 13.5 years.[17] RAFI's value tilt tends to be lower when the relative valuation gap between value and growth stocks is narrower than usual and deeper when value stocks are abnormally cheap. When valuations mean revert, this dynamic tilt can help RAFI outperform traditional value indices.

- RAFI and RAFIG each have a *rebalancing alpha*, trimming stocks that have soared and topping up stocks that have tanked whenever the underlying fundamentals haven't validated the price moves.

- Each of the three - RAFI, RACWI, and RAFIG - has a selection alpha. Legacy CW indices add stocks as they rise into the top tier of market capitalization and drop them as they fall off. This means that stocks are added as a direct consequence of soaring market valuation and are dropped in response to a plunge in share prices. As Arnott, Brightman, Kalesnik, and Wu detail,[18] this has consequences. RAFI waits for the fundamentals to validate that soaring or crashing price. As such, it may be late to the next Nvidia or Tesla, but it is designed to entirely miss the Lucid-like free falls.

Summary Musings . . .

Much of the evidence presented in this paper is necessarily historical and backward-looking. But the results are not fragile curiosities produced by finely tuned parameters or clever modeling. The philosophy that informed RAFI's creation two decades ago is not a niche, data-mined alternative to capitalization weighting or a better way to build a value index. It is a general framework for equity indexing.

Across value, core, and growth and among regions with very different market structures, the same organizing principle produces consistent and significant improvements. When index construction is a function of the scale and growth of real businesses rather than their market prices, portfolios behave differently. They add companies because their economic footprints have grown, not because their share prices have soared. They reduce exposure when fundamentals falter, not when prices collapse. Prices are inherently volatile and reflect changing sentiments, random asset flows unrelated to company fundamentals, and possible investor miscalculations. By refocusing the indexing process on fundamentals, we can systematically resist the buy-high, sell-low dynamics embedded in price-driven index reconstitutions.

"By refocusing the indexing process on fundamentals, we can systematically resist the buy-high, sell-low dynamics embedded in price-driven index reconstitutions."

What is striking is not only that this framework works, but that it also works *in three distinct ways*. In RAFI, it delivers a disciplined and dynamic approach to value investing. In RACWI, it refines cap-weighted indexing by improving stock selection while preserving market-like characteristics. In RAFIG, it redefines growth itself – away from valuation multiples and narratives and toward observable, realized business expansion. These three expressions are not separate ideas. This is the **Research Affiliates "Trifecta"**: a single insight expressed coherently across value, core, and growth.

These results do not depend on forecasting, factor timing, or increasingly elaborate models. They emerge from the deliberate choice to distinguish between prices, which reflect expectations, and fundamentals, which reflect economic reality. That distinction proves powerful across markets, across decades, and across investment styles.

As index investing continues to evolve, it does not have to be towards ever-expanding complexity. Sometimes progress comes from asking simpler questions and answering them consistently. One such answer is to anchor portfolio selection, weighting, or both to the real economy rather than to market prices. This simple principle appears to work far better and far more broadly than conventional wisdom would suggest.

Appendix. A Portrait of Three Leading Strategies

Table A-1 shows that each strategy (RAFI, RACWI, and RAFIG) in all four domains (US, Developed ex-US, EM, and Global) delivers an economically meaningful, statistically significant, and incremental return, with a relatively neutral beta. The only noteworthy outliers are RAFIG, with its slightly elevated beta. Stocks that are actually growing, rather than merely expensive, modestly amplify the volatility of a CW growth index.

As **Table A-2** shows, all three strategies in all four domains are remarkably neutral.[19] RAFIG has an anti-momentum tilt compared to CW growth indices and is again the one notable exception. It's not because RAFIG is anti-momentum, but because CW growth doubles down on momentum: CW growth indices add stocks when performance elevates them into the top tier of valuation multiples and drops them when their valuation multiples falter. By not anchoring on price or valuation multiples, RAFIG exhibits less momentum chasing than CW growth indices, and so is anti-momentum *relative to* CW growth.

To be sure, each of these is not measuring beta or factor loadings relative to the market but relative to the selected benchmark for each strategy. So, RAFIG does not have an anti-momentum bias, selling whatever has gone up. Rather, it lacks the pro-momentum bias of CW growth indices that buy whatever has gone up. Reciprocally, RAFI's value tilt isn't anti-value. The –0.03 value factor beta merely means that RAFI US, when compared with the Russell 1000 Value, has a slightly milder value tilt, on average, than the index.

In general, the betas and factor tilts are surprisingly neutral on average over the past 27 years. For RAFI and RAFIG, the factor loadings – style tilts – can vary across a rather wide range. For example, in 2007, RAFI had a distinctly milder value tilt than the CW value index, while in 2025 it offered a much deeper value tilt than the CW Value benchmarks listed, reflecting how extraordinarily cheap value has become compared to growth.

Table A-1. CAPM Performance Attribution
(April 1998–September 2025)

RAFI Family	Alpha	t-stat	Beta	R^2
RAFI US	2.3%	5.02	0.99	0.98
Russell 1000 Value	0.0%			
RAFI Dev ex-US	1.7%	3.85	0.95	0.98
MSCI World ex-US Value	0.0%			
RAFI Emerging Markets	4.1%	5.00	1.06	0.97
MSCI Emerging Markets Value	0.0%			
RAFI Global	2.5%	5.56	0.98	0.98
MSCI ACWI Value	0.0%			

RACWI Family	Alpha	t-stat	Beta	R^2
RACWI US	0.8%	3.21	0.96	0.99
Russell 1000	0.0%			
RACWI Dev ex-US	0.7%	3.15	0.98	0.99
MSCI World ex-US	0.0%			
RACWI Emerging Markets	1.2%	2.52	0.99	0.99
MSCI Emerging Markets	0.0%			
RACWI Global	0.8%	4.32	0.98	1.00
MSCI ACWI	0.0%			

RAFI Growth Family	Alpha	t-stat	Beta	R^2
RAFI Growth US	4.3%	3.18	1.03	0.87
Russell 1000 Growth	0.0%			
RAFI Growth Dev ex-US	2.9%	2.10	1.04	0.85
MSCI World ex-US Growth	0.0%			
RAFI Growth Emerging Markets	3.1%	1.67	1.08	0.86
MSCI Emerging Markets Growth	0.0%			
RAFI Growth Global	3.8%	2.32	1.10	0.82
MSCI ACWI Growth	0.0%			

Notes: Performance prior to index inception is simulated. Past simulated performance is no guarantee of future results. Indices are unmanaged and cannot be invested in directly. Please see the disclosures for more information.

Source: RACWI regional indices are carve-outs from RACWI Global Index.

Table A-2. Simulated Fama–French–Carhart Four-Factor Attribution (April 1998–September 2025)

			Carhart Four-Factor Model				
RAFI Family	Annual Alpha	Alpha t-Stat	Market	SMB Size	HML Value	WML Momentum	R^2
RAFI US	2.5%	5.48	0.98	0.03	-0.03	-0.03	0.98
Russell 1000 Value	0.0%		1.00	0.00	0.00	0.00	1.00
RAFI Dev ex-US	1.4%	3.09	0.97	0.09	0.00	0.03	0.98
MSCI World ex-US Value	0.0%		1.00	0.00	0.00	0.00	1.00
RAFI Emerging Markets	4.8%	5.18	1.05	0.01	-0.03	-0.04	0.97
MSCI Emerging Markets Value	0.0%		1.00	0.00	0.00	0.00	1.00
RAFI Global	2.4%	5.33	0.98	0.09	0.04	0.01	0.98
MSCI ACWI Value	0.0%		1.00	0.00	0.00	0.00	1.00

			Carhart Four-Factor Model				
RACWI Family	Alpha	Alpha t-Stat	Market	SMB Size	HML Value	WML Momentum	R^2
RACWI US	0.8%	3.69	0.97	-0.06	0.04	0.00	1.00
Russell 1000	0.0%		1.00	0.00	0.00	0.00	1.00
RACWI Dev ex-US	0.5%	2.54	0.98	0.00	0.06	-0.01	1.00
MSCI World ex-US	0.0%		1.00	0.00	0.00	0.00	1.00
RACWI Emerging Markets	0.6%	1.20	1.00	0.07	0.07	0.00	0.99
MSCI Emerging Markets	0.0%		1.00	0.00	0.00	0.00	1.00
RACWI Global	0.6%	4.26	0.99	-0.01	0.06	0.00	1.00
MSCI ACWI	0.0%		1.00	0.00	0.00	0.00	1.00

			Carhart Four-Factor Model				
RAFI Growth Family	Alpha	Alpha t-Stat	Market	SMB Size	HML Value	WML Momentum	R^2
RAFI Growth US	4.8%	3.57	0.99	0.20	-0.01	-0.06	0.89
Russell 1000 Growth	0.0%		1.00	0.00	0.00	0.00	1.00
RAFI Growth Dev ex-US	4.3%	2.91	1.01	-0.08	0.00	-0.14	0.86
MSCI World ex-US Growth	0.0%		1.00	0.00	0.00	0.00	1.00
RAFI Growth Emerging Markets	7.8%	3.84	1.05	0.08	-0.18	-0.29	0.87
MSCI Emerging Markets Growth	0.0%		1.00	0.00	0.00	0.00	1.00
RAFI Growth Global	6.5%	3.96	1.01	0.19	-0.32	-0.16	0.84
MSCI ACWI Growth	0.0%		1.00	0.00	0.00	0.00	1.00

Notes: Performance prior to index inception is simulated. Past simulated performance is no guarantee of future results. Indices are unmanaged and cannot be invested in directly. Please see the disclosures for more information.

Source: RACWI regional indices are carve-outs from RACWI Global Index.

End Notes

1. Polychronopoulos, Ari, Grant Kasser, and Thomas Verghese. "Active Dreams, RAFI Delivers: Active vs. RAFI Performance in Broadening and Narrowing Markets." Research Affiliates, October 2025.

2. We note the existence of non-price indices, such as equal-weight strategies, before 2005.

3. Here and throughout this paper, unless we specifically indicate that results are from live published indices, they are simulations – backtests – of our principles of fundamental selection and fundamental weighting. For RAFI live results, we use FTSE-RAFI, Russell RAFI, and our own indices, which launched in November 2005, February 2011, and January 2017 respectively. We equally blend the available variants from the relevant launch dates. RACWI and RAFIG launched in September 2021 and July 2025, respectively. Live results may not be representative of performance across a full market cycle, and outcomes over longer horizons could differ materially as market conditions evolve. This is particularly notable for RACWI and RAFIG, which have relatively short live performance periods relative to the back-tested period.

4. For our book, "The Fundamental Index," Charles Schwab himself was kind enough to opine on the book cover "Indexing is a powerful force in the investing industry, and I'm not a man to question success—but to my mind, the Fundamental Index© method represents too good of an improvement to ignore." Davidow (2018) expands on this. [Davidow, Anthony B. 2018. "Better Together: Fundamental & Market-Cap Indices." Schwab Center for Financial Research, Charles Schwab & Co., Inc.]

5. See Arnott, Robert D., Chris Brightman, Campbell R. Harvey, Que Nguyen, and Omid Shakernia. (2025). "Fundamental Growth." *SSRN*.

6. Importantly, the strong performance of the Trifecta strategies is not explained away by conventional factor exposures. As the appendix shows, Fama–French–Carhart four-factor regressions deliver positive alphas across all nine regional strategies we examine, with eight of the nine alphas achieving statistical significance. The exception, RACWI Emerging Markets, has positive estimated alpha, but it is not statistically distinguishable from zero. These outcomes support the argument that the return advantages arise from fundamental selection and weighting and reflect a distinct source of return. See the appendix for detailed attribution results.

7. We appreciate the contributions to our thinking from the efficient market hypothesis (EMH) and capital asset pricing model (CAPM). Along with Harry Markowitz's modern portfolio theory, these are the critical foundations of modern finance. We only question the all-too-common temptation to treat these models as immutable laws rather than powerful and useful approximations of the real world. For a deeper discussion, see Arnott, Robert. "An Overwrought Orthodoxy." *Institutional Investor*, December 2006, at https://www.researchaffiliates.com/content/dam/ra/publications/pdf/p-2006-dec-an-overwrought-orthodoxy.pdf

8. RAFI US Large refers to the Research Affiliates Fundamental Index® (RAFI®) US. Similarly, RAFI Developed ex-US and RAFI Emerging Markets refer to the Research Affiliates Fundamental Index® Developed ex-US and Research Affiliates Fundamental Index® Emerging Markets, respectively. These terms are used interchangeably throughout this article.

9. The first published RAFI indices were the FTSE RAFI US 1000 and FTSE RAFI Developed ex-US 1000, which debuted in December 2005. The FTSE-RAFI Emerging Markets launched in March 2007 and the FTSE RAFI All World 3000 in December 2007. In each case, live strategies launched several months before the published index.

10. Most deletions are non-discretionary. Basically, a stock ceases to exist, whether due to merger, acquisition, or bankruptcy.

11. Arnott, Rob, and Forrest Henslee. "Nixed: The Upside of Getting Dumped." Research Affiliates, August 2024.

12. See Arnott, Robert D., Chris Brightman, Xi Liu, and Que Nguyen. 2023. "Reimagining Index Funds." *Journal of Investment Management* 21 (4), 15-31.

13. RACWI US refers to the Research Affiliates Cap-Weighted Index® (RACWI®) US. Similarly, RACWI Developed ex-US and RACWI Emerging Markets refer to the Research Affiliates Cap-Weighted Index® Developed ex-US and Research Affiliates Cap-Weighted Index® Emerging Markets, respectively. These terms are used interchangeably throughout this article.

14. Research Affiliates, based on data from Compustat, CRSP, and FactSet.

15. RAFIG US refers to the Research Affiliates Fundamental Growth Index® (RAFIG®) US. Similarly, RAFIG Developed ex-US and RAFIG Emerging Markets refer to the Research Affiliates Fundamental Growth Index® Developed ex-US and Research Affiliates Fundamental Growth Index® Emerging Markets, respectively. These terms are used interchangeably throughout this article.

16. Consistent with these results, four-factor attribution tests reported in the appendix show that RAFIG delivered large and statistically significant positive alphas across regions, indicating that its excess returns are not explained by standard market, size, value, or momentum exposures.

17. See Arnott, Robert D., Campbell R. Harvey, Vitali Kalesnik, and Juhani T. Linnainmaa. 2021. "Reports of Value's Death May Be Greatly Exaggerated." *Financial Analysts Journal* 77 (1), 44–67. The entire shortfall was due to value stocks as a group becoming more expensive relative to growth stocks, which cannot continue indefinitely...

18. Arnott, Robert D., Christopher Brightman, Vitali Kalesnik, and Lillian Wu. 2023. "Earning Alpha by Avoiding the Index Rebalancing Crowd." *Financial Analysts Journal* 79 (2), 76–97.

19. Factor attribution is conducted using the Fama–French–Carhart four-factor model. The size (SMB), value (HML), and momentum (UMD) factors are taken from the published Fama–French regional factor returns corresponding to each market. All regressions are estimated over the full sample period reported in the table. For each strategy, the market factor is defined as the excess return over the risk-free rate of the stated regional benchmark (e.g., Russell 1000 Value, Russell 1000, MSCI World ex-US, MSCI Emerging Markets, and MSCI AWCI), rather than the conventional Fama–French market portfolio. This is the reason that RAFI, for example, does not show a large HML value factor loading. This approach ensures that estimated alphas and factor tilts reflect performance relative to the appropriate investable benchmark.

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