Research Affiliates Newsletter · July 2011

fundamentals

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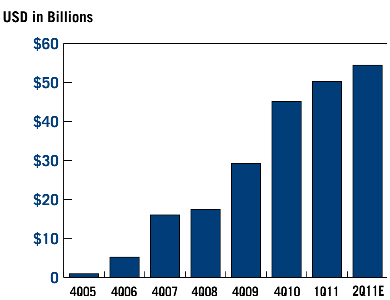
RAFI® Managed Assets*



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EQUITY ALLOCATIONS: THINKING OUTSIDE OF THE BOX

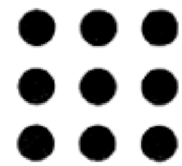
In a classic puzzle, readers are asked to draw four straight lines through a 3 × 3 matrix of nine dots—without letting their pencils leave the paper (see **Figure 1**). Most readers fail, at least initially, ending up with one dot left over. The solution requires thinking outside the box. The phrase "thinking outside of the box" has become so overused in recent years as to become trite. And yet, how many investors actually deviate from the norm with their equity allocations? Indeed, most investors follow the pack, implementing one of three "standard" strategies.

In this issue we will look at a different way of constructing the equity portfolio. We will use the concept of "active share"—a measure of how much active equity portfolios actually deviate from their benchmark indexes—as well as what active share tells us about the standard equity structure alternatives.

Equity Structure Choices

The success of an investor's overall portfolio is highly dependent on how well the equity component performs; stocks are the largest allocation in most portfolios, on average half of assets or more.[1] Therefore, paying special attention to the equity strategy decision is very important.

Figure 1. The Puzzle



The three common ways to structure stock portfolios are:

1. 100% passive management, tracking a cap-weighted index
2. 100% active management, usually fundamental stock-picking strategies
3. Core-satellite—a combination of passive indexing and active management

An equity structure that entirely uses a passive cap-weighted index approach provides the market return less implementation costs. This equity structure gives you low cost and little shortfall risk relative to the benchmark, but no potential for added value, otherwise known as "alpha." Without any alpha the

continued on page two

passive equity structure locks in future stock returns that are unlikely to meet an investor's return goals.[2]

To beat the market, investor portfolios must be *different* than the market. So, an investor who wants or needs to beat the market *must* populate his or her portfolio with active strategies because of the bets they take away from the benchmark. But exactly how active are active managers? In 2006, Martijn Cremers and Antti Petajisto of Yale University introduced a tool—dubbed "active share"—to measure how much active managers differ from the benchmark index.[3] The active share measurement ranges from 0% for an index-tracking portfolio, such as an S&P 500 fund, to 100% for a fund that holds no overlap with the index, such as a concentrated active stock-picking strategy. Most active managers lie somewhere in between.[4]

Cremers and Petajisto found that funds in the highest active share quintile achieved the largest average alpha—1.1% per year net of fees and transaction costs.[5] The average active share of this quintile of active managers is approximately 90%—that is, the typical portfolio had only a 10% overlap with the index. For the active management industry as a whole, the authors found that active share was just 30% and that the average fund returned –0.43% against the market. Net net, investors frequently end up paying high active management fees for index-like returns (or worse)!

Clearly, alpha-seeking investors should invest only in the managers with the highest active share, where they get the most compensation for taking active management risk. But the catch is that top quintile active share managers suffer from large tracking error—a statistical measure of volatility of excess returns versus the benchmark. Although an excess return of 1.1% is attractive, studies show that both institutional and retail investors don't have the stomach to sit through bouts of underperformance inherent in high tracking error strategies.[6]

As a result, retail investors (imitating their institutional cousins) are increasingly shifting assets into low-cost passive index funds, which have grown from 5% of equity mutual fund assets in 1996 to 15% in 2010.[7] This trend has led to a "core-satellite" approach, an equity structure that blends cap-weighted indexing as the "core" part of the portfolio with highly active managers as the satellites. A hypothetical equity structure of 50% passive cap-weighted index and 50% actively managed satellite strategies produces a total equity portfolio active share of 45% with an expected excess return of 0.5%. That return potential is better than that offered by a purely passive portfolio, but it is still well shy of the return target.

RAFI® Strategy: The Best of Both Worlds

Clearly, the three equity structure approaches, which are summarized in **Table 1**, are suboptimal to achieve portfolio return goals. The Fundamental Index® strategy offers an attractive alternative. The Research Affiliates Fundamental Index (RAFI) strategies are able to earn returns over the cap-weighted benchmarks by their superior design—the approach maintains many of the attractive characteristics of traditional passive investing, and avoids the performance drag associated with linking portfolio weights to security prices. By constructing a portfolio built on fundamental weights rather than stock price—and rebalancing back to the fundamental weight anchor as stock prices mean revert—the RAFI methodology has delivered live excess returns of 2% per year on average in developed markets and more in less efficient markets.[8] And the methodology has accomplished this track record across most stock markets, with 87% of FTSE RAFI indexes outperforming their respective cap-weighted index since their launch dates.[9]

Table 1. Active Share Expected Performance

Equity Structure	Active Share*	Expected Alpha	Expected Tracking Error
100% Passive Market Cap Index	0%	-0.1%	0%
100% Active Managers (top quintile)	90%	1.1%	8%
50% Passive / 50% Active	45%	0.5%	4%
100% Research Affiliates Fundamental Index	30%	2.0%	4%

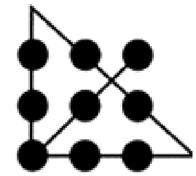
Note: For RAFI strategy, from 1962-2010. For C&P Active Managers, from 1980-2003.
Source: Research Affiliates and Cremers and Petajisto (2006).

Because RAFI portfolios are broadly diversified, they tend to have a relatively low active share of 30%. RAFI portfolio excess returns are made more attractive because they are achieved in a smooth fashion, with a low tracking error of 4% (relative to 8% for active managers). Accordingly, the RAFI approach provides the best of both worlds—strong excess returns without the big out-of-index risks active managers take—as Table 1 shows.

Conclusion

The way to solve the puzzle in the introduction is to extend one or more lines outside the matrix (or box). In other words, you must literally think outside the box to find the solution (see **Figure 2**).[10] The puzzle of achieving superior equity performance will not be solved by staying within the box of

Figure 2. The Solution



traditional equity portfolio construction strategies. Investors need to explore newer approaches that might offer superior solutions. A RAFI-centric equity structure improves the risk-return trade-off compared to the three common equity structures implemented today. It's an out-of-the-box approach that is easy and inexpensive to implement, without the rollercoaster ride offered by high active-share managers.

Endnotes

1. 52% in public DB plans, 54% in corporate DB plans, 60% in 401(k) plans. See http://blogs.reuters.com/reuters-wealth/2011/04/13/targeting-investment-returns-secrets-from-the-pros/ and EBRI http://www.ebri.org/pdf/briefspdf/EBRI_IB_011-2010_No350_401k_Update-092.pdf.
2. We forecast 10-year forward equity returns of 5–6%. This is based on the building block approach of 2% dividends, 1% long term real earnings growth, and 2.5% inflation. Typically, investors have a 7–8% total portfolio rate of return target.
3. K.J. Martijn Cremers and Antti Petajisto, 2009, "How Active Is Your Fund Manager? A New Measure That Predicts Performance," International Center for Finance, Yale University (March 31, revised).
4. The average asset-weighted fund active share is approximately 65%.
5. For comparison, funds in the bottom three quintiles of active share gave up 1.2% per year on average to the index.
6. Scott Stewart and John Neumann, 2009, "Absence of Value: An Analysis of Investment Allocation Decisions by Institutional Plan Sponsors," *Financial Analysts Journal* (November/December).
7. Investment Company Institute, *2011 ICI Factbook*, Chapter 2. http://www.icifactbook.org/fb_ch2.html
8. A two percentage point excess return is the average of the 23 developed market FTSE RAFI indexes from November 2005 through June 2011.
9. Research Affiliates and FTSE with data from Bloomberg. 87% of the primary 44 FTSE RAFI Indexes have outperformed their respective index since inception.
10. http://www.psychologytoday.com/blog/brain-workout/200903/the-original-thinking-outside-the-box-puzzle.

Performance Update

FTSE RAFI® Equity Index Series*

TOTAL RETURN AS OF 6/30/11	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED 3 YEAR	ANNUALIZED 5 YEAR	ANNUALIZED 10 YEAR	ANNUALIZED 10 YEAR VOLATILITY
FTSE RAFI® All World 3000[1]	TFRAW3	5.39%	31.76%	5.27%	6.23%	9.66%	18.73%
MSCI All Country World[2]	GDUEACWF	4.99%	30.77%	1.47%	3.70%	5.30%	17.11%
FTSE RAFI® Developed ex US 1000[3]	FRX1XTR	6.15%	33.03%	1.73%	4.18%	8.46%	19.97%
MSCI World ex US Large Cap[4]	MLCUWXUG	5.12%	30.22%	-1.52%	2.36%	5.89%	18.17%
FTSE RAFI® Developed ex US Mid Small[5]	TFRDXUSU	4.82%	33.88%	8.95%	7.05%	14.35%	18.62%
MSCI World ex US Small Cap[6]	GCUDWXUS	3.37%	37.51%	4.09%	3.44%	10.94%	20.28%
FTSE RAFI® Emerging Markets[7]	TFREMU	1.11%	26.32%	7.07%	15.17%	23.41%	24.52%
MSCI Emerging Markets[8]	GDUEEGF	1.03%	28.17%	4.53%	11.75%	16.54%	24.11%
FTSE RAFI® 1000[9]	FR10XTR	5.75%	31.51%	8.61%	4.78%	5.67%	18.08%
Russell 1000[10]	RU10INTR	6.37%	31.93%	3.68%	3.30%	3.21%	16.01%
S&P 500[11]	SPTR	6.02%	30.69%	3.34%	2.94%	2.72%	15.82%
FTSE RAFI® US 1500[12]	FR15USTR	5.67%	37.59%	13.84%	7.55%	10.83%	22.49%
Russell 2000[13]	RU20INTR	6.21%	37.41%	7.77%	4.08%	6.27%	20.85%
FTSE RAFI® Europe[14]	TFREUE	1.11%	15.56%	3.08%	1.04%	3.14%	19.13%
MSCI Europe[15]	GDDLE15	2.88%	17.91%	1.57%	1.11%	2.17%	16.90%
FTSE RAFI® Australia[16]	FRAUSTR	-0.32%	11.25%	3.32%	3.52%	8.21%	13.00%
S&P/ASX 200[17]	AS51	-0.92%	11.73%	0.32%	2.38%	7.21%	13.34%
FTSE RAFI® Canada[18]	FRCANTR	1.90%	18.69%	6.07%	7.78%	9.58%	14.19%
S&P/TSX 60[19]	TX60AR	0.59%	18.40%	-1.26%	5.81%	7.94%	14.60%
FTSE RAFI® Japan[20]	FRJPNTR	-5.67%	3.25%	-10.72%	-8.24%	-0.42%	18.68%
MSCI Japan[21]	GDDLJN	-5.09%	3.29%	-12.51%	-10.11%	-2.80%	18.38%
FTSE RAFI® UK[22]	FRGBRTR	2.27%	25.46%	7.07%	3.50%	4.59%	17.13%
MSCI UK[23]	GDDLUK	2.97%	25.00%	5.93%	4.09%	4.13%	15.00%

*To see the complete series, please go to: http://www.ftse.com/Indices/FTSE_RAFI_Index_Series/index.jsp.

Russell Fundamental Index® Series*

TOTAL RETURN AS OF 6/30/11	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED 3 YEAR	ANNUALIZED 5 YEAR	ANNUALIZED 10 YEAR	ANNUALIZED 10 YEAR VOLATILITY
Russell Fundamental Global Index Large Company[24]	RUFGLTU	6.35%	33.19%	5.14%	6.36%	9.72%	17.44%
MSCI All Country World Large Cap[25]	MLCUAWOG	4.85%	29.84%	0.98%	3.52%	4.60%	16.80%
Russell Fundamental Developed ex US Index Large Company[26]	RUFDXLTU	6.15%	32.04%	9.71%	5.72%	10.08%	18.38%
MSCI World ex US Large Cap[27]	MLCUWXUG	5.12%	30.22%	-1.52%	2.36%	5.89%	18.17%
Russell Fundamental Developed ex US Index Small Company[28]	RUFDXSTU	3.93%	31.39%	6.78%	5.60%	12.79%	18.49%
MSCI World ex US Small Cap[6]	GCUDWXUS	3.37%	37.51%	4.09%	3.44%	10.94%	20.28%
Russell Fundamental Emerging Markets[29]	RUFGETRU	2.55%	32.57%	9.80%	16.56%	23.00%	24.46%
MSCI Emerging Markets[8]	GDUEEGF	1.03%	28.17%	4.53%	11.75%	16.54%	24.11%
Russell Fundamental US Index Large Company[30]	RUFUSLTU	7.16%	33.26%	7.77%	5.19%	6.58%	16.51%
Russell 1000[10]	RU10INTR	6.37%	31.93%	3.68%	3.30%	3.21%	16.01%
S&P 500[11]	SPTR	6.02%	30.69%	3.34%	2.94%	2.72%	15.82%
Russell Fundamental US Index Small Company[31]	RUFUSSTU	7.34%	40.22%	14.60%	8.75%	12.10%	20.91%
Russell 2000[13]	RU20INTR	6.21%	37.41%	7.77%	4.08%	6.27%	20.85%
Russell Fundamental Europe[32]	RUFEUTE	1.61%	17.71%	4.20%	3.02%	5.95%	18.09%
MSCI Europe[15]	GDDLE15	2.88%	17.91%	1.57%	1.11%	2.17%	16.90%

*To see the complete series, please go to: http://www.russell.com/indexes/data/Fundamental/About_Russell_Fundamental_indexes.asp.

Fixed Income/Alternatives

TOTAL RETURN AS OF 6/30/11	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED 3 YEAR	ANNUALIZED 5 YEAR	ANNUALIZED 10 YEAR	ANNUALIZED 10 YEAR VOLATILITY
RAFI® Bonds Investment Grade Master[33]		3.01%	5.74%	9.06%	7.67%	6.60%	6.06%
ML Corporate Master[34]	C0A0	3.29%	6.63%	8.37%	6.95%	6.39%	6.23%
RAFI® Bonds High Yield Master[35]		5.39%	14.50%	13.61%	11.01%	9.76%	11.05%
ML Corporate Master II High Yield BB-B[36]	H0A4	4.81%	14.72%	10.50%	8.23%	7.87%	9.87%
RAFI US Equity Long/Short[37]		-0.47%	2.50%	14.17%	4.10%	6.26%	11.74%
1-Month T-Bill[38]	GB1M	0.03%	0.11%	0.24%	1.71%	1.90%	0.48%
FTSE RAFI® Global ex US Real Estate[39]	FRXR	1.80%	30.57%	0.41%	-0.07%	9.76%	22.40%
FTSE EPRA/NAREIT Global ex US[40]	EGXU	1.06%	27.73%	-3.47%	-2.58%	7.35%	20.31%
FTSE RAFI® US 100 Real Estate[41]	FRUR	7.85%	32.19%	5.40%	-3.14%	5.62%	27.11%
FTSE EPRA/NAREIT United States[42]	UNUS	8.16%	29.55%	-0.17%	-2.46%	4.78%	25.53%

powered by rafi®

Definition of Indices:

(1) The FTSE RAFI® All World 3000 Index is a measure of the largest 3,000 companies, selected and weighted using fundamental factors; (sales, cash flow, dividends, book value), across both developed and emerging markets.
(2) The MSCI All Country World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets.
(3) The FTSE RAFI® Developed ex US 1000 Index is a measure of the largest 1000 non U.S. listed, developed market companies, selected and weighted using fundamental factors; (sales, cash flow, dividends, book value).
(4) The MSCI World ex US Large Cap Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets, excluding the United States.
(5) The FTSE RAFI® Developed ex US Mid Small Index tracks the performance of small and mid-cap companies domiciled in developed international markets (excluding the United States), selected and weighted based on the following four fundamental measures of firm size: sales, cash flow, dividends and book value.
(6) The MSCI World ex US Small Cap Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of small cap developed markets, excluding the United States.
(7) The FTSE RAFI® Emerging Markets Index comprises the largest 350 Emerging Market companies selected and weighted using fundamental factors (sales, cash flow, dividends, book value).
(8) The MSCI Emerging Markets Index is an unmanaged, free-float-adjusted cap-weighted index designed to measure equity market performance of emerging markets.
(9) The FTSE RAFI® 1000 Index is a measure of the largest 1,000 U.S. listed companies, selected and weighted using fundamental factors; (sales, cash flow, dividends, book value).
(10) The Russell 1000 Index is a market-capitalization-weighted benchmark index made up of the 1,000 highest-ranking U.S. stocks in the Russell 3000.
(11) The S&P 500 Index is an unmanaged market index that focuses on the large-cap segment of the U.S. equities market.
(12) The FTSE RAFI® US 1500 Index is a measure of the 1,001st to 2,500th largest U.S. listed companies, selected and weighted using fundamental factors; (sales, cash flow, dividends, book value).
(13) The Russell 2000 is a market-capitalization weighted benchmark index made up of the 2,000 smallest U.S. companies in the Russell 3000.
(14) The FTSE RAFI® Europe Index is comprised of all European companies listed in the FTSE RAFI® Developed ex U.S. 1000 Index, which in turn is comprised of the largest 1,000 non U.S. listed developed market companies, selected and weighted using fundamental factors; (sales, cash flow, dividends, book value).
(15) The MSCI Europe Index is a free-float adjusted market capitalization weighted index that is designed to measure the equity market performance of the developed markets in Europe.
(16) The FTSE RAFI® Australia Index is comprised of all Australian companies listed in the FTSE RAFI® Developed ex U.S. 1000 Index, which in turn is comprised of the largest 1,000 non U.S. listed developed market companies, selected and weighted using fundamental factors; (sales, cash flow, dividends, book value).
(17) The S&P/ASX 200 Index, representing approximately 78% of the Australian equity market, is a free-float-adjusted, cap-weighted index.
(18) The FTSE RAFI® Canada Index is comprised of all Canadian companies listed in the FTSE RAFI® Developed ex U.S. 1000 Index, which in turn is comprised of the largest 1,000 non U.S. listed developed market companies, selected and weighted using fundamental factors; (sales, cash flow, dividends, book value).
(19) The S&P/Toronto Stock Exchange (TSX) 60 is a cap-weighted index consisting of 60 of the largest and most liquid (heavily traded) stocks listed on the TSX, usually domestic or multinational industry leaders.
(20) The FTSE RAFI® Japan Index is comprised of all Japanese companies listed in the FTSE RAFI® Developed ex U.S. 1000 Index, which in turn is comprised of the largest 1,000 non U.S. listed developed market companies, selected and weighted using fundamental factors; (sales, cash flow, dividends, book value).
(21) The MSCI Japan Index is an unmanaged, free-float-adjusted cap-weighted index that aims to capture 85% of the publicly available total market capitalization of the Japanese equity market.
(22) The FTSE RAFI® UK Index is comprised of all UK companies listed in the FTSE RAFI® Developed ex U.S. 1000 Index, which in turn is comprised of the largest 1,000 non U.S. listed developed market companies, selected and weighted using fundamental factors; (sales, cash flow, dividends, book value).
(23) The MSCI UK Index is an unmanaged, free-float-adjusted cap-weighted index that aims to capture 85% of the publicly available total market capitalization of the British equity market.
(24) The Russell Fundamental Global Index Large Company is a measure of the largest companies, selected and weighted using fundamental factors; (adjusted sales, retained cash flow, dividends + buybacks), across both developed and emerging markets.
(25) The MSCI All Country World Large Cap Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets.
(26) The Russell Fundamental Developed ex US Large Company is a subset of the Russell Fundamental Developed ex US Index, and is a measure of the largest non-U.S. listed developed country companies, selected and weighted using fundamental factors; (adjusted sales, retained cash flow, dividends + buybacks).
(27) The MSCI World ex US Large Cap Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of large cap-developed markets, excluding the United States.
(28) The Russell Fundamental Developed ex US Index Small Company is a subset of the Russell Fundamental Developed ex US Index, and is a measure of small non-U.S. listed developed country companies, selected and weighted using fundamental factors; (adjusted sales, retained cash flow, dividends + buybacks).
(29) The Russell Fundamental Emerging Markets Index is a measure of Emerging Market companies, selected and weighted using fundamental factors; (adjusted sales, retained cash flow, dividends + buybacks).
(30) The Russell Fundamental U.S. Index Large Company is a subset of the Russell Fundamental US Index, and is a measure of the largest U.S. listed companies, selected and weighted using fundamental measures; (adjusted sales, retained cash flow, dividends + buybacks).
(31) The Russell Fundamental US Index Small Company is a subset of the Russell Fundamental US Index, and is a measure of U.S. listed small companies, selected and weighted using fundamental measures; (adjusted sales, retained cash flow, dividends + buybacks).
(32) The Russell Fundamental Europe Index is a measure of European companies, selected and weighted using fundamental factors; (adjusted sales, retained cash flow, dividends + buybacks).
(33) The RAFI® Bonds Investment Grade Master Index is a U.S. investment-grade corporate bond index comprised of non-zero fixed coupon debt with maturities ranging from 1 to 30 years issued by publicly traded companies. The issuers held in the index are weighted by a combination of four measures of their fundamental size—sales, cash flow, dividends, and book value of assets.
(34) The Merrill Lynch U.S. Corporate Master Index is representative of the entire U.S. corporate bond market. The index includes dollar-denominated investment-grade corporate public debt issued in the U.S. bond market.
(35) The RAFI® Bonds High Yield Master is a U.S. high-yield corporate bond index comprised of non-zero fixed coupon debt with maturities ranging from 1 to 30 years issued by publicly traded companies. The issuers held in the index are weighted by a combination of four measures of their fundamental size—sales, cash flow, dividends, and book value of assets.
(36) The Merrill Lynch Corporate Master II High Yield BB-B Index is representative of the U.S. high yield bond market. The index includes domestic high-yield bonds, including deferred interest bonds and payment-in-kind securities. Issues included in the index have maturities of one year or more and have a credit rating lower than BBB-/Baa3, but are not in default.
(37) The RAFI® US Equity Long/Short Index utilizes the Research Affiliates Fundamental Index® (RAFI®) methodology to identify opportunities that are implemented through long and short securities positions for a selection of U.S. domiciled publicly traded companies listed on major exchanges. Returns for the index are collateralized and represent the return of the strategy plus the return of a cash collateral yield.
(38) The 1-Month T-bill return is calculated using the Bloomberg Generic 1-month T-bill. The index is interpolated based off of the currently active U.S. 1 Month T-bill and the cash management bill closest to maturing 30 days from today.
(39) The FTSE RAFI® Global ex US Real Estate Index comprises 150 companies with the largest RAFI fundamental values selected from the constituents of the FTSE Global All Cap ex U.S. Index that are classified by the Industry Classification Benchmark (ICB) as Real Estate.
(40) The FTSE EPRA/NAREIT Global ex US Index is a free float-adjusted index, and is designed to represent general trends in eligible listed real estate stocks worldwide, excluding the United State. Relevant real estate activities are defined as the ownership, trading and development of income-producing real estate.
(41) The FTSE RAFI® US 100 Real Estate Index comprises of the 100 U.S. companies with the largest RAFI fundamental values selected from the constituents of the FTSE USA All Cap Index that are classified by the Industry Classification Benchmark (ICB) as Real Estate.
(42) The FTSE EPRA/NAREIT United States Index is a free float-adjusted index, is a subset of the EPRA/NARIET Global Index and the EPRA/NAREIT North America Index and contains publicly quoted real estate companies that meet the EPRA Ground Rules. EPRA/NARIET Index series is seen as the representative benchmark for the real estate sector.

Source: All index returns are calculated using total return data from Bloomberg, except for the real estate indices and benchmarks, which use price return data. Returns for all single country strategies and Europe regional strategies are in local currency. All other returns are in USD.