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Fundamentals

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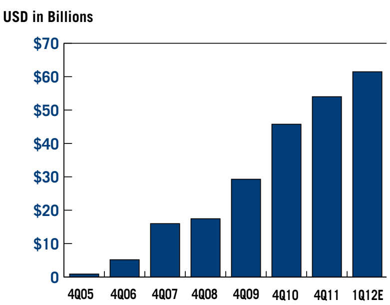
RAFI® Managed Assets*



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INSTITUTIONALIZING COURAGE

Imagine a boss who is generally supportive of your efforts, but has some odd tendencies around rewarding initiative. Let's call him Mr. Market.[1] Every time you go in for your annual review, Mr. Market gives you a raise which is usually 1% or 2% above inflation, and asks, "Whaddya think?" If you're "passive" and take whatever Mr. Market offers, you wind up with a steady but modest increase in your income, year after year, assuming the company is still doing well.

Mr. Market, however, does not view all projects equally. If you offer to take over some project that he hates, he boosts your raise by an average of 3–6%. With a little initiative, you can triple the average real raise—over and above inflation—that everyone else is getting.

Unfortunately, Mr. Market is also bipolar, with wide mood swings. If you're willing to take on a project that he really hates, he may give you a 15% raise, just to get it off his desk. On the other hand, if you're taking a project that he doesn't much mind doing, he may actually take away some of the normal raise. Because you run this risk every time you propose to take on a new project, it takes a modicum of courage to make these offers to the boss.

With a boss like Mr. Market, what is the right strategy for success? The answer is obvious: You need the courage to stick with the profitable strategy through the good times and the tough times. We'll come back to Mr. Market shortly. First, we need to understand the true nature of wealth, income, and spending.

Sustainable Spending as a Strategy

Although people tend to measure wealth in terms of the dollar value of a portfolio, we believe it is better to measure wealth in terms of the *real* spending that the portfolio can sustain over the entire life of the obligations served by the portfolio. In 2004, we coined the expression "sustainable spending," to gauge this true value of a portfolio.[2] Jim Garland used the term "portfolio fecundity," to describe much the same concept.[3]

Consider a simple thought experiment. It's a bull market. Prices double on everything we own, while the dividend yield drops in half. Are we better off? The long-term spending that the portfolio can sustain hasn't changed a bit. In 1997, Peter Bernstein and I[4] pointed out that bull markets are actually very bad news for those who are net savers, building a portfolio to fund future needs, because it costs more to buy the same *real income stream* (a very crude measure of sustainable real spending[5]) after the bull market

continued on page two

than before. We're better off *only* if we're spending from the portfolio immediately, not saving more for the future!

Many people felt jubilation at the peak of the tech bubble, because they felt so wealthy. And they were—as long as they were inclined to liquidate their holdings and spend before the market lost its euphoria. If they were still investing (e.g., for some future retirement), those new purchases bought precious little yield! Reciprocally, people felt panic and dismay at the 2009 trough of the financial crisis, because they felt as if their assets had been wiped out. And they were—if they intended to liquidate and spend their assets immediately. But, for the buy-and-hold investor, their real income was higher than at the 2007 peak!

None of this is unfamiliar to the serious student of capital markets. So, what lessons can the thoughtful observer learn from "sustainable spending"? In the following discussion, we find bear market drawdowns have little impact on sustainable spending. Indeed, these sell-offs provide opportunities to increase our sustainable spending through disciplined rebalancing between asset classes or *within* asset classes, especially volatile ones like equities.

This requires courage: "no guts, no glory."[6]

What is Wealth?

Ben Graham liked to distinguish between a temporary loss of value and a permanent loss of capital. The former is a rebalancing opportunity; the latter is a disaster. In a highly diversified portfolio where all the idiosyncratic risk has been diversified away, the latter is extremely rare. At some time during the 20th century, the stock markets of Argentina, Russia, Germany, Japan, China, and Egypt each went essentially to zero. Suffice it to say those investors had much bigger things to worry about than their stocks! *Temporary* losses of value are frequent; at times they can become so frightening that they become permanent—for those that sell.

Through the lens of sustainable spending, these losses are far less severe. **Table 1** illustrates the 10 bear markets larger than 30%, in real total return, in the past century. These aren't as rare as most people think! The average loss is a horrific 46% real return loss (including dividends, but before taxes). Our nest egg is chopped in half, usually in less than two years. That's awful… for anyone who wants to spend all of their money at the trough.

For those focused on the spending power of the portfolio, most of these monster bear markets were surprisingly boring. The peak to trough decline in real dividend distributions was a scant 3% drop, on average. Even in the Great Depression, real dividend distributions fell by "only" 25%. Of course, the drop was worse in simple nominal terms, because we had deflation. A 25% cut in real spending power on our portfolio, while very unpleasant, was small relative to the 80% real loss of portfolio value… and it was *temporary*. This 25% drop in our real spending power was the single worst outlier in a century.

On average, real sustainable spending sagged slightly during these 10 worst bear markets, then recovered massively, on average by 35%, off of their lows just five years after the market trough. In almost every case, our real distributions also achieved new highs, relative to our pre-crisis spending, besting

Table 1. Total Returns vs. Sustainable Spending in U.S. Bear Markets Over 30%, 1912–2011
S&P 500 from 1926; Shiller data before 1926

		Total Drawdown In:		Five Years Later Dividend Growth	
Peak	Trough	Real Total Return	Real Dividends	From Trough	From Previous High
Nov '15	Nov '17	-40.9%	1.6%	-3.1%	-1.5%
Aug '29	Jun '32	-79.3%	-24.7%	73.4%	38.2%
Feb '37	Mar '38	-50.0%	-14.0%	11.6%	-4.1%
Sep '39	Apr '42	-40.1%	1.8%	16.2%	18.3%
May '46	Feb '48	-35.7%	7.5%	99.5%	114.5%
Nov '68	Jun '70	-35.5%	-7.4%	8.4%	0.3%
Dec '72	Sep '74	-51.9%	-3.9%	42.9%	37.3%
Aug '87	Nov '87	-30.2%	-6.6%	40.2%	30.9%
Aug '00	Sep '02	-47.2%	-7.1%	66.2%	54.5%
Oct '07	Feb '09*	-51.8%	4.0%	-4.1%	-0.2%
Average	**20.7 Mo**	**-46.3%**	**-2.7%**	**35.1%**	**28.8%**

*Subsequent five years is truncated to March 2012.

Source: Research Affiliates based on data from Ibbotson and Shiller.

the dividends of the previous market peak by an average of 29%! Keep in mind that this is the increase in *real* dividends, not just nominal payouts.

For those focused on the level of real spending, rather than the level of prices, the worst market downturns in U.S. history were mostly brief bouts of minor disappointment.

The results in the recent Global Financial Crisis bear a special mention. While U.S. stocks tumbled by 51%, the real dividends distributed by the S&P 500 Index *grew* by 4%. To be sure, the real dividends have given up that 4% gain in the subsequent three years. But, from the perspective of spending power, these past 4½ years have been utterly boring and benign!

For the buy-and-hold investor, bear markets aren't nearly as bad as they seem. Massive market corrections disproportionately impact market prices versus spending power. But our proposed shift in our focus—drawing attention away from the value of our portfolio toward the spending power it can sustain—requires real courage: courage to ignore headlines, our brokerage statements, and our natural human instincts to sell.

Return on Courage

Now suppose we have the nerve, not only to focus on our real sustainable spending, but also to seek to increase our real sustainable spending in market downturns! If we rebalance into higher yielding assets after they've cratered, presumably funded from assets that have performed much better, we can systematically ratchet our sustainable spending ever higher. This ground is amply explored in asset allocation literature. Indeed, the essence of Tactical Asset Allocation (TAA) is an effort to rebalance into investments when they become most uncomfortable, *and are therefore priced with a superior risk premium, to reward those who are courageous enough to invest at such times.*

Even a mechanistic rebalancing policy would have compelled a trade from stocks into bonds at the peak in 2000. The trend-chasers who bought stocks at the peak, let alone buyers of high-flying growth or tech stocks, may not live long enough to be wealthier than their contrarian friends who bought ordinary Treasury bonds at that same time. They funded the success of TAA managers and strategies. Conversely, in 2009, a disciplined rebalancing strategy compelled us to buy "Anything but Treasuries." Treasuries had dipped to the lowest yields seen in three generations. At the same time, almost anything else offered generous *future* spending, with many markets priced at near-record yields. Still, this was a very frightening trade.

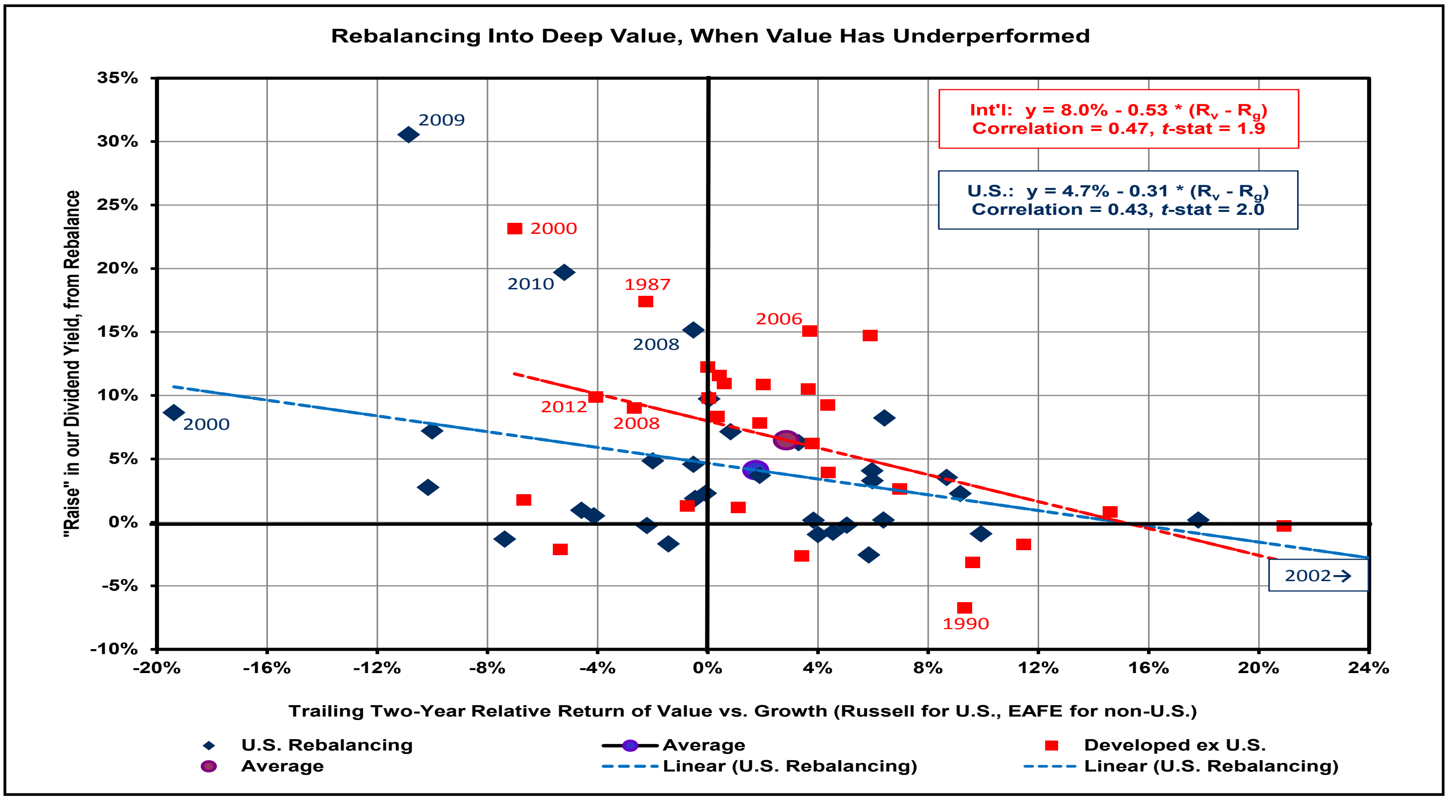
Sustainable spending also has merit within an asset class. Consider equities; we'll use our Fundamental Index® approach for illustrative purposes.[7] The basic Research Affiliates Fundamental Index (RAFI®) strategy annually rebalances each stock back to its fundamental business scale. While the RAFI strategy uses multiple measures of a company's economic footprint, let's simplify by considering dividends alone. If a stock soars relative to the rest of the market, and its yield tumbles, what will a Fundamental Index strategy do? This stock will typically be trimmed, with the proceeds rebalanced into another stock *with a higher yield*. In so doing, the rebalancing in RAFI strategies raises our dividend yield. With each rebalance, we're taking on Mr. Market's most hated "projects," the feared and loathed deep value stocks.

What if value has performed poorly? Then, value stocks will likely have become cheaper, while growth stocks will have become more richly priced. In this case, a RAFI strategy will likely rebalance out of growth and into value, *more aggressively than norma*l. The rebalancing *increases our dividend yield, as well as our sustainable spending*! Will a RAFI strategy ever trade out of value and into growth? Yes, but rarely. This occurs when value has outpaced growth by a wide margin.

The pattern of rebalancing is confirmed in **Figure 1** for U.S. and Developed non-U.S. stocks. Each dot represents a single year's rebalance. The FTSE-RAFI® US 1000 Index rebalance at the top of the tech bubble (the left-most blue dot, labeled "2000") illustrates a big rebalance in which the portfolio yield rose from 2.34% to 2.53%, for an 8% jump in the portfolio income. The size of the rebalance was triggered by a 24-month period in which Russell Value lagged Russell Growth by a staggering 19% per year. Mr. Market just gave us an 8% raise, in real income, for allowing him to trim his most feared deep value names, even as we gave him more of his favorite high-fliers.

Mr. Market was even more generous with the FTSE RAFI Developed ex US Index rebalance in that same year (the top red dot, labeled "2000"). In this case, EAFE Value had underperformed EAFE Growth by 7% per year in the prior 24 months. Because value had become so cheap—was so loathed by Mr. Market—our Fundamental Index portfolio moved from a dividend yield of 2.5% to

Figure 1. Annual Yield "Raise" in a Fundamental Index Rebalance vs. Preceding Two-Year Value Relative Performance Using Russell Value-Growth for the U.S. Market and EAFE Value-Growth for the Developed ex-U.S. Market



Note: U.S. data from 4/1/1979-3/31/2012; International data from 4/1/1983-3/31/2012.
Source: Research Affiliates based on data from eVestment Alliance, Factset, Bloomberg, and Ibbotson.

3.1%. In this case, Mr. Market gave us a 24% raise in real income.

Of course, 2000 was an exceptional year, the peak of the largest market bubble in history.[8] In more normal times, this type of rebalancing provides about a 4% extra raise—beyond what Mr. Market offered to his "passive" employees—in the United States and about a 6.5% extra raise in the Developed ex U.S. markets. Our willingness to take Mr. Market's most loathed holdings leads to a boost in our income about three-fourths of the time: 24 out of 33 years in the United States and 22 out of 28 years in the international markets. These "raises" are over and above whatever increase Mr. Market is offering as a "company-wide" average.

Mr. Market has another peculiarity that bears mentioning. The worse value has performed—and the worse *we've* performed as a consequence of our previous willingness to embrace value—the bigger the raise that Mr. Market will give us for taking a still larger slice of his most loathed holdings. Obviously, it requires tremendous courage to rebalance into the same deep value names that just hurt us. But Mr. Market is a thoughtful boss: If we took on a project that he hated, and we got burned last year by doing so, he wants to make it up to us with an even larger raise to ease our pain… *as long as we're willing to do it again*! We can see this in the larger "raise" in our dividend yield around inflection points, which includes 2000, 2008, and 2009, as well as 2012 for our non-U.S. holdings.

In the case of developed equities outside the United States, the recent crises deliver far more yield—if we're willing to rebalance into the recently savaged deep value stocks in Europe and the emerging markets. Uncomfortable? You bet. Assured of success? Of course not. But, we did get a 10% "raise" in the March 2012 rebalance, from a 3.8% yield to a 4.2% yield, as recompense for stepping "once more into the breach."[9] A 4.2% yield is a very nice start toward a goal of earning solid real returns.

A skeptic might suggest that we shouldn't get to keep the extra yield, if the market is properly discounting future dividend cuts among the recent price laggards. History suggests otherwise. **Table 2** compares the total return for a U.S. capitalization-weighted large company portfolio and a RAFI portfolio from 1964–2009 (we revert back to a U.S. series to give us the longest track record).[10] As the data show, the RAFI methodology earned an average dividend yield of 3.83% since 1964, nearly

Table 2. Attribution, Sources of Return, 1962–2011, 1,000 Largest U.S. Stocks Selected and Weighted Annually by Market Cap and RAFI Weight

	Total Return	Return from Rising Valuations	Average Dividend Yield	Growth in Dividends	Growth Before Rebalance	Growth From Rebalance
Market, Cap Weight	9.8%	0.8%	3.2%	5.6%	6.7%	-1.0%
Fundamental Weight	11.6%	0.8%	3.8%	6.6%	4.8%	1.7%

Source: See Endnote 10.

70 basis points per annum better than cap weighting. And, there's a bonus—the Fundamental Index approach gives us an annualized dividend growth rate of 6.6% per annum, a full percentage point per annum above the cap-weighted market.

How can we be garnering faster dividend growth, especially in light of our tendency to shun the most beloved growth stocks? Again, it's our rebalancing, as we can see when we segregate the growth in our existing holdings' dividends from the "raise" we derive from rebalancing. The value tilt of the Fundamental Index approach garners 1.9% slower growth in buy-and-hold dividends, before the rebalance, relative to the more growth-oriented holdings of a cap-weighted portfolio. This then offsets the yield difference. But the annual rebalance ratchets that yield up by 1.7% on average, while cap weight *drops its losers and chases its winners*, costing it 1% per year on its own rebalance. We garner an average "raise" of 2.7%, with each rebalance, as recompense for tolerating discomfort, instead of chasing the latest high-fliers; for international stocks we garner *twice as much of a "raise" as this… more than 6% each year*. Add it up and we get near 2% more return than cap weight per year (for nearly a half-century!), and considerably more outside the United States. All for taking on Mr. Market's most hated "projects" year after year.

Conclusion

Rebalancing into the most feared and loathed stocks, and out of the most beloved high-fliers, requires courage—even if we get a "raise" almost every time we do it! Andrew Ang of Columbia labels this "countercyclical investing." He calls on long-term investors to institutionalize this kind of contrarian behavior.[11] If we have the courage to do this, even though it creates discomfort and goes against human nature, it far better aligns our investments with the long-term obligations that they are intended to serve.

Over the long term, we get better total returns by investing for a steady increase in sustainable spending, while letting others invest for comfort. Fortunately, Mr. Market is a kindly boss, rewarding us handsomely for our courage in taking on his most hated holdings. The willingness to apply courage, in a disciplined and contrarian fashion, leads to better long-term results.

Institutionalizing a focus on sustainable spending, as a basis for gauging our investments over time, can help give us the courage to stay the course in adversity and even to take on more discomfort when it is most profitable—and most frightening—to do so.

Endnotes

1. Ben Graham was perhaps the first to personalize the market, by calling it "Mr. Market."
2. See Arnott, Robert D., 2004, "Sustainable Spending in a Lower-Return World," *Financial Analysts Journal*, vol. 60, no. 5 (September/October):6–9.
3. See Garland, James P., 2004, "The Fecundity of Endowments and Long-Duration Trusts," *Economics and Portfolio Strategy*, September 15.
4. See Arnott, Robert D., and Peter L. Bernstein, 1997, "Bull Market? Bear Market? Should You Really Care?" *Journal of Portfolio Management*, vol. 24, no. 1 (Fall):26–29.
5. I prefer to use the cost of an inflation-indexed annuity to define sustainable spending. Dividends are a perfectly good proxy because dividends generally rise with inflation, plus delivering Mr. Market's average 1–2% real raise.
6. The phrase "No Guts, No Glory" was popularized by Captain Frederick "Boots" Blesse, an ace jet pilot from the Korean War. Upon returning home, Blesse used his experience to publish a manual on fighter tactics, "No Guts, No Glory," which was used in training by the United States and other air forces. In the preface, Blesse stated that "…the goal which we seek, or should be seeking, in the training of any pilot, is to produce a pilot who is aggressive and well-trained."
7. The same logic applies to any method that doesn't invest proportionately to share price, as cap weighting does.
8. With apologies to the EMH academics who still think that Pets.com was fairly priced in early 2000!
9. Shakespeare, Henry V, during the famous battle at Agincourt.
10. This table is drawn from Robert D. Arnott and Denis Chaves, "Rebalancing and the Value Effect," forthcoming in the *Journal of Portfolio Management*, Summer 2012.
11. See Ang, Andrew, and Knut N. Kjaer, 2011, "Investing for the Long Run," November 11. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1958258.

Performance Update

FTSE RAFI® Equity Index Series*

TOTAL RETURN AS OF 4/30/12	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	8.33%	-10.31%	16.41%	0.07%	8.98%	19.15%
MSCI All Country World[2]	GDUEACWF	10.81%	-5.21%	16.49%	-0.75%	6.09%	17.46%
FTSE RAFI® Developed ex US 1000[3]	FRX1XTR	6.47%	-18.23%	11.08%	-3.73%	7.40%	20.48%
MSCI World ex US Large Cap[4]	MLCUWXUG	8.47%	-12.47%	12.32%	-3.59%	5.87%	18.57%
FTSE RAFI® Developed ex US Mid Small[5]	TFRDXUSU	10.09%	-10.21%	19.31%	0.68%	13.07%	18.90%
MSCI World ex US Small Cap[6]	GCUDWXUS	13.19%	-11.87%	19.76%	-2.58%	10.14%	20.50%
FTSE RAFI® Emerging Markets[7]	TFREMU	11.50%	-13.16%	17.83%	6.26%	20.30%	24.97%
MSCI Emerging Markets[8]	GDUEEGF	12.79%	-12.34%	18.67%	3.77%	14.26%	24.43%
FTSE RAFI® 1000[9]	FR10XTR	9.95%	0.79%	22.34%	1.83%	6.34%	18.24%
Russell 1000[10]	RU10INTR	12.25%	4.11%	19.88%	1.23%	5.09%	16.14%
S&P 500[11]	SPTR	11.88%	4.76%	19.46%	1.01%	4.71%	15.93%
FTSE RAFI® US 1500[12]	FR15USTR	11.62%	-4.44%	25.23%	4.25%	9.70%	22.67%
Russell 2000[13]	RU20INTR	10.70%	-4.25%	20.34%	1.45%	6.19%	20.96%
FTSE RAFI® Europe[14]	TFREUE	2.97%	-14.12%	9.00%	-5.59%	2.73%	19.20%
MSCI Europe[15]	GDDLE15	6.39%	-5.58%	12.46%	-4.44%	1.84%	16.71%
FTSE RAFI® Australia[16]	FRAUSTR	9.74%	-3.39%	9.47%	-1.28%	7.58%	13.15%
S&P/ASX 200[17]	ASA51	9.95%	-4.44%	9.78%	-2.32%	7.28%	13.39%
FTSE RAFI® Canada[18]	FRCANTR	7.07%	-5.73%	14.50%	2.93%	8.99%	14.06%
S&P/TSX 60[19]	TX60AR	3.72%	-9.82%	10.27%	0.89%	7.35%	14.50%
FTSE RAFI® Japan[20]	FRJPNTR	10.24%	-6.03%	-0.07%	-11.48%	0.36%	18.78%
MSCI Japan[21]	GDDLJN	11.86%	-4.68%	0.31%	-12.65%	-1.64%	18.38%
FTSE RAFI® UK[22]	FRGBRTR	3.65%	-2.87%	12.39%	0.31%	5.00%	17.04%
MSCI UK[23]	GDDLUK	4.34%	-1.78%	14.57%	1.23%	4.57%	15.08%

*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 4/30/12	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	8.90%	-7.36%	17.11%	1.05%	9.26%	17.83%
MSCI All Country World Large Cap[25]	MLCUAWOG	10.66%	-4.75%	15.97%	-0.71%	5.57%	17.13%
Russell Fundamental Developed ex US Index Large Company[26]	RUFDXLTU	6.74%	-16.16%	11.57%	-2.52%	8.98%	18.90%
MSCI World ex US Large Cap[27]	MLCUWXUG	8.47%	-12.47%	12.32%	-3.59%	5.87%	18.57%
Russell Fundamental Developed ex US Index Small Company[28]	RUFDXSTU	11.83%	-7.10%	19.01%	0.10%	12.46%	18.50%
MSCI World ex US Small Cap[6]	GCUDWXUS	13.19%	-11.87%	19.76%	-2.58%	10.14%	20.50%
Russell Fundamental Emerging Markets[29]	RUFGETRU	13.01%	-12.10%	20.90%	7.70%	20.00%	24.71%
MSCI Emerging Markets[8]	GDUEEGF	12.79%	-12.34%	18.67%	3.77%	14.26%	24.43%
Russell Fundamental US Index Large Company[30]	RUFUSLTU	10.33%	2.75%	21.33%	2.65%	6.99%	16.75%
Russell 1000[10]	RU10INTR	12.25%	4.11%	19.88%	1.23%	5.09%	16.14%
S&P 500[11]	SPTR	11.88%	4.76%	19.46%	1.01%	4.71%	15.93%
Russell Fundamental US Index Small Company[31]	RUFUSSTU	12.40%	-2.66%	26.15%	5.44%	10.58%	21.43%
Russell 2000[13]	RU20INTR	10.70%	-4.25%	20.34%	1.45%	6.19%	20.96%
Russell Fundamental Europe[32]	RUFEUTE	5.07%	-10.75%	12.38%	-3.11%	5.57%	18.10%
MSCI Europe[15]	GDDLE15	6.39%	-5.58%	12.46%	-4.44%	1.84%	16.71%

*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 4/30/12	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED 3 YEAR	ANNUALIZED 5 YEAR	ANNUALIZED 10 YEAR	ANNUALIZED 10 YEAR VOLATILITY
RAFI® Bonds Investment Grade Master[33]		3.25%	9.93%	12.72%	7.93%	6.86%	6.03%
ML Corporate Master[34]	C0A0	3.75%	8.62%	12.92%	6.87%	6.61%	6.20%
RAFI® Bonds High Yield Master[35]		6.11%	8.07%	20.98%	10.29%	9.70%	10.92%
ML Corporate Master II High Yield BB-B[36]	H0A4	5.51%	5.83%	17.06%	7.07%	8.00%	9.82%
RAFI® US Equity Long/Short[37]		-4.20%	-10.35%	6.91%	0.16%	3.81%	11.73%
1-Month T-Bill[38]	GB1M	0.01%	0.03%	0.08%	0.89%	1.70%	0.49%
FTSE RAFI® Global ex US Real Estate[39]	FRXR	14.75%	-14.03%	19.18%	—	—	—
FTSE EPRA/NAREIT Global ex US[40]	EGXU	17.45%	-6.81%	18.61%	—	—	—
FTSE RAFI® US 100 Real Estate[41]	FRUR	13.91%	2.67%	33.54%	—	—	—
FTSE EPRA/NAREIT United States[42]	UNUS	14.06%	9.43%	31.92%	—	—	—
Citi RAFI® Sovereign Developed Markets Bond Index Master[43]	CRFDMU	2.36%	2.84%	7.29%	6.50%	8.61%	7.95%
Merrill Lynch Global Governments Bond Index II[44]	W0G1	0.95%	3.89%	6.96%	6.96%	7.69%	7.31%
Citi RAFI® Sovereign Emerging Markets Local Currency Bond Index Master[45]	CRFELMU	8.22%	—	—	—	—	—
JPMorgan GBI-EM Global Diversified[46]	JGENVUUG	9.34%	—	—	—	—	—

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.
(43) The Citi RAFI® Sovereign Developed Markets Bond Index Series seeks to reflect exposure to the government securities of a universe of 23 developed markets. By weighting components by their fundamentals, the indices aim to represent each country's economic footprint and proxies for its ability to service debt.
(44) The Merrill Lynch Global Government Bond Index II tracks the performance of investment grade sovereign debt publicly issued and denominated in the issuer's own domestic market and currency.
(45) The Citi RAFI® Sovereign Emerging Markets Local Currency Bond Index Series seeks to reflect exposure to the government securities of a universe of 14 emerging markets. By weighting components by their fundamentals, the indices aim to represent each country's economic footprint and proxies for its ability to service debt.
(46) The JPMorgan GBI-EM Diversified Index seeks exposure to the local currency sovereign debt of over 15 countries in the emerging markets.

Source: All index returns are calculated using total return data from Bloomberg and FactSet. Returns for all single country strategies and Europe regional strategies are in local currency. All other returns are in USD.

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