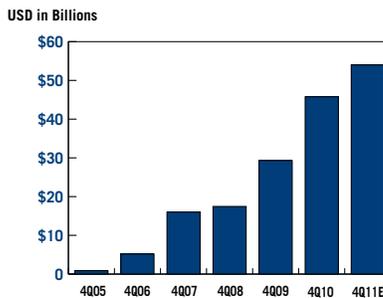


Fundamentals



Shane Shepherd

RAFI® Managed Assets*



*Includes RAFI assets managed or sub-advised by Research Affiliates® or RAFI licensees.



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DIRT ECONOMICS: DEMOGRAPHICS MATTER!

My maternal grandparents grew up on Midwestern farms. As was typical in those days, they came from large families with seven children each. I like to think that my great-grandparents were motivated by a hard-earned grasp of “Dirt Economics”: knowing the benefits of cheap (and even free!) farm labor, they chose to have large families to help work the farm. And, given the economic realities facing a poor South Dakotan farming community, they certainly weren’t relying on their tiny savings to provide a comfortable retirement. Just as they had done for their parents, my great-grandparents hoped their children would run the family farm, put food on the table, and pay the doctor and the dry goods store bills once they were too old to work the land.

My great-grandparents intuitively understood the concept of support ratios: having just one or two children wouldn’t guarantee the retirement security they needed. Despite the economic devastation wrought by the Great Depression and the Dust Bowl of the 1930s, the underlying economic potential for their generation remained quite strong, especially following the Second World War. A growing

workforce promised increasing demands for goods and services, and the production capacity to meet that demand. But a problem was forming on the horizon: Americans—my grandparents among them—stopped having so many kids, with long-term implications for the economy and investments. In this issue, we will examine how demographic changes affect portfolios in different economic environments.

The Demographic Bust

If only we found ourselves in such a fortunate situation today as prior generations did. Soaring deficits, massive debt, and worsening demographics—our frequently mentioned “3-D Hurricane”¹—leave my generation in a far more dire situation than my grandparents faced. Exceedingly high debt levels and growing deficits across the developed world have attracted much attention, and rightfully so. Deficit spending is by nature a transfer of future consumption to the present. Particularly when built up across generations, excessive deficits can powerfully reduce future economic growth when those bills come due. The economic prosperity

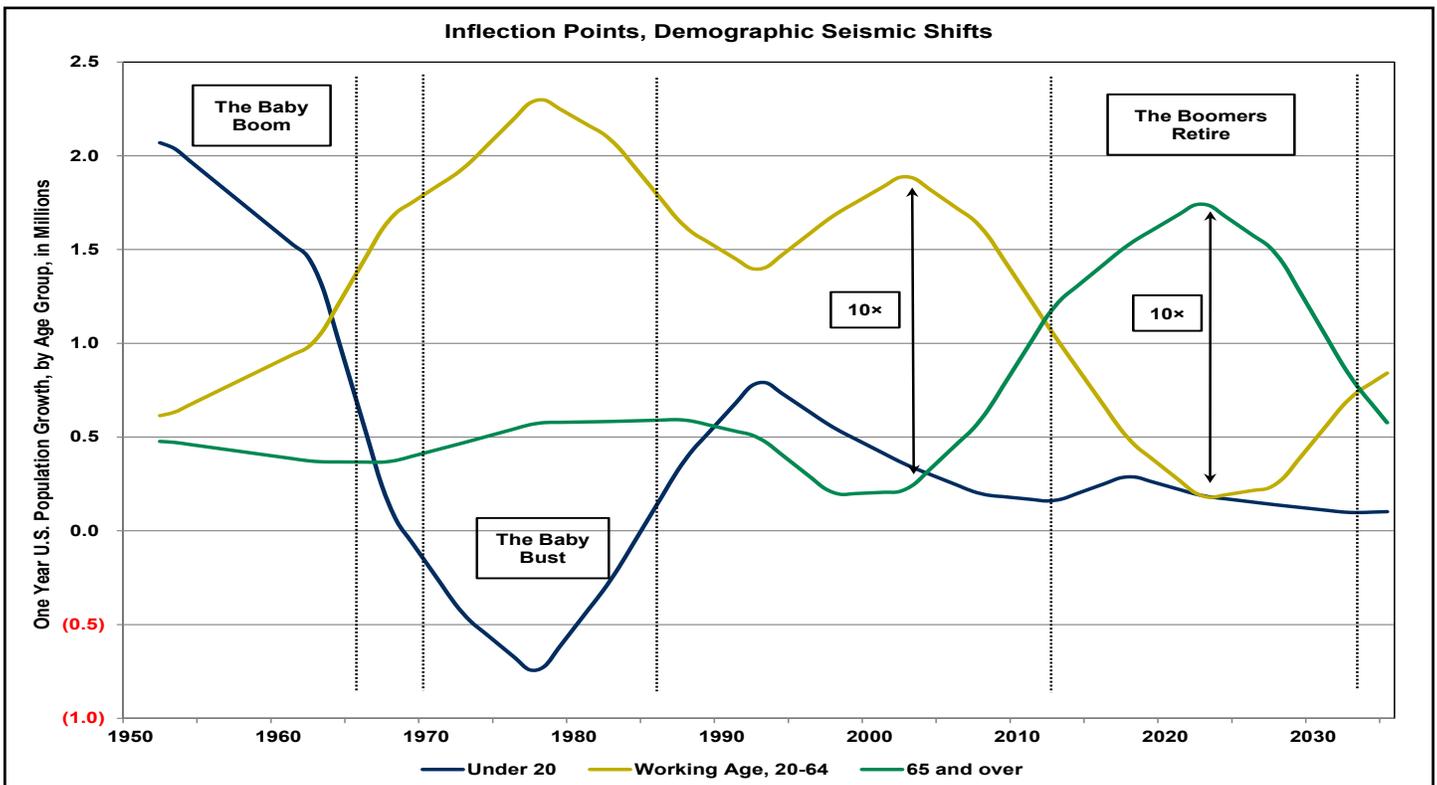
of Generation X will certainly be reduced by the need to pay back the heavy borrowing of the Baby Boomers.

Even if we could clean up our current fiscal mess with a wave of Ben Bernanke’s magic wand, our future prosperity still would decline for an even more powerful and fundamental reason. Simply put, I don’t have enough siblings. In addition to running large deficits and spending my generation’s income ahead of time, my parents’ generation forgot about Dirt Economics—they didn’t have enough children to support them in their retirement. As we moved from a predominantly single family support system to a national system anchored on Social Security, the incentives to directly replace one’s labor value vanished; instead, we shifted the burden to society as a whole. Therefore, if the Boomers begin to retire as anticipated, we won’t be able to produce enough goods and services to meet their demand! The core problem faced by the developed world today is not just the disastrous fiscal situation we see headlining the newspapers every day, but—lurking beneath the surface—our impending demographic bust.

Examining the deteriorating support ratios for the developed world puts the magnitude of this problem in context. In 1970, there were five working adults for every retiree. Today, that ratio is 3.5:1 and if the retirement age remains constant, that ratio is projected to drop below 2:1 by 2050.² The demographics trends in **Figure 1** show that, in the early 2000s, there were 10 net new working age people (ages 20–64) for every net new senior citizen;³ by 2023, that ratio will invert and show *one* new worker for every 10 retirees.

To understand the impact of these numbers, let’s first consider the generational effects in a closed single-nation economy. As a large generation such as the Baby Boomers retires, their consumption demands typically remain relatively unchanged. However, their ability to produce goods and services vanishes; if the following generations are smaller in number, we will see the relative labor pool (and thus its ability to supply goods and services) decline in the economy. We are thereby left with a downward shift in the aggregate supply curve while demand remains relatively constant. If nothing else changes, this causes a shortage of goods and the result is price inflation and reduced Gross Domestic Product.

Figure 1. Demographic Trends Bode III for the U.S. Economy



Source: Research Affiliates, LLC, based on population data and projections from the U.S. Social Security Administration.

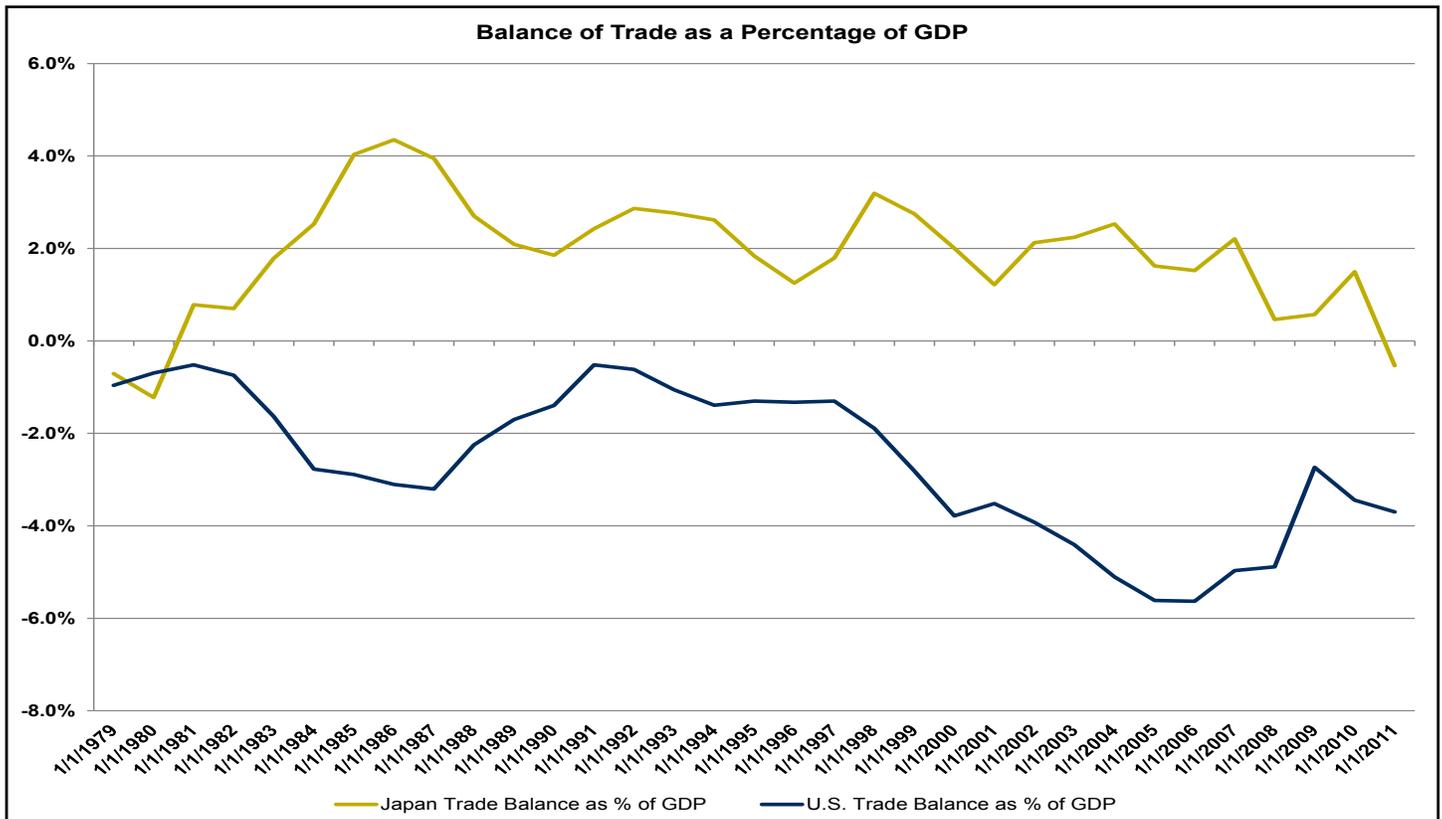
The impact of this retirement wave will not be minor: Arnott and Chaves (2012)⁴ estimate an annualized decline in the pace of GDP growth in the United States of about 0.75–2.5%, relative to past norms. The demographic impact on GDP to the United States may be rather mild compared to other developed economies—estimates show that Japan may face an annualized decline of 1.5–5% in GDP growth, relative to past years. That data imply a risk that Japan may face a shrinking GDP, not just slower growth.

None of these nations is a closed economy, but most of the developed world is facing this demographic problem in unison. Can international trade solve this problem? If so, trade between the developed world and the younger emerging nations must dramatically increase. As we go down this route, countries with a high level of external savings will have the ability to purchase goods from the emerging world to help meet the shortfall in domestic production. Japan, for example, has a Net International Investment Position (external assets minus external debt) of 56% of its GDP. As Japan experiences a GDP decline due to its retirement

wave, it can keep its prosperity at constant levels by selling its foreign assets and importing goods. If that GDP decline reaches the worst-case projection of 5% per year, Japan’s foreign assets would be drained within a mere 11 years. And Japan, as a result of its historically large trade surplus, has been a major saver nation!

The United States, by contrast, hasn’t run a trade surplus since 1975, and its Net International Investment Position is –17% of GDP. This leaves no room for spending down savings—in fact, to achieve a zero Net International Investment Position over the next 11 years, the United States would have to pay back its shortfall by exporting our already scarce goods to the tune of 1.5% of GDP annually. Given our current trade deficit of –3.7%, this would require an additional 5.2% of GDP to be sent overseas; this almost certainly won’t happen. The trend of declining trade balances in both the United States and Japan, shown in **Figure 2**, will continue to be driven by demographic necessity. Even a tremendous weakening in the strength of the dollar or yen won’t fully address the core

Figure 2. Japanese and U.S. Trade Balances on a Downward Trend



Source: Research Affiliates.

problem of insufficient labor to produce the surplus goods for export.

Will the developed countries be able to adapt? It's not likely. Japan, despite its massive trade surplus, still hasn't saved enough foreign assets to address this problem. And the United States, in aggregate, has neglected to save at all! If the United States is to import the goods and services to meet retiree demand, it will have to do so through a further increase of the already historically high debt levels—also an unlikely outcome. Furthermore, the nature of the goods and services demanded by retirees is unlikely to be available for purchase abroad. Consumer goods such as cars and textiles and oil are easy enough to import, but retirees will also seek services such as health care and non-importable goods such as housing. International trade looks to be at best a partial fix and at worst no help at all.

Because we can't adjust previous birth rates, these demographic curves are a deck of cards already dealt. There are, however, a few options to help prop up declining support ratios. Anything that provides more workers or fewer retirees will do the trick. For example, higher levels of immigration will help. All else being equal, higher nominal developed world wages and projected low unemployment rates will create incentives for workers from emerging countries to fill the demand for open jobs. However, the developed world will demand immigration levels far beyond anything we have witnessed historically. To maintain support ratios at their current level in the United States, we estimate the need for an additional 4 million new workers *each year* through 2030⁵—*on top* of current legal immigration levels of 1 million annually. Immigration could help ameliorate the problem, but certainly can't solve it by itself.

If increasing the working population won't suffice, the other alternative is to decrease the number of retirees. Retiring abroad is one route to improving the support ratio, although incentivizing an additional 1.4 million U.S. residents each year to spend their golden ages overseas won't be easily achieved. The remaining option is for retirees to remain in the workforce longer. A shift in the average retirement age from 65 to 72 over the next 20 years would keep support ratios stable. Realistically, the outcome will be a

combination of the options, though the changes will not come without a contentious national debate.

Implications for the Economy

The underlying demographics cannot change; but we expect that, as always, prices can and will adjust to create the proper incentives. The result will be a combination of increased inflation and interest rates, an increasing trade deficit, slower GDP growth, delayed retirement, and increased immigration. This world will undoubtedly take some adjustment. Instead of stubbornly high unemployment, we will be faced with a dearth of workers. Instead of historically low inflation and interest rates, we will likely see both rising well above long-term averages.

Inflation in particular may be driven higher by two distinct pressures. First, we expect the scarcity of production and labor to drive up wages and prices for goods. Second, the huge debt burdens across the developed world, including unfunded retirement benefits, simply cannot be paid in today's dollars. Given the political difficulty of reducing these benefits, a logical and perhaps unavoidable policy path will be to reduce the real value of these promised benefits through inflation. We see that foundation being laid today with the huge amounts of quantitative easing being conducted by central bankers around the globe.

Implications for Investors

As investors, how can we best position ourselves to respond to these changing conditions? First, we should prepare ourselves for a future with lower expected returns across most major asset classes. Slower GDP growth and rising interest rates are certainly enough to give both stock and bond investors convulsions; coupled with historically low stock and bond yields, there is little hope of growing our way to retirement. Second, we should prepare to work longer, save more, and expect lower consumption levels.

Finally, we should seek out a margin of safety in our investments. A period of rising inflation and declining GDP growth is hardly the time to load up on risky assets. Investors should look for lower

risk and/or higher returns for given levels of risk. As we have discussed previously, building a “3-D” shelter that comprises an inflation hedge in addition to traditional equity and bond allocations is critical.⁶ And we have noted many times how investors can increase their prospects of obtaining higher equity returns by adding non-price-weighted equity index portfolios to their core equity holdings.⁷

But investors should examine their fixed-income portfolios as well, where the argument for non-price-weighting indices is even stronger. Traditional fixed-income indices allocate the highest weights to the largest debtors, resulting in extreme allocations to those countries and companies least able to service their debt obligations. Our research shows that extending the RAFI® methodology to U.S. high-yield bonds, U.S. investment grade bonds, and local currency emerging market debt would have generated significant added value over market-cap-weighted indices.⁸ Subsequently, we launched the RAFI U.S. corporate bond indices in conjunction with Ryan ALM.

The Citi RAFI Bond Index Series applies the methodology to the sovereign debt market, potentially reducing the risk of our fixed income portfolios while providing an opportunity to enhance returns. Instead of using traditional accounting measures to set country weights, the Citi RAFI series uses measures of economic size—GDP, population, land area, and energy consumption—and thus tends to overweight countries with high debt service capacity. These countries tend to have lower credit risk and lower duration as well, thus lending some

protection against both rising interest rates and sovereign defaults. Furthermore, applying the Fundamental Index® strategy to fixed income takes advantage of the well-documented RAFI return advantage that comes from regular rebalancing and contra-trading against noisy price movements. Our research estimates the return advantage to be 80 bps annually in the Sovereign Developed Markets and about 125 bps annually in Sovereign Emerging Markets debt. In a world of slow growth and low expected returns, these advantages are significant indeed.

Conclusion

The incentives of Dirt Economics from my grandparent’s generation have been left behind—at least in most developed countries—so my generation faces a challenging road to maintain our standard of living. As we travel that path, we all need to position our portfolios for turbulent economic times—ones that promise to be very different from the post-World War II expansionary period to which most of us are accustomed. Low expected returns, significantly higher inflation and interest rates, rising deficits and debts, and worsening demographics all figure into a “New Normal.” Adding a third “pillar” of inflation protection to our portfolios and creating the possibility of significantly enhancing index returns through application of the Fundamental Index strategy to stocks and bonds alike strengthen our hopes of avoiding a future of diminishing prosperity.

Endnotes

1. For example, see the following *Fundamentals*: “The ‘3-D’ Hurricane Force Headwind,” November 2009; “Debt Be Not Proud,” August 2010; and “The Long View—Building the 3-D Shelter,” October 2011. <http://www.researchaffiliates.com/ideas/fundamentals.htm>
2. Research Affiliates, based on data from the U.S. Census and United Nations.
3. Net new working age people is number turning 20, less number turning 65, plus net immigrants age 20–64, minus early deaths age 20–64. Net new senior citizens are number turning 65, plus net immigrants age 65+, minus deaths age 65+.
4. Arnott, Robert D., and Denis B. Chaves. 2012. “Demographic Changes, Financial Markets, and the Economy.” *Financial Analysts Journal*, vol. 68, no. 1 (January/February):23-46. http://www.researchaffiliates.com/ideas/pdf/FAJ_Jan_Feb_2012_Demographic_Changes_Financial_Markets_and_the_Economy.pdf
5. Arnott, Robert D., and Anne Casscells. 2003. “Demographics and Capital Market Returns.” *Financial Analysts Journal*, vol. 59, no. 2 (March/April):20–29. http://www.researchaffiliates.com/ideas/pdf/FAJ_Mar_Apr_2003_Demographics_and_Capital_Market_Returns.pdf
6. In addition to the *Fundamentals* cited above, please see “A Complete Toolkit for Fighting Inflation,” June 2009; “Are 401(k) Investors Fighting Yesterday’s War?” September 2010; and “King of the Mountain,” September 2011
7. For example, see the November 2010 *Fundamentals*, “The Glad Game.”
8. Arnott, Robert D., Jason C. Hsu, Feifei Li, and Shane D. Shepherd. 2010. “Valuation-Indifferent Weighting for Bonds.” *Journal of Portfolio Management*, vol. 36, no. 3 (Spring):117-130. http://www.iinews.com/site/pdfs/JPM_Spring_2010_Rallc.pdf

Performance Update

FTSE RAFI® Equity Index Series*

TOTAL RETURN AS OF 1/31/12	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	5.59%	-6.58%	21.27%	0.93%	9.49%	19.21%
MSCI All Country World ²	GDUACWF	5.84%	-2.97%	18.21%	-0.48%	5.65%	17.52%
FTSE RAFI® Developed ex US 1000 ³	FRXIXTR	5.79%	-12.96%	16.15%	-2.22%	8.31%	20.51%
MSCI World ex US Large Cap ⁴	MLCUWXUG	5.28%	-8.88%	14.16%	-2.70%	6.21%	18.63%
FTSE RAFI® Developed ex US Mid Small ⁵	TFRDXSU	6.92%	-7.22%	23.65%	1.73%	14.48%	19.02%
MSCI World ex US Small Cap ⁶	GCUDWXUS	8.27%	-9.00%	22.46%	-1.71%	10.90%	20.59%
FTSE RAFI® Emerging Markets ⁷	TFREMU	12.32%	-7.11%	29.18%	8.17%	21.66%	24.96%
MSCI Emerging Markets ⁸	GDUUEGF	11.36%	-6.35%	27.60%	5.16%	15.05%	24.47%
FTSE RAFI® 1000 ⁹	FR10XTR	4.14%	1.83%	25.70%	1.46%	5.89%	18.32%
Russell 1000 ¹⁰	RU10INTR	4.87%	3.95%	20.01%	0.55%	3.97%	16.20%
S&P 500 ¹¹	SPTR	4.48%	4.22%	19.24%	0.33%	3.52%	15.97%
FTSE RAFI® US 1500 ¹²	FR15USTR	7.60%	1.15%	32.18%	4.13%	10.39%	22.91%
Russell 2000 ¹³	RU20INTR	7.07%	2.86%	23.03%	1.19%	6.45%	21.18%
FTSE RAFI® Europe ¹⁴	TFREUE	4.53%	-11.54%	14.53%	-4.28%	3.18%	19.26%
MSCI Europe ¹⁵	GDDLE15	3.46%	-7.42%	11.58%	-3.41%	2.35%	16.91%
FTSE RAFI® Australia ¹⁶	FRAUSTR	3.89%	-5.81%	12.09%	-0.83%	6.94%	13.19%
S&P/ASX 200 ¹⁷	ASA51	5.08%	-6.17%	11.21%	-1.70%	6.55%	13.44%
FTSE RAFI® Canada ¹⁸	FRCANTR	3.32%	-6.37%	18.32%	3.08%	8.60%	14.27%
S&P/TSX 60 ¹⁹	TX60AR	4.37%	-6.48%	13.75%	1.59%	7.34%	14.55%
FTSE RAFI® Japan ²⁰	FRJPNTR	3.52%	-17.55%	1.41%	-12.52%	0.96%	18.49%
MSCI Japan ²¹	GDDLJN	3.58%	-16.63%	0.16%	-14.07%	-1.29%	18.07%
FTSE RAFI® UK ²²	FRGBRTR	1.77%	-1.25%	16.30%	0.94%	5.22%	17.11%
MSCI UK ²³	GDDLUK	1.96%	0.46%	15.33%	1.84%	4.47%	15.13%

*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 1/31/12	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	5.44%	-3.75%	20.04%	1.74%	9.60%	17.89%
MSCI All Country World Large Cap ²⁵	MLCUAWOG	5.66%	-2.71%	17.47%	-0.52%	5.09%	17.18%
Russell Fundamental Developed ex US Index Large Company ²⁶	RUFDXLTU	5.62%	-11.25%	14.35%	-1.01%	9.93%	18.92%
MSCI World ex US Large Cap ²⁷	MLCUWXUG	5.28%	-8.88%	14.16%	-2.70%	6.21%	18.63%
Russell Fundamental Developed ex US Index Small Company ²⁸	RUFDXSTU	6.92%	-6.29%	21.04%	0.87%	13.54%	18.60%
MSCI World ex US Small Cap ⁶	GCUDWXUS	8.27%	-9.00%	22.46%	-1.71%	10.90%	20.59%
Russell Fundamental Emerging Markets ²⁹	RUFGETRU	12.30%	-5.67%	30.53%	9.54%	21.13%	24.74%
MSCI Emerging Markets ⁸	GDUUEGF	11.36%	-6.35%	27.60%	5.16%	15.05%	24.47%
Russell Fundamental US Index Large Company ³⁰	RUFUSLTU	4.05%	4.09%	22.92%	2.20%	6.56%	16.80%
Russell 1000 ¹⁰	RU10INTR	4.87%	3.95%	20.01%	0.55%	3.97%	16.20%
S&P 500 ¹¹	SPTR	4.48%	4.22%	19.24%	0.33%	3.52%	15.97%
Russell Fundamental US Index Small Company ³¹	RUFUSSTU	7.52%	2.47%	31.98%	5.33%	11.24%	21.60%
Russell 2000 ¹³	RU20INTR	7.07%	2.86%	23.03%	1.19%	6.45%	21.18%
Russell Fundamental Europe ³²	RUFEUITE	5.63%	-8.28%	16.03%	-1.85%	6.03%	18.16%
MSCI Europe ¹⁵	GDDLE15	3.46%	-7.42%	11.58%	-3.41%	2.35%	16.91%

*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 1/31/12	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED 3 YEAR	ANNUALIZED 5 YEAR	ANNUALIZED 10 YEAR	ANNUALIZED 10 YEAR VOLATILITY
RAFI® Bonds Investment Grade Master ³³		2.08%	11.08%	12.17%	8.13%	6.81%	6.08%
ML Corporate Master ³⁴	COAO	2.18%	9.60%	12.82%	7.03%	6.47%	6.26%
RAFI® Bonds High Yield Master ³⁵		3.00%	8.47%	23.05%	10.21%	9.65%	10.97%
ML Corporate Master II High Yield BB-B ³⁶	HOA4	2.56%	6.09%	19.15%	7.05%	7.97%	9.87%
RAFI® US Equity Long/Short ³⁷		-1.24%	-7.72%	13.51%	1.27%	4.82%	11.75%
1-Month T-Bill ³⁸	GB1M	0.00%	0.04%	0.09%	1.14%	1.75%	0.49%
FTSE RAFI® Global ex US Real Estate ³⁹	FRXR	8.95%	-15.83%	18.38%	-8.75%	9.04%	23.35%
FTSE EPRA/NAREIT Global ex US ⁴⁰	EGXU	8.77%	-11.54%	14.78%	-10.02%	6.68%	20.99%
FTSE RAFI® US 100 Real Estate ⁴¹	FRUR	7.87%	1.66%	33.42%	-7.36%	4.88%	27.83%
FTSE EPRA/NAREIT United States ⁴²	UNUS	6.33%	7.25%	26.50%	-6.73%	5.42%	26.13%



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/NAREIT Global Index and the EPRA/NAREIT North America Index and contains publicly quoted real estate companies that meet the EPRA Ground Rules. EPRA/NAREIT 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.

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