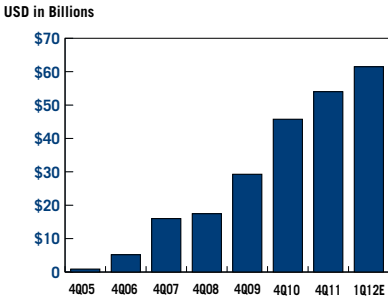
Research Affiliates Newsletter · June 2012

Fundamentals

Shane Shepherd

RAFI® Managed Assets*



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

research® affiliates
620 newport center drive, suite 900
newport beach, ca 92660 usa
phone +1 (949) 325-8700
fax +1 (949) 554-0192
info@rallc.com
www.rallc.com

MEDIA CONTACTS
Tucker Hewes
Hewes Communications
+1 (212) 207-9451
tucker@hewescomm.com

Joel Chernoff
Research Affiliates
+1 (949) 325-8729
chernoff@rallc.com

PLAYING AGAINST THE HOUSE

Normally, I'm too much of a rational economist to spend long periods of time in a casino—I just can't get past the idea of a negative expected return. But several days ago while in Las Vegas for an academic conference, I decided to drop a few chips on the roulette table. Impulsively, I put the entire amount on number 33, recalling the jersey worn by Grant Hill, my favorite basketball player while I was in school at Duke University. Amazingly, the little silver ball came to rest on that very number and my loose change paid out 35 times the original bet!

Somewhat perversely, one of my greater insights of the week came at the roulette table rather than from one of the academic talks. Now, I certainly am not the first observer to draw parallels between investing and gambling in a casino. But the common comparison is to investing in the stock market. Instead, I'd like to discuss how the sovereign debt markets can resemble playing against the house.

House Rules

At a casino, the house sets the rules and governs the payouts. They have decided that my winning bet pays 35-to-1 (giving me about a –5% expected return), instead of a fair rate of 37-to-1 (which would provide a 0% expected return). And the rules of the game can change. In Monte Carlo, roulette wheels have only a single green zero, while the Las Vegas casinos have added a green double-zero. The subtle impact is to slightly reduce the probability of any single number hitting, though the payout remains constant at 35-to-1, thus boosting the casino's expected profits (and increasing my expected losses). A small change to the rules of the game tilts the profits more heavily in the casino's favor.

One of the crucial differences between investing in sovereign debt issues instead of investing in, say, corporate bonds or stocks is that you are, in a sense, playing against the house rather than against other market participants. For example, when a corporation issues a bond, the capital markets establish the appropriate yield on the bonds. The individual company can do very little to influence the coupon or yield on their bonds. And, to the extent the market functions well,

continued on page two

the company will pay an appropriate cost of capital and the purchasers of its bonds will receive a free and fair market return for bearing the risk associated with that bond.

In order to set fair prices, efficient markets require market participants that are not constrained and base their buying and selling decisions on a balance of risk and return. The presence of large non-economic participants that have no regard for a return to risk destroys one of the core assumptions underlying efficient capital markets. Like it or not, governments have the power (and with increasingly high debt burdens, increasing motivation!) to create non-economic regulations and incentives that tilt the rules of the game in their favor. Massive amounts of quantitative easing around the globe are examples of this behavior. In the United States, the Federal Reserve implemented "Operation Twist" with the stated goal of lowering the yields on long-term government bonds: Their expressed intent was to *push prices away from an efficient market outcome*. Their motivation may be a noble one, to stoke the engines of the U.S. economy and provide impetus for job creation. The pernicious side effect, however, is to reduce the profits to investors and increase the profits to the "house"—a transfer of wealth from savers and into the hand of borrowers—chief among them the U.S. Treasury.

Sovereign Influence

Quantitative easing is but one recent example of what economist Carmen Reinhart and others[1] have described as "financial repression." Broadly speaking, the term refers to government policies that channel funds toward their own debt, typically at below-market rates. These policies do not have to be direct market activities. Other examples include imposing ceilings on interest rates, regulating direct lending to the government by captive domestic audiences such as pension funds or banks, and restrictions on cross-border capital movements.

The current period is not the first time in modern history that our global economy has been faced with crushing debt burdens. In their paper "The Liquidation of Government Debt,"[2] Reinhart and Sbrancia describe the historical context of financial repression in the post-World War II era. After running high deficits to finance the war, governments tried to return their fiscal houses to order. Government policies such as Regulation Q in the United States capped interest rates, and the heavy capital controls associated with the Bretton Woods system kept domestic savers captive in their home markets. This combination of suppressing interest rates and incentivizing or regulating debt purchasers led developed economies to incur negative real interest rates in about half of the 1945–1980 period. Negative real interest rates provide low costs of borrowing as well as liquidate the existing stock of debt. Reinhart et al. measure the amount transferred from savers to government borrowers by multiplying these negative real rates by the stock of government debt.[3] To put the size of this wealth transfer in context, **Table 1** displays for a few countries the size of the savings as a percentage of GDP and as a percentage of government taxes.

As we can see, the impact of this financial repression was large and long-lasting. Averaging over 3% of GDP for these years, the size of the savings means that a country with 100% debt-to-GDP could reduce its debt burden to below 70% of GDP over the course of a decade. Alternatively, if savings were equivalent to 20% of tax revenues, governments would reduce their debt obligation by the commensurate amount without needing to raise taxes (and, thus, avoiding the accompanying drag on economic growth). Finally, we see that the incidence of negative real interest rates was not

Table 1. The Liquidation Effect of Financial Repression for Select Countries

Country	Annual % Tax Revenues	Annual % GDP	Years
Argentina	19.5%	3.2%	1944-1974
Italy	127.5%	5.3%	1945-1970
United Kingdom	26%	3.6%	1945-1980
United States	18.9%	3.2%	1945-1990

Source: "The Liquidation of Government Debt," Reinhart and Sbrancia.

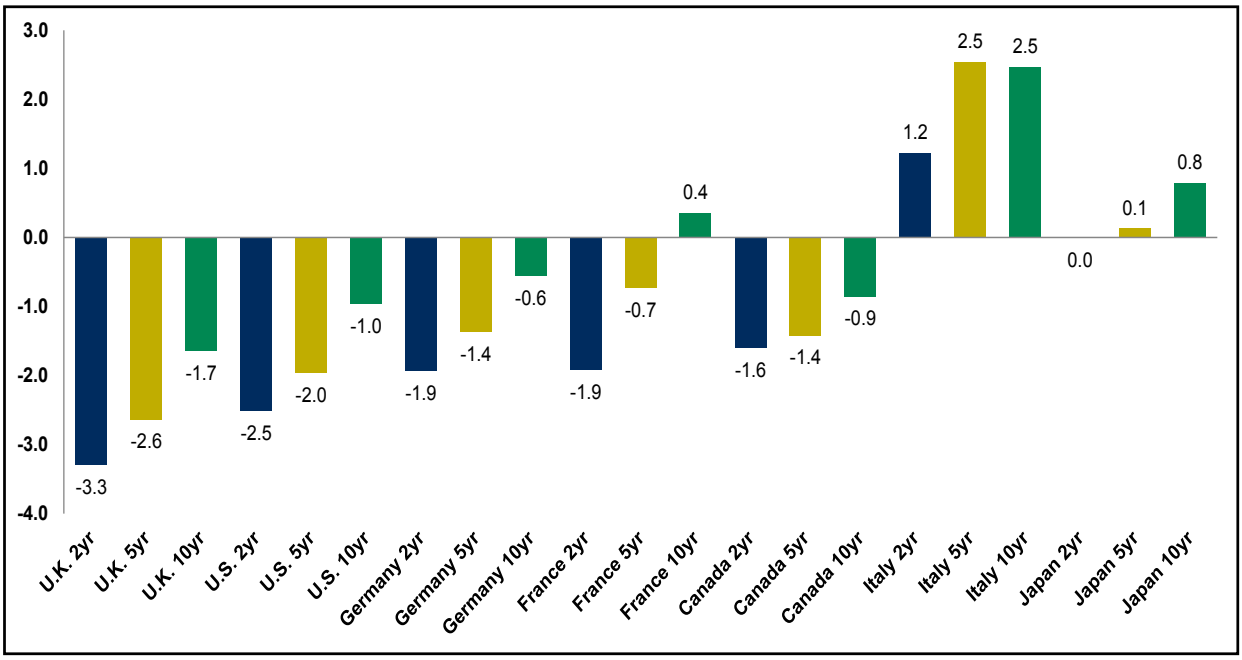
a short-term cyclical effect but rather a very long lasting paradigm shift, requiring investors to alter their capital market expectations and strategies for over three decades.

Financial Repression and Real Rates

Financial repression is the easiest, most politically expedient path toward dealing with our global debt problem. Many of the world's developed economies are on a collision course with insolvency (if not already there!), and the escape routes are not attractive to policymakers. Consider the options: Austerity is a long, painful road that requires a hit to GDP and economic prosperity as debt burdens decrease. This solution has not worked in Greece, and we certainly don't expect any governments with access to a printing press to go down that path with any sustained vigor. Explicit default may occur in countries, such as those tied to the euro, that cannot print money or influence their market interest rates. Inflating away the debt is often talked about as an alternative, but in reality inflation on its own will not achieve that goal. Expected inflation is quickly incorporated into long-term interest rates, so costs of borrowing tend to rise along with inflation. And inflation is only helpful in reducing the value of long-term debt, not short-maturity debt. But government regulation to artificially hold interest rates low, along with a steady dose of not-too-high inflation, will work—and is a far stealthier alternative than raising taxes or chopping government spending programs.

We are not arguing for or against the relative merits of the financial repression route. But clearly we are already witnessing a move in that direction. A few examples: in 2009, the United Kingdom increased the required holdings of gilts for its banks and their subsidiaries; the recent Basel III regulations provide preferential treatment for (supposedly) risk-free sovereign debt on a bank's balance sheet; in 2010, Spain imposed interest-rate ceilings on bank deposits; and Japan reversed its planned privatization of Japan Post, the largest holder of personal savings in the world and a huge captive buyer of Japanese government bonds. These sorts of regulations, along with the massive purchases of government bonds by the world's central banks, are starting to have their intended effect. As can be seen in **Figure 1**, expected real interest rates for several countries around the globe are predominantly negative.

Figure 1. Real Interest Rates are Predominantly Negative, June 2012



Source: Research Affiliates, based on data from Bloomberg.

With short-term interest rates close to zero, investors are earning a significantly negative real return across most developed economies. And most countries, except those countries such as Italy where default risk reflects a premium, and Japan where expected inflation is close to zero, show negative real rates even at the 10-year horizon. While this situation is undoubtedly a great boon to the world's borrowers, and perhaps encouraging of economic growth, it's an unmitigated disaster for savers. To eke out any sort of positive real return requires historically low levels of inflation for a sustained period—in a world with a dramatically increasing money supply. One just might experience better odds at the roulette wheel.

Conclusion

What, then, is an investor to do? Rather than passively play the house's game, we need to take steps to tilt the odds back in our favor. In the sovereign debt markets, the financial repression solution will be most severe in the countries that are most indebted and control their own currency. Investors in a cap-weight sovereign bond index fund are, in effect, allowing the house to set the rules. They place their largest allocations into the countries with the largest debt burdens, where these problems will be most prevalent.

A simple shift of the rules can greatly mitigate this exposure. The Citi® RAFI Bond Index Series determines country exposure by fundamental measures of country size, which are correlated with a country's debt service capacity. By weighting according to a combination of GDP, population, land area, and energy usage, these indices gain exposure to large economies rather than large debtors, and enjoy a return advantage over their cap-weight counterparts. Historically, a fundamentally weighted index in the developed sovereign market has outperformed by 80 bps annually and in emerging markets sovereigns by 125 bps annually.[4]

Not only have fundamentally weighted indices outperformed traditional bond indices, but they do so with a lower risk exposure. Traditional indices load up on debt from the largest debtors, and thus tend to have increased credit risk. They also tend to have longer duration risk as governments lock up their debt obligations for longer periods of time, thus the cap-weighted indices have more exposure to interest rate risk. In most circumstances, a less creditworthy issuer with greater interest-rate exposure would have to pay a higher yield on their bonds. But, as we have seen, the largest debtors are the ones most likely to exert influence to keep their yields low—thus increasing the house's take and reducing investors' "winnings." By sidestepping these house-imposed rules and reducing exposure to the "financial repression tax," the fundamentally weighted sovereign debt indices become the rarest of all birds in the financial markets—strategies that have provided increased return while reducing risk!

Endnotes

1. Reinhart, Carmen M., Jacob F. Kirkegaard, and M. Belen Sbrancia. 2011. "Financial Repression Redux." Finance & Development, vol. 48, no. 1 (June):22–26.
2. Reinhart, Carmen M., and M. Belen Sbrancia. 2011. "The Liquidation of Government Debt." National Bureau of Economic Research Working Paper 16893 (March).
3. This calculation gives a conservative measure, essentially assuming that a fair market real rate would be 0%.
4. Returns in unhedged USD. Developed sovereign data reflects the Citi® RAFI Developed Sovereign Bond Index, 2001–2011; Emerging sovereign data from Research Affiliates and Bloomberg, 2002–2011.

Performance Update

FTSE RAFI® Equity Index Series*

TOTAL RETURN AS OF 5/31/12	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	-2.30%	-17.02%	8.32%	-2.61%	7.68%	19.44%
MSCI All Country World[2]	GDUEACWF	0.97%	-11.81%	9.38%	-3.17%	5.09%	17.67%
FTSE RAFI® Developed ex US 1000[3]	FRX1XTR	-6.71%	-25.75%	1.86%	-6.66%	5.65%	20.88%
MSCI World ex US Large Cap[4]	MLCUWXUG	-3.52%	-20.14%	4.11%	-6.37%	4.95%	19.06%
FTSE RAFI® Developed ex US Mid Small[5]	TFRDXUSU	-2.06%	-18.12%	9.24%	-1.82%	11.09%	19.18%
MSCI World ex US Small Cap[6]	GCUDWXUS	-0.03%	-20.01%	9.71%	-5.26%	8.28%	20.84%
FTSE RAFI® Emerging Markets[7]	TFREMU	-2.12%	-21.50%	7.32%	2.10%	18.94%	25.33%
MSCI Emerging Markets[8]	GDUEEGF	0.20%	-20.06%	8.22%	0.37%	13.10%	24.73%
FTSE RAFI® 1000[9]	FR10XTR	3.09%	-4.36%	16.60%	-0.17%	5.70%	18.32%
Russell 1000[10]	RU10INTR	5.35%	-1.23%	15.28%	-0.75%	4.52%	16.15%
S&P 500[11]	SPTR	5.16%	-0.41%	14.92%	-0.92%	4.14%	15.92%
FTSE RAFI® US 1500[12]	FR15USTR	3.67%	-9.54%	19.79%	1.86%	9.28%	22.76%
Russell 2000[13]	RU20INTR	3.37%	-8.88%	16.47%	-0.73%	5.94%	21.02%
FTSE RAFI® Europe[14]	TFREUE	-9.14%	-30.84%	-0.60%	-9.25%	5.02%	23.69%
MSCI Europe[15]	GDDLE15	-4.62%	-23.58%	3.58%	-7.79%	4.50%	21.15%
FTSE RAFI® Australia[16]	FRAUSTR	-2.75%	-15.40%	14.45%	0.08%	12.73%	23.39%
S&P/ASX 200[17]	ASA51	-2.89%	-17.16%	13.87%	-1.06%	12.35%	23.93%
FTSE RAFI® Canada[18]	FRCANTR	-2.23%	-18.05%	10.03%	1.00%	13.14%	21.81%
S&P/TSX 60[19]	TX60AR	-4.14%	-19.93%	5.96%	-0.75%	11.03%	22.09%
FTSE RAFI® Japan[20]	FRJPNTR	-4.00%	-12.30%	0.02%	-6.09%	3.50%	17.29%
MSCI Japan[21]	GDDLJN	-1.83%	-10.32%	0.89%	-7.36%	1.57%	16.97%
FTSE RAFI® UK[22]	FRGBRTR	-4.45%	-14.96%	7.04%	-6.53%	5.10%	20.47%
MSCI UK[23]	GDDLUK	-3.48%	-13.45%	8.62%	-5.56%	4.61%	18.61%

*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 5/31/12	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	-1.27%	-13.89%	9.81%	-1.56%	8.03%	18.12%
MSCI All Country World Large Cap[25]	MLCUAWOG	0.97%	-11.16%	8.90%	-3.09%	4.59%	17.34%
Russell Fundamental Developed ex US Index Large Company[26]	RUFDXLTU	-6.27%	-23.73%	2.82%	-5.46%	7.24%	19.32%
MSCI World ex US Large Cap[27]	MLCUWXUG	-3.71%	-19.93%	3.67%	-6.32%	4.47%	18.94%
Russell Fundamental Developed ex US Index Small Company[28]	RUFDXSTU	-0.15%	-15.30%	9.28%	-2.34%	10.62%	18.79%
MSCI World ex US Small Cap[6]	GCUDWXUS	-0.03%	-20.01%	9.71%	-5.26%	8.28%	20.84%
Russell Fundamental Emerging Markets[29]	RUFGETRU	-0.56%	-20.27%	10.27%	3.40%	18.71%	25.06%
MSCI Emerging Markets[8]	GDUEEGF	0.20%	-20.06%	8.22%	0.37%	13.10%	24.73%
Russell Fundamental US Index Large Company[30]	RUFUSLTU	3.75%	-2.13%	16.72%	0.67%	6.33%	16.84%
Russell 1000[10]	RU10INTR	5.35%	-1.23%	15.28%	-0.75%	4.52%	16.15%
S&P 500[11]	SPTR	5.16%	-0.41%	14.92%	-0.92%	4.14%	15.92%
Russell Fundamental US Index Small Company[31]	RUFUSSTU	3.83%	-8.62%	21.01%	2.93%	9.98%	21.57%
Russell 2000[13]	RU20INTR	3.37%	-8.88%	16.47%	-0.73%	5.94%	21.02%
Russell Fundamental Europe[32]	RUFEUTE	-7.26%	-28.05%	2.67%	-6.90%	7.99%	22.74%
MSCI Europe[15]	GDDLE15	-4.62%	-23.58%	3.58%	-7.79%	4.50%	21.15%

*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 5/31/12	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED 3 YEAR	ANNUALIZED 5 YEAR	ANNUALIZED 10 YEAR	ANNUALIZED 10 YEAR VOLATILITY
RAFI® Bonds Investment Grade Master[33]		4.07%	9.15%	11.39%	8.33%	6.83%	6.02%
ML Corporate Master[34]	C0A0	4.35%	7.70%	11.55%	7.21%	6.54%	6.19%
RAFI® Bonds High Yield Master[35]		5.54%	6.30%	17.63%	10.14%	9.61%	10.93%
ML Corporate Master II High Yield BB-B[36]	H0A4	4.48%	4.19%	14.66%	6.74%	7.92%	9.83%
RAFI® US Equity Long/Short[37]		-5.43%	-11.00%	4.43%	-0.27%	3.75%	11.71%
1-Month T-Bill[38]	GB1M	0.02%	0.04%	0.08%	0.81%	1.69%	0.49%
FTSE RAFI® Global ex US Real Estate[39]	FRXR	4.40%	-20.91%	9.10%	—	—	—
FTSE EPRA/NAREIT Global ex US[40]	EGXU	7.57%	-13.50%	9.49%	—	—	—
FTSE RAFI® US 100 Real Estate[41]	FRUR	8.42%	-3.06%	29.95%	—	—	—
FTSE EPRA/NAREIT United States[42]	UNUS	8.79%	2.99%	28.86%	—	—	—
Citi® RAFI® Sovereign Developed Markets Bond Index Master[43]	CRFDMU	-0.10%	0.75%	5.11%	6.34%	8.02%	7.93%
Merrill Lynch Global Governments Bond Index II[44]	W0G1	0.63%	3.58%	5.72%	7.31%	7.37%	7.23%
Citi® RAFI® Sovereign Emerging Markets Local Currency Bond Index Master[45]	CRFELMU	1.76%	—	—	—	—	—
JPMorgan GBI-EM Global Diversified[46]	JGENVUUG	1.34%	—	—	—	—	—

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.

©2012 Research Affiliates, LLC. The material contained in this document is for general information purposes only. It relates only to a hypothetical model of past performance of the Fundamental Index® strategy itself, and not to any asset management products based on this index. No allowance has been made for trading costs or management fees which would reduce investment performance. Actual results may differ. This material is not intended as an offer or a solicitation for the purchase and/or sale of any security or financial instrument, nor is it advice or a recommendation to enter into any transaction. This material is based on information that is considered to be reliable, but Research Affiliates® and its related entities (collectively "RA") make this information available on an "as is" basis and make no warranties, express or implied regarding the accuracy of the information contained herein, for any particular purpose. RA is not responsible for any errors or omissions or for results obtained from the use of this information. Nothing contained in this material is intended to constitute legal, tax, securities, financial or investment advice, nor an opinion regarding the appropriateness of any investment. The general information contained in this material should not be acted upon without obtaining specific legal, tax or investment advice from a licensed professional. Indexes are not managed investment products, and, as such cannot be invested in directly. Returns represent back-tested performance based on rules used in the creation of the index, are not a guarantee of future performance and are not indicative of any specific investment. Research Affiliates, LLC, is an investment adviser registered under the Investment Advisors Act of 1940 with the U.S. Securities and Exchange Commission (SEC).

The RAFI® US Equity Long/Short Index is calculated by Dow Jones Indexes, the marketing name and a licensed trademark of CME Group Index Services LLC ("CME Indexes"). "Dow Jones Indexes" is a service mark of Dow Jones Trademark Holdings LLC ("Dow Jones"). The RAFI® US Investment Grade Bond Index and RAFI® US High Yield Bond Index is calculated by ALM Research Solutions, LLC. in conjunction with Research Affiliates, LLC. All rights and interests in the RAFI® US Investment Grade Bond Index and the RAFI® US High Yield Bond Index vest in Research Affiliates, LLC. All rights in and to the Research Affiliates, LLC Fundamental Index® concept used in the calculation of the RAFI® US Investment Grade Bond Index and the RAFI® US High Yield Bond Index vest in Research Affiliates, LLC. The above RAFI® indexes are not sponsored or promoted by CME Indexes, ALM Research Solutions, LLC or their respective affiliates.

Neither CME Indexes, ALM Solutions, nor Research Affiliates, LLC make any warranties, express or implied, to any of their customers nor anyone else regarding the accuracy or completeness of any data related to the RAFI® US Equity Long/Short Index, RAFI® US Investment Grade Bond Index, or the RAFI® US High Yield Bond Index. All information is provided for information purposes only. Neither CME Indexes, ALM Solutions, LLC, nor Research Affiliates, LLC accept any liability for any errors or any loss arising from the use of information in this publication.

Russell Investments is the source and owner of the Russell Index data contained or reflected in this material and copyrights related thereto. Russell Investments and Research Affiliates, LLC have entered into a strategic alliance with respect to the Russell Fundamental Indexes. Subject to Research Affiliates, LLC's intellectual property rights in certain content, Russell Investments is the owner of all copyrights related to the Russell Fundamental Indexes. Russell Investments and Research Affiliates, LLC jointly own all trademark and service mark rights in and to the Russell Fundamental Indexes. Research Affiliates, LLC is the owner of the trademarks, service marks, patents and copyrights related to the Fundamental Index and the Fundamental Index methodology. The presentation may contain confidential information and unauthorized use, disclosure, copying, dissemination, or redistribution is strictly prohibited. This is a presentation of Research Affiliates, LLC. Russell Investments is not responsible for the formatting or configuration of this material or for any inaccuracy in Research Affiliates' presentation thereof.

CITI is a registered trademark and service mark of Citigroup Inc. or Citibank, N.A., is used under license by Research Affiliates, LLC and is used and registered throughout the world.

The trade names Fundamental Index®, RAFI®, the RAFI logo, and the Research Affiliates® corporate name and logo are registered trademarks and are the exclusive intellectual property of RA. Any use of these trade names and logos without the prior written permission of RA is expressly prohibited. RA reserves the right to take any and all necessary action to preserve all of its rights, title and interest in and to these marks. Fundamental Index® concept, the non-capitalization method for creating and weighting of an index of securities, is patented and patent-pending proprietary intellectual property of RA. (US Patent No. 7,620,577; 7,747,502; 7,792,719; 7,778,905; and 8,005,740; Patent Pending Publ. Nos. US-2007-0055598-A1, US-2008-0288416-A1, US-2010-0191628, US-2010-0262563, WO 2005/076812, WO 2007/078399 A2, WO 2008/118372,EPN 1733352, and HK1099110).

The views and opinions expressed are those of the author and not necessarily those of Research Affiliates, LLC. The opinions are subject to change without notice.

powered by rafi®