Jason Hsu, Ph.D.

"Do you reward application or outcome? Input or output?"

The Challenges of Year-End Forecasting

Christmas will soon be upon us. Many of us in the investment business have just completed annual performance reviews and informed our staff of compensation decisions that are charged with practical and symbolic significance. These are bittersweet times. No doubt we all have talented people who have put in great effort but met with bad luck and worse results. Clearly, there is no lack of the opposite as well. Ah, the million dollar question in management and a topic for yet another B-school case study: "Do you reward application or outcome? Input or output?" The aftertaste in our mouth may be the eggnog, but perhaps it is the smack of our better judgment and the trace of our choice to pay big incentives for what we know was partly the product of chance. In any event, we concede that the ritual of celebrating good fortune is best observed in this time of festivity. You might have been a big winner. You might be the lucky one next year. Have some eggnog.

And there is an inescapable irony. In our quiet introspection, as we look back on this past year, we, the investment officers and research analysts of the world, are smarting from the same thing. It's been a tough year for anyone who hasn't boldly overweighted U.S. equities in the face of inevitable tapering, continual political dysfunction, and the uncertainty surrounding public policy. It's been a bad year for anyone who has prudentially diversified away from a concentrated equity allocation. Nearly everything else has performed abysmally.

But let's not dwell on the unpleasantness. Let's take credit for what we got right. Let's bemoan the irrationality of the market for the calls that we got wrong. And let's look ahead to the coming market environment. A humorist said, "An economist is an expert who will know tomorrow why the things he predicted yesterday didn't happen today."[1]

Forecast the Market?

Forecasting the future would merely be psychical posturing if there were no evidence for its feasibility. Fortunately, this year the Nobel Prize Foundation honored two economists who both produced works suggesting that index dividend yields and cyclically adjusted P/E ratios (CAPEs), among other aggregate variables, can predict future equity market returns. While Eugene Fama and Bob Shiller virtually anchor the opposite sides of the market efficiency debate, Shiller's 1987 and 1988 research papers with John Campbell (1988a, b) and Fama's paper with Ken French (1989) conclude that market valuation ratios

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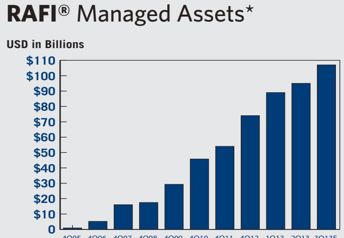

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forecast five-year returns with satisfactory accuracy. High dividend yields and low CAPEs tend to predict above-average future returns; conversely, low yields and high CAPEs signal below-average returns.

While our two Nobel Laureates may disagree on why investors might plow money into the stock market when valuation levels are already high, they do agree that high CAPEs and low dividend yields are symptomatic of investors' higher-than-average demand for equities; this willingness to bid up prices must, at some point, result in a lower-than-average future return. The CAPE (or the Shiller CAPE, as it is often called) spectacularly forecasted the carnage of the 2000 tech bust and the 2008 Global Financial Crisis. Of course, the same indicator has often predicted bear markets many quarters ahead of any appreciable decline.

So what did the Shiller CAPE of 21 for the S&P 500 Index tell us in January 2013? Given that it had a recent trend of 22 and a long-term average of 16.5, U.S. equities appeared to be neutral to extremely overvalued. The U.S. equity market's return of nearly 30% in 2013 has pushed the Shiller CAPE toward 25; this appears decidedly expensive relative to recent and long-term levels. For emerging market (EM) equities, the Shiller CAPE stood at 15 at the start of 2013 versus its recent trend of 20.5 and long-term average of 16; EM equities thus appeared attractive to exceptionally cheap. Their –1% performance in 2013 has been one of the big disappointments for global equity investors who expected a recovery in economic growth after the great U.S. recession.

What ought we make of the Shiller CAPE's 2013 performance and its implied

"2013 was not the year for Nobel-worthy investment ideas."

2014 prediction? Contrary to CAPE-based expectations, U.S. equities outperformed EM equities by roughly 33%. Do we shrug off this perverse outcome as a fluke, an outlier? Should we double down for 2014 by further rebalancing away from U.S. equities toward EM stocks? It certainly feels dangerous to jump on the U.S. equity bandwagon after the 2013 rally.

Shiller CAPE Controversy

Of course, a discussion about the efficacy of the Shiller CAPE would be incomplete without considering the much ballyhooed disagreement between Professor Jeremy Siegel and Bob Shiller, himself, on the right way to compute the measure. The gist of Siegel's argument is that backing out abnormal corporate earnings write-downs would make the Shiller CAPE look more compelling for U.S. equities. In reality, the controversy is groundless. Siegel wanted to rationalize the Shiller CAPE model's underwhelming 2013 performance by recalibrating the model inputs so as to generate a buy signal for U.S. equities, retroactive to year end 2012. Siegel is Shiller's dear friend and loyal champion; one might perhaps infer that he wanted the Shiller CAPE to work more than did Shiller himself.

Curiously, applying the same calibration method, we are likely to get a significantly more attractive buy signal for EM equities. This would, again, prompt a massive overweighting of EM equities at the expense of U.S. equities for much of 2014.

Whether one sides with Professor Siegel or Professor Shiller, it does seem that, at the current Shiller CAPE, both would prefer EM equities over U.S. equities.

Bitter Medicine

While we are on the subject of Nobel Laureates in finance, it is worth remembering the crowning insight of Professor Harry Markowitz, who won the prize in 1990: diversification is the ultimate free lunch in investing. Clearly, 2013 was not the year for Nobel-worthy investment ideas. This year was most unkind to diversification. The free lunch was nothing short of bitter. Excluding equities, most asset classes had near zero to negative returns for the year, as **Table 1** illustrates.

Does 2013 tell us that diversification is no longer operative? I would hope that investors do not reject sound investment principles on the basis of outlier experiences.

Fixed Income Crushed

It was probably no surprise that fixed income performed poorly. Nominal yields have been low; naturally, therefore, realized returns were also low. What was noteworthy was the divergence in performance between TIPS and nominal Treasury bonds. The negative yields registered by TIPS were a consequence of investors' overreaction to the inflation risk engendered by massive quantitative easing. The substantial underperformance of TIPS relative to conventional Treasuries was the expected mean-reversion in inflation expectations, or the breakeven inflation. Alas, it marks a small victory for us contrarian value investors for 2013!

Concluding Thoughts

All eyes are now on the policy leaning of the Yellen regime. The Federal Reserve announced that, starting in January 2014, its monthly bond purchases would be lower by $10 billion. Tapering is officially under way. However, the announcement also stated, "The Committee's sizable and still-increasing holdings of longer-term securities should maintain downward pressure on longer-term interest rates, support mortgage markets, and help to make broader financial conditions more accommodative…." The full economic and market impact of bringing quantitative easing to a close remains to be seen.[2]

According to a 2013 market outlook survey recently released by CFA Institute, 71% of all respondents now believe that equities will be the best performing asset class for 2014; this compares with 54% at the end of 2012. Respondents are also most optimistic about the U.S. stock market and most pessimistic about Brazil. These views reflect the familiar extrapolation of past returns and momentum in sentiments. Whether the survey has any forecasting power is difficult to assess and is, in any case, beside the point. The U.S. equity market can certainly rally another 20% in 2014. That is entirely within the realm of possibility, even if the Shiller CAPE predicts it to be improbable. What is, however, forecastable with a great degree of assurance is that if the U.S. equity bull market continues into the first half of 2014, many investors will pour more cash into equities and fire managers who have underweighted U.S. stocks. When all is said and done, this decision is likely to prove extraordinarily costly.[3]

Table 1. November 2013 Year-to-Date U.S. Dollar Denominated Total Returns

Index	Total Return (%)
FTSE NAREIT All REITs	2.6
Bank of America Merrill Lynch US Corporate & Government 1-3 Years	0.9
Barclays U.S. Aggregate Bond Index	-1.6
JP Morgan Emerging Local Market Index-Plus (ELMI+)	-2.2
Barclays U.S. Long Credit	-7.4
JP Morgan Emerging Market Bonds-Plus (EMBI+)	-9.5
Dow Jones UBS Commodity Index	-11.5
Barclays US Treasury Long Index	-11.9
Barclays U.S. Treasury Inflation Notes 10+ Year Index	-14.4

Source: Research Affiliates based on data from Morningstar Encorr.

Endnotes

1. The quote is attributed to the great American humorist Evan Esar.
2. See Hsu (2013).
3. Goyal and Wahal (2008) find that the wealth lost by investors from the practice of firing and hiring managers on the basis of recent performance far exceeds the average net-of-cost underperformance of active management. The same finding has also been demonstrated in a number of Towers Watson research reports.

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Performance Update

FTSE RAFI® Equity Index Series*

TOTAL RETURN AS OF 11/30/13	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	24.74%	29.01%	12.62%	17.93%	10.66%	18.63%
MSCI All Country World[2]	GDUEACWF	21.31%	24.11%	12.31%	15.97%	8.20%	16.61%
FTSE RAFI® Developed ex US 1000[3]	FRX1XTR	23.77%	28.90%	10.09%	14.90%	9.19%	20.33%
MSCI World ex US[4]	GDDUWXUS	19.74%	23.39%	10.13%	13.86%	8.20%	18.28%
FTSE RAFI® Developed ex US Mid Small[5]	TFRDXUSU	20.65%	25.78%	10.57%	19.85%	11.83%	18.88%
MSCI World ex US Small Cap[6]	GCUDWXUS	23.06%	27.77%	10.94%	19.87%	10.03%	20.22%
FTSE RAFI® Emerging Markets[7]	TFREMU	-4.88%	0.21%	-1.28%	15.69%	15.79%	24.53%
MSCI Emerging Markets[8]	GDUEEGF	-0.84%	4.02%	1.03%	17.24%	12.47%	23.92%
FTSE RAFI® 1000[9]	FR10XTR	32.38%	35.27%	18.81%	21.84%	9.69%	17.16%
Russell 1000[10]	RU10INTR	29.61%	30.96%	17.78%	18.33%	8.00%	14.97%
S&P 500[11]	SPTR	29.12%	30.30%	17.73%	17.60%	7.69%	14.68%
FTSE RAFI® US 1500[12]	FR15USTR	39.12%	44.26%	18.84%	26.93%	11.98%	21.71%
Russell 2000[13]	RU20INTR	36.14%	40.99%	17.89%	20.97%	9.08%	19.70%
FTSE RAFI® Europe[14]**	TFREUE	23.80%	26.70%	9.91%	13.44%	7.82%	17.52%
MSCI Europe[15]**	GDDLE15	19.28%	21.00%	11.07%	13.14%	7.13%	14.44%
FTSE RAFI® Australia[16]**	FRAUSTR	23.04%	27.57%	12.79%	13.59%	10.67%	13.53%
S&P/ASX 200[17]**	ASA51	19.26%	23.26%	9.97%	12.23%	9.97%	13.61%
FTSE RAFI® Canada[18]**	FRCANTR	14.93%	17.67%	6.89%	13.28%	9.67%	13.51%
S&P/TSX 60[19]**	TX60AR	11.23%	13.40%	4.36%	9.65%	8.48%	13.97%
FTSE RAFI® Japan[20]**	FRJPNTR	52.26%	71.08%	14.82%	11.48%	5.44%	19.79%
MSCI Japan[21]**	GDDLJN	49.55%	65.12%	15.60%	10.92%	4.27%	19.22%
FTSE RAFI® UK[22]**	FRGBRTR	19.08%	20.65%	11.67%	14.29%	8.88%	15.59%
MSCI UK[23]**	GDDLUK	16.60%	17.33%	10.45%	13.39%	8.13%	13.62%

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

**The above indices have been restated to reflect the use of local currencies for all single country strategies and EUR for Europe regional strategies rather than USD.

Russell Fundamental Index Series*

TOTAL RETURN AS OF 11/30/13	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	25.54%	29.57%	14.12%	17.75%	10.75%	16.94%
MSCI All Country World Large Cap[25]	MLCUAWOG	21.13%	23.72%	12.39%	15.38%	7.83%	16.31%
Russell Fundamental Developed ex US Index Large Company[26]	RUFDXLTU	24.98%	30.29%	10.93%	14.29%	9.78%	18.43%
MSCI World ex US Large Cap[27]	MLCUWXUG	19.76%	23.39%	10.19%	13.48%	7.90%	18.18%
Russell Fundamental Developed ex US Index Small Company[28]	RUFDXSTU	24.69%	29.96%	12.95%	19.72%	12.02%	18.26%
MSCI World ex US Small Cap[6]	GCUDWXUS	23.06%	27.77%	10.94%	19.87%	10.03%	20.22%
Russell Fundamental Emerging Markets[29]	RUFGETRU	0.27%	5.64%	2.88%	19.04%	16.51%	24.12%
MSCI Emerging Markets[8]	GDUEEGF	-0.84%	4.02%	1.03%	17.24%	12.47%	23.92%
Russell Fundamental US Index Large Company[30]	RUFUSLTU	31.60%	33.86%	19.28%	20.30%	10.05%	15.53%
Russell 1000[10]	RU10INTR	29.61%	30.96%	17.78%	18.33%	8.00%	14.97%
S&P 500[11]	SPTR	29.12%	30.30%	17.73%	17.60%	7.69%	14.68%
Russell Fundamental US Index Small Company[31]	RUFUSSTU	35.70%	40.13%	18.89%	26.59%	12.81%	20.70%
Russell 2000[13]	RU20INTR	36.14%	40.99%	17.89%	20.97%	9.08%	19.70%
Russell Fundamental Europe[32]**	RUFEUTE	21.83%	25.17%	10.54%	14.28%	9.23%	15.87%
MSCI Europe[15]**	GDDLE15	19.28%	21.00%	11.07%	13.14%	7.13%	14.44%

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

**The above indices have been restated to reflect the use of local currencies for all single country strategies and EUR for Europe regional strategies rather than USD.

Performance Update

Fixed Income/Alternatives

TOTAL RETURN AS OF 11/30/13	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED 3 YEAR	5 YEAR	10 YEAR	10 YEAR VOLATILITY
RAFI® Bonds US Investment Grade Master[33]	—	-1.75%	-1.97%	4.92%	9.61%	5.75%	5.80%
ML Corporate Master[34]	C0A0	-1.28%	-1.30%	5.08%	10.15%	5.47%	5.94%
RAFI® Bonds US High Yield Master[35]	—	4.43%	5.82%	9.34%	20.07%	9.34%	9.46%
ML Corporate Master II High Yield BB-B[36]	H0A4	5.83%	7.28%	9.07%	17.94%	7.98%	9.15%
RAFI® US Equity Long/Short[37]	—	12.58%	15.31%	4.98%	11.15%	5.17%	11.20%
1-Month T-Bill[38]	GB1M	0.03%	0.04%	0.05%	0.07%	1.51%	0.52%
FTSE RAFI® Global ex US Real Estate[39]	FRXR	7.86%	13.85%	9.44%	19.63%	—	—
FTSE EPRA/NAREIT Global ex US[40]	EGXU	2.86%	6.94%	7.99%	16.61%	—	—
FTSE RAFI® US 100 Real Estate[41]	FRUR	4.63%	7.82%	11.46%	25.17%	—	—
FTSE EPRA/NAREIT United States[42]	UNUS	2.16%	6.01%	10.80%	20.17%	—	—
Citi RAFI Sovereign Developed Markets Bond Index Master[43]	CRFDMU	-1.02%	-0.63%	4.50%	5.69%	5.71%	7.41%
Merrill Lynch Global Governments Bond Index II[44]	W0G1	-3.36%	-4.33%	2.18%	3.98%	4.70%	6.77%
Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master[45]	CRFELMU	-9.59%	-7.63%	—	—	—	—
JPMorgan GBI-EM Global Diversified[46]	JGENVUUG	-8.47%	-6.50%	—	—	—	—

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 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 andweighted 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 US 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 US 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.