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“A policy that prolongs negative real interest rates, popularly known as financial repression, serves to subsidize borrowers, among whom developed governments are the largest, at the expense of savers.”

## Year-End Capital Markets Forecast

Customarily, in this festive season, money managers are asked to predict asset class returns for the coming year or two or five. After all, what good are investment gurus if they can't divine the future? However, as the great economist John Galbraith famously said, “The only function of economic forecasting is to make astrology look respectable.” In light of these conflicting expectations, I humbly share my views on the world economy and their implications for future asset class returns. But, in keeping with the wisest counsel on forecasting, I only offer the “what”—never the “when.”

### Part I. Bonds

In the first part of this article, I will examine the macro drivers relevant to global bond returns, focusing first on the divergent outlooks for sovereign bonds in emerging and developed markets and then on the relative attractiveness between corporates and sovereigns.

#### EM vs. DM Global Sovereign Bonds

Given their positive real yields and strengthening currencies, emerging market (EM) local currency sovereign bonds are likely to outperform their developed market (DM) counterparts. They also stand to benefit from the potential for policy rate cuts and credit rating upgrades.

#### Interest Rate Risk

The most significant risk for sovereign bond investors is interest rate risk. When attempting to foretell future trends in an environment where interest rate levels and movements are dominated by government intervention, rather than market forces, it is most instructive to

consider central bank objectives. DM central banks have primarily been concerned with lackluster growth and sustained unemployment against the backdrop of high debt levels, while EM central banks have focused more on the inflation risk associated with years of rapid GDP growth. Indeed, the desire to stimulate growth, combined with the incentive to erode government indebtedness through inflation, has resulted in negative real interest rates for the developed economies. A policy that prolongs negative real interest rates, popularly known as financial repression,<sup>1</sup> serves to subsidize borrowers, among whom developed governments are the largest, at the expense of savers. In contrast, central bankers in emerging economies are leery of the destabilizing consequences of high inflation; accordingly, they have mostly erred on the side of higher policy rates. **Figure 1** shows the estimated real interest rates for crucial developed and emerging market economies.

Real interest rates are high for EM bonds and negative for DM bonds. Nonetheless, favoring EM bonds over DM bonds may require additional insights on future interest rate movements. Anticipating potential monetary policy shifts on the part of EM and DM central banks would prove invaluable. Tremendous insights can be had by understanding the dual and competing mandates of “encouraging growth” and “containing inflation” common to all central banks.

For DM economies, rounds of quantitative easing have not meaningfully renewed growth. In the short to intermediate term, the



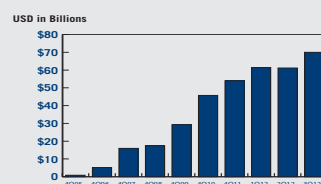
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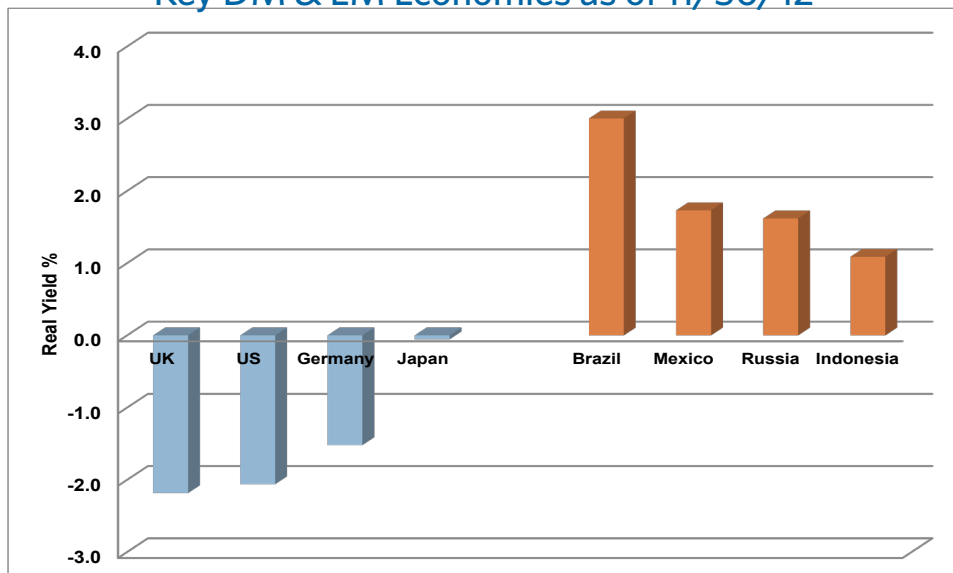
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Figure 1. Estimated Real Interest Rates for Key DM & EM Economies as of 11/30/12



Source: Research Affiliates based on data from Bloomberg and St. Louis Federal Reserve Economics database.

deleveraging of consumers and the need for fiscal austerity to rein in debt and balance governmental budgets suggest that DM growth will likely be closer to 1%<sup>2</sup> than the historical real rate of 3%. An outcome like the Japanese experience, where the money market rate remains close to zero for decades, is increasingly possible. However, Japan is unique in that it has no foreign debt and primarily imposes financial repression (essentially a wealth tax) on its own citizens. It is unclear that the European Union or the United States can continue to tax their Asian lenders for the next 30 years. Nor is it clear that a sustained period of easing would not create significant inflation, despite the high unemployment rate. The risk is therefore not insignificant that DM policies would revert toward positive real rates to attract foreign buyers and keep inflation in check.

The slowdown in the DM countries will necessarily spill over into EM economies. After all, the growth in EM domestic consumption has not been sufficient to offset a decline in their export sector. With their high policy rates, the EM central banks are well positioned to cut rates aggressively to stimulate domestic activity.

**Sovereign Default Risk**

In addition to duration risk, investors are also exposed to sovereign default risk when allocating to government bonds. There are generally two measures for default risk: bond credit quality ratings assigned by rating agencies (Moody's, S&P, and Fitch) and credit default swap rates. The former reflects the opinions of credit analysts with no skin in the game, while the latter is inferred from the prices that institutional investors actually pay for hedging billion dollar positions in sovereign bond exposures. See **Table 1** for

a comparison of bond ratings vs. default swap rates. Paradoxically, the more heavily indebted countries generally have better credit ratings but also higher CDS spreads (reflecting higher costs to insure against default).

The prevailing opinion is that rating analysts tend to be retrospective and reactionary—that is, they seem to lower bond ratings *after* (instead of *before*) significant negative shocks have reduced bond prices. On the other hand, the credit default swap market tends to be forward-looking, as investment banks compete in this market to sell institutional investors insurance against sovereign defaults.

The last five years have seen credit default swaps for EM sovereign bonds trading above those of many DM sovereign bonds. However, even with the ongoing drama that is the European Financial Crisis, the ratings on many European sovereign bonds continue to be higher than those of the EM bonds. Indeed, we have observed temporizing on the part of ratings agencies; in most situations, they have issued downgrades long after the CDS spreads widened. See **Figure 2** for recent trends in post-crisis upgrades for EM bonds and downgrades for DM bonds. At the risk of overextrapolating, there is reason to believe that DM sovereign bonds will continue to face more rating downgrades, while EM sovereign bonds would experience rating upgrades.

Table 1. CDS Spread and Credit Rating for Highly Indebted vs. Low Indebted Countries as of 11/30/12

	Debt: GDP	Yield to Maturity	5-Year CDS Spread	Credit Rating
<b>Country Groups*</b>				
High Debt Countries	101.5%	2.0%	1.1%	AA-
Low Debt Countries	31.9%	4.2%	0.8%	A+/A
<b>Developed vs. Emerging**</b>				
Developed Market (ex. Greece)	77.2%	1.8%	0.8%	AA+/AA
Emerging Market (ex. Hungary)	39.3%	4.9%	1.0%	A-

Note: Debt:GDP is from 12/31/2011.

\*Includes 23 DM and 14 EM bond issuers, where data are available; countries are defined by the IMF. High debt countries are defined by >70% debt-to-GDP; low debt defined by <42% debt-to-GDP.

\*\*We removed one large outlier from each sample to avoid data skewness.

Source: Research Affiliates, based on data from Bloomberg, The Yield Book, and the IMF.

## Currency Risk

Currency fluctuations are another critical risk driver for sovereign bond returns. For dollar-denominated EM bonds, currency risk is, of course, not an issue; however, institutional investors are increasingly directing cash flows into local currency EM debts. Generally, EM currencies tend to trade in a narrow range relative to the U.S. dollar due to greater forex intervention by EM central banks. Their objective is to maintain a “trading band” relative to the dollar; this “soft peg” is a way to reduce currency risk for foreign investors and trading partners. Of course, EM currencies have also historically been more exposed to speculative attacks and crises, making investors sensibly wary of tail events. In comparison, DM currencies generally have more volatility but less negative skewness.

However, the countries represented in the EM bond portfolio today are of a very different sort. They tend to be economies running large trade surplus against the DM economies. They are apt to have low government debt and balanced budgets (even surpluses!)—and, with those characteristics, an unprecedented degree of political stability. They are additionally

inclined to have high domestic savings rates and to function as global capital suppliers. Lastly, they appear to be significantly committed to becoming major players in the global trading of goods and capital, and accordingly they intend to translate their strong balance sheets into economic power vis-à-vis the debt-laden developed countries. These factors support the strengthening of EM currencies against DM currencies in a deliberate and controlled manner over time.

## Corporate Credit vs. Sovereign Credit

A fruitful path to improve yields is to shift from low yielding sovereign bonds toward investment-grade corporate bonds. Just as we saw with rebalancing toward EM debt, the default probability falls while yield increases as we substitute corporate credit risk for DM sovereign risk. A stronger case might be made for high yield corporate bonds, as they have little exposure to interest rate risk and tend to provide superior inflation protection; I’ll return to this suggestion in a moment.

## The Case for Further Yield Compression

As more DM sovereign bonds decline in creditworthiness and, ultimately, in their credit ratings, high quality corpo-

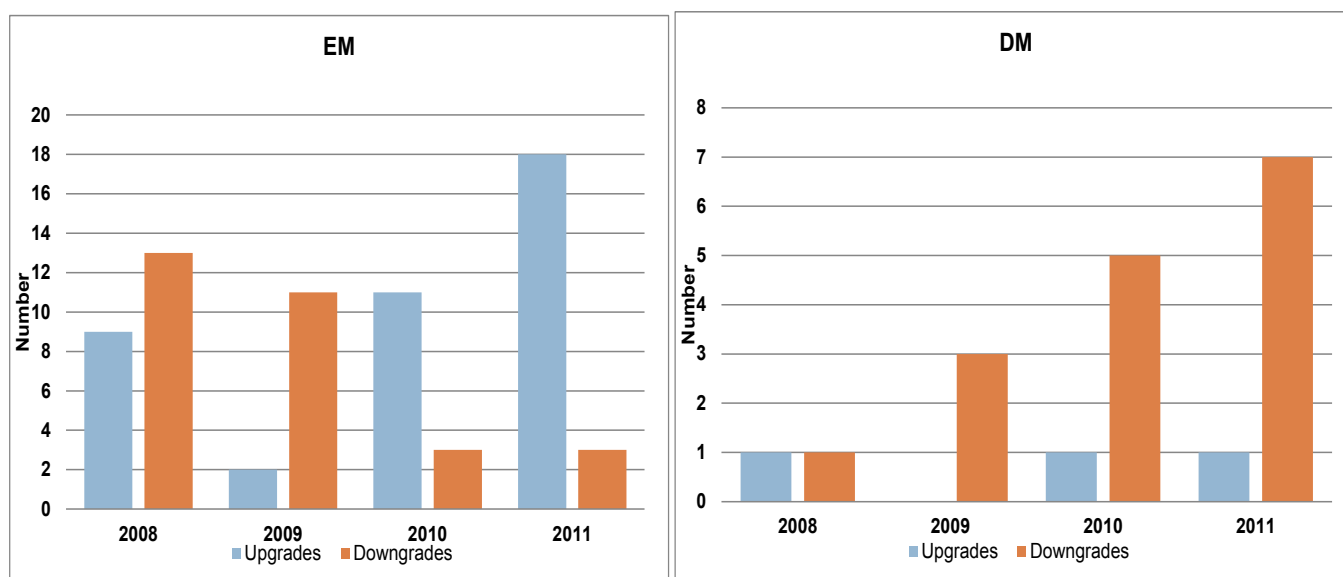
rate bonds will become an increasingly significant and perhaps even a dominant source for investment-grade bonds. The rebalancing flow from DM sovereign bonds into investment-grade corporates will most likely continue to compress investment-grade corporate yield spreads.

The historical investment-grade corporate yield spread averages around 1.1%, and the current yield spread, at 106 basis points, is on par with the historical average. The BarCap Investment Grade Index yields 2.68%, which translates to an expected real yield of 0.27% using the 10-year breakeven inflation rate. This compares quite favorably to the -0.75% yield on comparable maturity U.S. TIPS and Treasury bonds, especially in light of the persistent downgrade risk for U.S. Treasury bonds. **Table 2** summarizes the current yield characteristics of the BarCap Investment Grade Corporate Bond Index versus their historical values.

## High Yield vs. Investment-Grade

Investment-grade corporate bonds, nonetheless, have significant exposure to interest rate risk, especially as their durations have lengthened significantly due to

Figure 2. Ratings Upgrades and Downgrades for EM vs. DM Bonds



Source: Research Affiliates, based on data from Bloomberg.

the low base rate. For investors with no natural demand for duration exposure, high yield corporate bonds may represent a convenient way to improve yields significantly without taking on undesired interest rate risk.

The historical high yield spread averages around 5.9%, but the current yield spread is 6.4%. This betokens a not insignificant opportunity for further yield compression, especially in view of the market's current appetite for yield. Adjusting for default losses, investors can still expect a premium of about 4-4.5% over the comparable maturity Treasury portfolio. High yield bonds are admittedly running substantially below their historical level of 11%, but for investors today the more relevant factor is the above average yield spread to treasuries. Again, Table 2 summarizes the current yield characteristics of high yield bonds versus their historical values.

More interestingly, a high yield bond portfolio tends to deliver higher returns in reflationary environments. This property makes it unique among corporate bonds and more akin to inflation indexed instruments. Statistically, high yield bond portfolios exhibit about a 25% correlation with inflation, whereas the BarCap Agg Bond Index exhibits a -35% correlation. Remarkably, REITs and TIPS only exhibit a correlation with inflation of approximately 20%. At a time when inflation-fighting assets are priced extremely rich (observe TIPS at negative yields and gold at \$1,700 an ounce), this defensive char-

acteristic of high yield bonds may attract significant flows from inflation-sensitive investors.

## Part II. Equities

In the second part of the analysis, I examine the relevant macro drivers for U.S., other DM, and EM equities.

### EPS Growth Risk

Growth in earnings per shares is one of the most significant engines for long-term equity returns. In the United States, EPS growth has surpassed the historical trend rate in the post-crisis period (see **Figure 3**). Note that the EPS growth is cyclical; that is, the growth rate tends to be above trend during the expansionary phase of a business cycle and below trend in the contraction phase. While the cyclical nature is intuitive, it is, however, often ignored. Both research analysts and investors alike are prone to over-extrapolate the recent growth rate into the future and pay high prices (high P/E) after a period of strong EPS growth. This can then create a counter-cyclical pattern to equity returns, where the above trend growth rate experienced during the expansionary phase lead to rich valuation levels, which then produce low future returns.

From a tactical timing perspective, the exercise of identifying a cyclical top in growth rate is a challenging one. U.S. corporate EPS growth can certainly continue to deviate significantly above trend growth; this, however, will be largely in line with expectation and not deliver sig-

nificant positive price impacts. However, there is high probability that growth rate will mean-revert and negatively surprise the market. I will simply argue here that, in the current environment, with persistent high unemployment and the looming fiscal cliff, above-trend growth seems difficult to sustain.

Applying the same analysis to other equity markets, we find that EAFE (global ex-U.S.) and EM real EPS growth rates, unlike for the United States, have already declined (see **Figure 4**). The reversal signals a slowdown in growth after the strong recovery post the global financial crisis. The decline in EPS growth has been substantial such that both EAFE and EM EPS growth have both breached below their long-term averages. Given investors' tendency to overextrapolate from recent growth, it is likely that EAFE and EM equity prices reflect significantly more pessimism and risk awareness than do U.S. equity prices. This would suggest that EAFE and EM equities will provide greater downside protection to global growth shocks than U.S. equities.

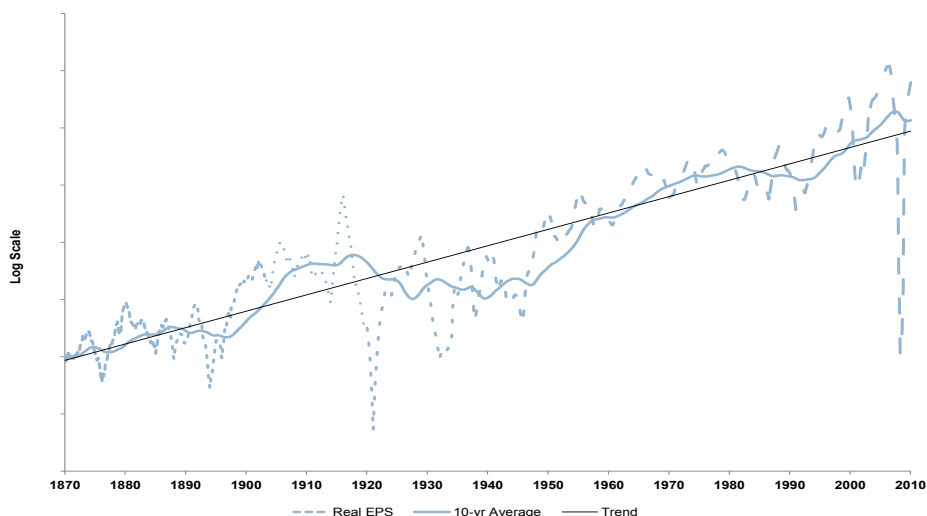
Indeed, outside of the cyclical decline in EPS growth, there is additional risk of a secular (long-term) slowdown in EPS growth. There is now evidence that, in the last 40 years, corporate EPS growth benefited from a global demographics boom, which supplied the world economy with a large influx of able-bodied workers. As a result, firms were able to outstrip labor and capture the lion's share of the productivity gains achieved over four decades. This has fueled strong real EPS growth for firms at the expense of stagnant real wage growth for workers. While the current elevated level of unemployment will continue to depress the growth of wages, the longer term demographic squeeze will necessarily entail a turnabout in the relative power of capital and labor and, therefore, a reversal in rent-sharing dynamics. This long-term change may have little near-term impact on prices; the short-sightedness of the equity market never fails to astonish.

**Table 2. Summary of Corporate Bond Yields**

9/30/1986-11/30/2012	Barclays U.S. Corporate Investment Grade	Merrill Lynch U.S. High Yield
Historical Average Yield Spread	1.13%	5.91%
Current Yield Spread	1.06%	6.41%
Historical Average Yield	6.73%	11.00%
Current Yield	2.68%	7.02%
10 Year Break Even Inflation	2.40%	2.40%
Expected Credit Losses	0	200-260 bps
Estimated Expected Return	-0.3%	4-4.5%

Source: Research Affiliates, based on data from Merrill Lynch and Barclays Live.

Figure 3. Long-Term U.S. Real EPS with 10-Year Average and Trend



Source: Research Affiliates, based on data from Robert Shiller.

Nonetheless, it is a risk factor for investors to monitor carefully. A recent study by Arnott and Chaves (2012) estimates the negative impact to growth from aging demographics as shown in **Table 3**.

**Valuation Levels**

Another critical determinant of equity return is the valuation multiple—the

price-to-earnings (P/E) ratio, which signals the market’s willingness to pay for the income produced by equity securities. When the valuation multiple is high, stock prices are high and dividend yields expressed by the dividends-to-price (D/P) ratio are low. The literature shows that when D/P is low or P/E is high, subsequent equity market returns are apt to

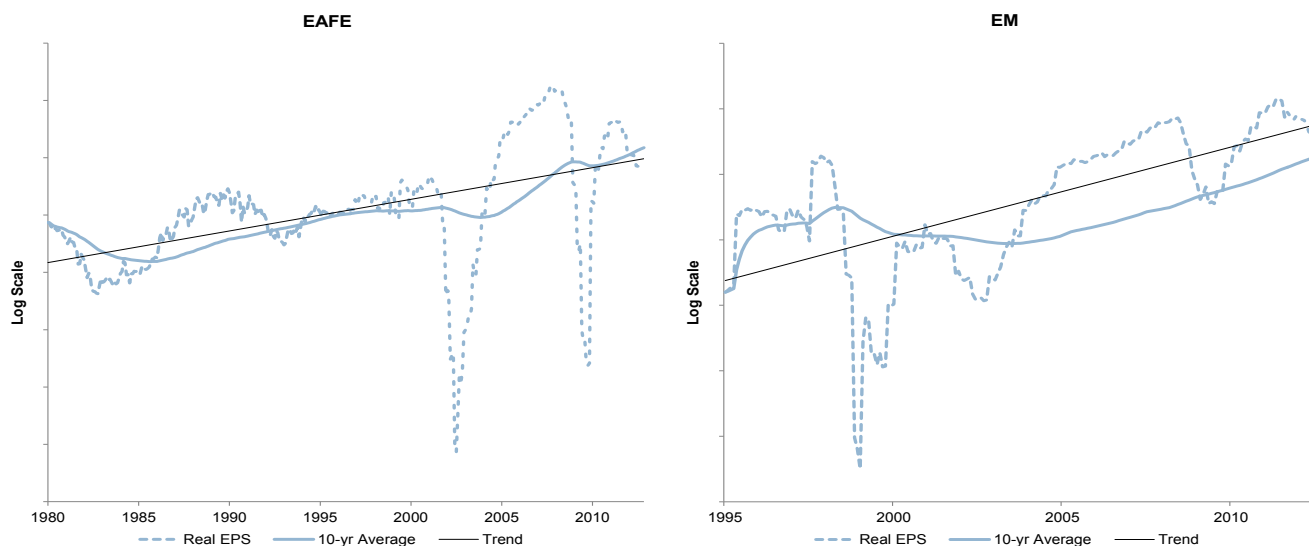
be poor. D/P and P/E ratios tend to revert to their long-term trend averages.

It is accordingly instructive to examine D/P and P/E for various equity indexes. Specifically, it is useful to compare the current and historical valuation ratios to discern whether equities are relatively cheap or expensive.

**Table 4** shows the D/P for U.S., EAFE (global ex-U.S.), and EM stocks. It also shows the Shiller cyclically adjusted P/E (Shiller CAPE), which adjusts P/E for business cycle fluctuations, is the industry standard for P/E calculations. Both the D/P and Shiller P/E ratios indicate that U.S. equities are relatively expensive, whereas international developed stocks and EM stocks are relatively cheaper. This confirms my previous claim that EAFE and EM equities have substantially priced in a forthcoming cyclical slowdown in EPS growth, while U.S. equity prices are largely complacent.

Examining the valuation level for EAFE, one might conclude that the higher dividend yield and the lower Shiller P/E, which predict strong long-term returns,

Figure 4. Long-Term Real EPS Growth for EAFE and EM, Monthly 10-Year Average and Trend



Source: Research Affiliates, based on data from Bloomberg.



**Table 3. Demographics Headwind on GDP Growth**

	Headwind
<b>Developed Economy</b>	<b>-1.42%</b>
United States	-0.99%
United Kingdom	-0.78%
Germany	-1.69%
France	-1.33%
Italy	-1.73%
Spain	-1.30%
Japan	-2.97%
Australia	-1.312%
<b>Emerging Economy</b>	<b>-0.34%</b>
Brazil	-0.41%
China	-1.01%
Egypt	0.14%
India	0.04%
Vietnam	-0.04%
Mexico	-0.24%
Russia	-1.12%
Turkey	-0.10%
South Africa	-0.04%

Note: Estimated for 2010-2020 (annualized).

Source: Robert D. Arnott and Denis B. Chaves, 2012, "Demographic Changes, Financial Markets, and the Economy," *Financial Analysts Journal*, vol. 68, no. 1 (January/February):23-46.

are compensation for bearing European crisis risk. A stabilization of the EU is far from a guarantee; I would caution anyone from outright proclaiming European stocks as cheap instead of distressed. However, it is absolutely true that European equity prices reflect the consensus that European stocks are risky and should provide long-term investors with a very significant risk premium. By comparison, this does not appear to be the case for U.S. stocks facing the impending fiscal cliff, the debt ceiling, the dysfunctions in Washington, and potentially draconian tax policies.

EM equities, on the other hand, have been priced to reflect the potential spillover effect on their export sector from further global slowing. However, the market has also appeared to have largely abandoned its previous investment mantra of the rise of EM domestic consumption leading to EM decoupling from DM slowdown. Again, it is anyone's guess whether EM domestic consumption growth would sufficiently offset its export challenges in the short run. Suffice to say, the market has priced a more muted expectation for EM growth today than one business cycle ago, and the pessimism is potentially short-sighted given the long-term growth prospect for EM economies relative to DM economies given the younger demographics, lower government debt, and healthier household balance sheet. It could be argued that the long-term EM growth risk is significantly overstated by its short-term growth correlation with DM economies.

**More Disclaimers**

I hope you have found these macro forecasts compellingly argued and well supported by empirical data. However, I must remind you that forecasters use statistics as drunks would use lamp posts—for support rather than illumination.<sup>3</sup> Additionally, because bold and spectacular forecasts are far more interesting and, ultimately, more likely to elevate the forecaster to guru status, another disclaimer is in order given my bearish outlook on U.S. equities: Wall Street has predicted nine out of the last five market crashes.<sup>4</sup> Finally, in lieu of the standard compliance boilerplate, where the views of financial professionals do not necessarily represent those of their firms and are not in any way, shape, or form to be construed as investment advice, I offer this one last bit of perspective: my forecasts, like those of any other avid forecaster/soothsayer/talking head guru, come in only two flavors—lucky or wrong. May you have the good fortune of knowing the difference.

**Table 4. D/P and Shiller P/E Ratios for U.S., EAFE, and EM**

	Current 11/30/2012	Long Run Average** 1/1881-11/2012	Short Run Average 1/2005-11/2012
U.S. Shiller PE	20.86	16.46	22.55
EAFE Shiller PE	14.88	16.48*	22.57
EM Shiller PE	14.90	14.31**	20.40
S&P500 Dividend Yield	2.19%	4.32%	2.11%
EAFE Dividend Yield	3.63%	5.51%*	3.30%
EM Dividend Yield	2.81%	4.79%**	2.58%

\*Inferred from U.S. long run and EAFE short run history.  
\*\*Inferred from U.S. long run and EM short run history.

Source: Research Affiliates, based on data from Bloomberg and Robert Shiller.

**Endnotes**

1. See Carmen M. Reinhart, Jacob F. Kirkegaard, and M. Belen Sbrancia, 2011, "Financial Repression Redux," *Finance & Development*, vol. 48, no. 1 (June). Accessed December 9, 2012.
2. See Chris Brightman, 2012, "1%... The New Normal Growth Rate?" *Fundamentals* (November).
3. The original quote is attributed to the famous Scottish poet Andrew Lang.
4. This quote is attributed to the Nobel Laureate Paul Samuelson.

## Performance Update

### FTSE RAFI® Equity Index Series\*

TOTAL RETURN AS OF 11/30/12	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED			
				3 YEAR	5 YEAR	10 YEAR	10 YEAR VOLATILITY
FTSE RAFI® All World 3000 <sup>1</sup>	TFRAW3	12.48%	12.34%	5.82%	-0.46%	10.93%	18.91%
MSCI All Country World <sup>2</sup>	GDUEACWF	14.16%	13.97%	7.12%	-1.28%	7.89%	16.87%
FTSE RAFI® Developed ex US 1000 <sup>3</sup>	FRX1XTR	11.29%	9.72%	1.20%	-4.02%	9.36%	20.44%
MSCI World ex US Large Cap <sup>4</sup>	MLCUWXUG	13.56%	12.35%	3.66%	-3.87%	8.42%	18.46%
FTSE RAFI® Developed ex US Mid Small <sup>5</sup>	TFRDYUSU	10.78%	9.50%	5.76%	1.09%	14.03%	19.05%
MSCI World ex US Small Cap <sup>6</sup>	GCUDWXUS	13.59%	11.41%	6.68%	-1.65%	11.86%	20.52%
FTSE RAFI® Emerging Markets <sup>7</sup>	TFREMU	9.71%	8.34%	3.75%	-0.37%	21.67%	24.73%
MSCI Emerging Markets <sup>8</sup>	GDUEEGF	13.08%	11.73%	4.67%	-1.49%	15.93%	24.15%
FTSE RAFI® 1000 <sup>9</sup>	FR10XTR	14.71%	16.53%	11.98%	2.99%	8.45%	17.49%
Russell 1000 <sup>10</sup>	RU10INTR	15.23%	16.19%	11.63%	1.57%	6.79%	15.20%
S&P 500 <sup>11</sup>	SPTR	14.96%	16.13%	11.25%	1.34%	6.36%	14.92%
FTSE RAFI® US 1500 <sup>12</sup>	FR15USTR	14.30%	14.69%	14.83%	5.90%	12.25%	22.18%
Russell 2000 <sup>13</sup>	RU20INTR	12.35%	13.09%	13.85%	2.82%	8.71%	20.19%
FTSE RAFI® Europe <sup>14**</sup>	TFREUE	13.25%	14.71%	4.57%	-3.48%	6.19%	18.29%
MSCI Europe <sup>15**</sup>	GDDLE15	16.41%	18.87%	8.53%	-2.26%	5.40%	15.36%
FTSE RAFI® Australia <sup>16**</sup>	FRAUSTR	19.13%	18.34%	3.66%	-0.92%	8.96%	13.31%
S&P/ASX 200 <sup>17**</sup>	ASA51	16.35%	14.78%	3.13%	-2.80%	8.59%	13.42%
FTSE RAFI® Canada <sup>18**</sup>	FRCANTR	8.12%	8.43%	5.59%	2.86%	10.49%	13.55%
S&P/TSX 60 <sup>19**</sup>	TX60AR	6.00%	4.15%	3.89%	0.23%	9.11%	13.99%
FTSE RAFI® Japan <sup>20**</sup>	FRJPNTR	5.28%	5.70%	-1.15%	-10.61%	1.63%	18.99%
MSCI Japan <sup>21**</sup>	GDDLJN	10.30%	10.23%	-0.51%	-11.28%	0.20%	18.49%
FTSE RAFI® UK <sup>22**</sup>	FRGBRTR	10.62%	12.22%	7.47%	1.48%	7.91%	16.07%
MSCI UK <sup>23**</sup>	GDDLUK	9.55%	10.94%	7.98%	2.08%	7.31%	14.01%

\*To see the complete series, please go to: [http://www.ftse.com/Indices/FTSE\\_RAFI\\_Index\\_Series/index.jsp](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 11/30/12	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED			
				3 YEAR	5 YEAR	10 YEAR	10 YEAR VOLATILITY
Russell Fundamental Global Index Large Company <sup>24</sup>	RUFGLTU	12.83%	12.75%	7.67%	0.59%	11.08%	17.42%
MSCI All Country World Large Cap <sup>25</sup>	MLCUAWOG	14.25%	14.22%	6.71%	-1.45%	7.29%	16.54%
Russell Fundamental Developed ex US Index Large Company <sup>26</sup>	RUFDXLTU	10.84%	9.31%	2.57%	-2.96%	10.70%	18.87%
MSCI World ex US Large Cap <sup>27</sup>	MLCUWXUG	13.56%	12.41%	3.30%	-4.08%	7.89%	18.32%
Russell Fundamental Developed ex US Index Small Company <sup>28</sup>	RUFDXSTU	13.19%	12.62%	6.86%	0.79%	13.87%	18.53%
MSCI World ex US Small Cap <sup>6</sup>	GCUDWXUS	13.59%	11.41%	6.68%	-1.65%	11.86%	20.52%
Russell Fundamental Emerging Markets <sup>29</sup>	RUFGETRU	13.21%	11.45%	7.07%	1.56%	21.37%	24.47%
MSCI Emerging Markets <sup>8</sup>	GDUEEGF	13.08%	11.73%	4.67%	-1.49%	15.93%	24.15%
Russell Fundamental US Index Large Company <sup>30</sup>	RUFUSLTU	14.71%	16.36%	12.60%	3.67%	8.96%	15.89%
Russell 1000 <sup>10</sup>	RU10INTR	15.23%	16.19%	11.63%	1.57%	6.79%	15.20%
S&P 500 <sup>11</sup>	SPTR	14.96%	16.13%	11.25%	1.34%	6.36%	14.92%
Russell Fundamental US Index Small Company <sup>31</sup>	RUFUSSTU	15.13%	15.50%	16.67%	7.35%	12.70%	21.07%
Russell 2000 <sup>13</sup>	RU20INTR	12.35%	13.09%	13.85%	2.82%	8.71%	20.19%
Russell Fundamental Europe <sup>32**</sup>	RUFEUTE	14.04%	15.08%	7.59%	-1.44%	8.83%	17.12%
MSCI Europe <sup>15**</sup>	GDDLE15	16.41%	18.87%	8.53%	-2.26%	5.40%	15.36%

\*To see the complete series, please go to: [http://www.russell.com/indices/data/Fundamental/About\\_Russell\\_Fundamental\\_indexes.asp](http://www.russell.com/indices/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 11/30/12	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED			10 YEAR VOLATILITY
				3 YEAR	5 YEAR	10 YEAR	
RAFI® Bonds Investment Grade Master <sup>33</sup>	—	9.17%	11.55%	8.63%	8.46%	6.83%	6.01%
ML Corporate Master <sup>34</sup>	COAO	10.39%	12.52%	8.77%	7.71%	6.64%	6.18%
RAFI® Bonds High Yield Master <sup>35</sup>	—	13.62%	16.05%	12.26%	12.10%	11.41%	9.81%
ML Corporate Master II High Yield BB-B <sup>36</sup>	HOA4	13.16%	15.84%	11.82%	8.86%	9.35%	9.23%
RAFI® US Equity Long/Short <sup>37</sup>	—	1.37%	2.97%	3.82%	3.94%	5.39%	11.49%
1-Month T-Bill <sup>38</sup>	GB1M	0.04%	0.04%	0.07%	0.39%	1.61%	0.51%
FTSE RAFI® Global ex US Real Estate <sup>39</sup>	FRXR	32.24%	29.47%	7.97%	-2.35%	—	—
FTSE EPRA/NAREIT Global ex US <sup>40</sup>	EGXU	33.36%	30.53%	10.02%	-2.93%	—	—
FTSE RAFI® US 100 Real Estate <sup>41</sup>	FRUR	18.68%	23.41%	20.82%	5.40%	—	—
FTSE EPRA/NAREIT United States <sup>42</sup>	UNUS	13.70%	18.88%	18.83%	2.93%	—	—
Citi RAFI Sovereign Developed Markets Bond Index Master <sup>43</sup>	CRFDMU	5.75%	6.27%	4.03%	5.33%	7.65%	7.84%
Merrill Lynch Global Governments Bond Index II <sup>44</sup>	WOG1	2.78%	3.68%	3.29%	5.54%	6.70%	7.14%
Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master <sup>45</sup>	CRFELMU	14.16%	13.51%	—	—	—	—
JPMorgan GBI-EM Global Diversified <sup>46</sup>	JGENVUUG	14.29%	12.61%	—	—	—	—



## 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 1,000 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 States. 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.
- (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 Debt Index II tracks the performance of investment grade sovereign debt publicly issued and denominated in the issuer's own domestic market and currency.
- (45) The Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Series seeks to reflect exposure to the government securities of a universe of 14 emerging markets. By weighting components by their fundamentals, the indices aim to represent each country's economic footprint and proxies for its ability to service debt.
- (46) The JPMorgan GBI-EM Diversified Index seeks exposure to the local currency sovereign debt of over 15 countries in the emerging markets.

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

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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 RA. The opinions are subject to change without notice.