rafi™ fundamentals

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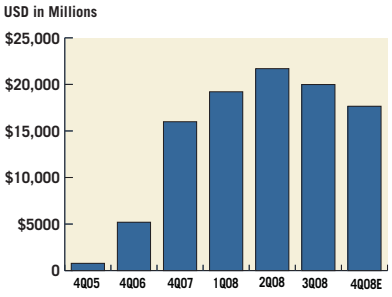

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2008 IN REVIEW: EVERY RULE HAS AN EXCEPTION

The year 2008 was a remarkable year in the capital markets. The S&P 500 Index, which posted its worst year since 1931, was only one of many disappointments, as virtually all risky asset classes produced breathtaking losses. Hedge funds failed to hedge (not to mention that one fund had pulled a $50 billion fraud for the ages). The strategies of many of the best active stock pickers of the past two decades massively underperformed the plunging indices. Confidence in anything—for institutions and individuals alike—vanished. More than anything else, 2008 proved to be the exception to many of the investment "rules" once thought to be cast in stone. In this issue we review this extraordinary period through the dual lenses of our global tactical asset allocation (GTAA) and Fundamental Index® strategy focus areas with an eye toward the future.

Global Tactical Asset Allocation

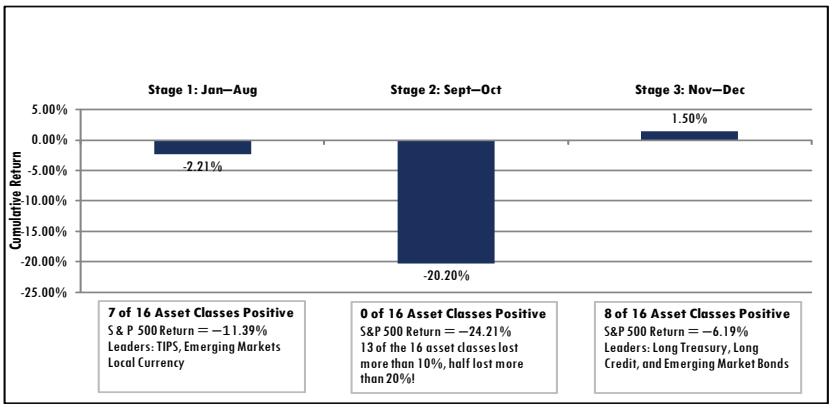
The challenges and opportunities facing asset allocators were self-evident in 2008. Over the past 12 months, most asset classes experienced their worst returns ever or, for those with a long enough history, since the Great Depression years of the 1930s. Indeed, this misfortune fell on 10 of the 16 key asset classes we closely follow.

Within this overall dreadful 12-month stretch were three distinct subperiods as shown in **Figure 1**: the conventional bear market of January through August, the "take no prisoners" market of September and October, and the "sorting through the carnage" market of November and December.

In Stage One, the first eight months of 2008, in contrast to the later blood-letting, fully 7 of the 16 asset classes managed to post positive returns. Among those that escaped losses were Treasury Inflation-Protected Securities (TIPS), emerging market bonds, commodities, and core bonds. None of the equity categories produced positive returns; losses ranged from –3% to –22%. An equally weighted portfolio of these 16 assets classes would have returned –2.2%—a loss but hardly a debilitating impairment of capital.

Then came Stage Two, the September/October 2008 crash, which changed the

Figure 1. 2008's Three Stages of Asset Allocation: Equally Weighted Portfolio of 16 Asset Classes



Source: Research Affiliates

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picture drastically. Simply put, these two months were a Take-No-Prisoners market. All 16 asset classes fell. That had not happened before in any single month, let alone any two-month span in the past 20 years. Furthermore, the losses were astonishing: 13 of the 16 asset classes lost more than 10%, and half lost more than 20%! For 12 of the 16 asset classes, their performance was the worst two-month stretch of performance in the past 20 years or more. From TIPS to emerging market equity, asset classes were devastated. The benefits of diversification and relative value decisions were a no-show.

This lockstep free fall had a remarkable effect on most asset allocation strategies. Students of Markowitz's efficient frontier can tell you that the diversification effect is mathematically captured through the correlation coefficient. In the 20 years ending 2007, the average cross-correlation of the 16 asset classes was 0.27.[1] In 2008, the average more than doubled; for the year, these assets were highly correlated at 0.58.[2] And, during the take-no-prisoners market, the correlation often seemed to approach 1.00!

But September/October opened up the door to recoveries in November/December 2008. Crises bring opportunities. Indeed, the global meltdown of fall 2008 produced, in our opinion, severe price dislocations in several markets. Many areas of the bond market sold off more *relative to their historic risk profiles* than equities did. Markets that were "four sigma events" for stocks were "eight sigma events" in other markets. Some categories appeared to be pricing a deep depression, whereas equities were pricing only a moderate recession. Consider the following:

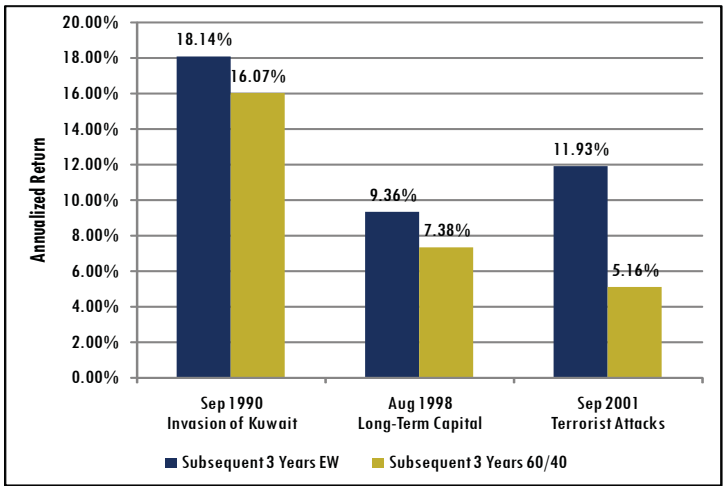
- **Emerging Market Bonds**. On October 24, 2008, the spread offered by emerging market bonds over U.S. Treasuries was 9.6%—the widest spread since the 11.6% witnessed in the Long-Term Capital Management sell-off of August 1998. What makes this immense risk premium remarkable is that the asset class is now 60.3% investment grade, whereas back in 1998 it was only 10.8% investment grade![3]
- **TIPS**. By the end of October 2008, the 20-year TIPS yield was 1.39% lower than the nominal 20-year Treasury yield on October 27, implying an annual inflation of 1.39% *for the next two decades*. Such a level of inflation has not been seen since 1926–1945, an era encompassing five years on the gold standard, followed by the Great Depression and World War II!
- **Convertibles**. Driven by the severe unwinding of the entire convertible arbitrage hedge fund strategy, the Merrill Lynch Convertible All Qualities Bond Index fell more than the S&P 500 during the September/October implosion. Granted, the conversion features were essentially worthless, but these securities are still *bonds* that carry all of the benefits of being higher in the pecking order in the capital structure!

Following these wild mispricings, as the deleveraging took a pause long enough for investors to reassess relative value, we did indeed see many asset classes recover handsomely in November/December 2008. Eight of the 16 asset classes produced gains, which would have caused an equally weighted portfolio to produce a gain of 1.5%. Interestingly, this rebound was not led by the stock market. The S&P 500 actually finished 12th out of the 16 asset classes during Stage Three.

A model-driven GTAA strategy is designed to capitalize on the opportunities created by these types of price dislocations. Institutional investment committees aren't equipped to make the necessary asset allocation decisions. The contrarian strategy—moving into distressed assets when they are most feared—runs counter to human emotions and confronts people with the dreaded "maverick risk." These issues are particularly problematical when out-of-mainstream "niche" asset classes are involved. These classes are typically the first to be abandoned in a period of market duress. Perhaps this is why diversified portfolios tend to outperform as the economy comes out of periods of severe market stress. **Figure 2** displays the returns of the 16-asset-class portfolio (equally weighted) compared with the returns of a traditional 60% S&P 500/40% Barclays Capital Aggregate Bond portfolio in the three years subsequent to three financial crises of the past 20 years.

We think 2008 has provided several key lessons on asset allocation. First and foremost, 2008 taught us that extrapolating historical return characteristics, even very long term characteristics, is dangerous. Every rule has an exception. However, to let the massive meltdown in September and October 2008 serve as a primary guide to our future decisions would be equally dangerous; this market was nothing if not extraordinary. Rising correlations may be part of an increasingly intertwined

Figure 2. Diversification Outperforms on the Recovery



Sources: Short-term bonds (Merrill Lynch US Corporate & Government 1-3 Year); core bonds (Lehman Brothers US Aggregate Bond); long-term U.S. Treasury bonds (LB US Treasury Long); long-term corporate credit (LB US Long Credit); high-yield corporate bonds (LB US Corporate High Yield); floating-rate notes (Credit Suisse Leveraged Loan); emerging market bonds (JPM EMBI + Composite); emerging market local currency (JPM ELMI + Composite; convertible bonds (ML Convertible Bonds All Qualities); Treasury Inflation-Protected Securities (LB Global Inflation Linked US TIPS); REITs (FTSE NAREIT All REITs); commodities (DJ AIG Commodity TR); U.S. large-capitalization equity (S&P 500); U.S. small-cap equity (Russell 2000); developed ex-U.S. country equity (MSCI EAFE TR); and emerging market equity (MSCI Emerging Markets).

[1] As a barometer, consider that the average correlation of the S&P 500 with the Barclays Capital U.S. Aggregate Bond Index (the two asset classes most frequently used to offset each other) has been 0.25 since 1976.

[2] A correlation of 0.58 is virtually identical to the historical correlation between the MSCI EAFE and S&P 500 since 1970 (0.59).

[3] This spread was calculated as the difference between the Merrill Lynch USD Emerging Market Sovereign Plus Index and the U.S. five-year (constant-maturity) T-note. Investment-grade percentages are based on the JPMorgan Emerging Markets Bond Index, courtesy of PIMCO.

global financial community, but a doubling of the average cross-correlation is extreme and unsustainable. Furthermore, the three-stage analysis shows that active asset allocation provided opportunities before and after a dreadful stretch in the market. We think this characteristic will continue: Assets will be repriced to deliver a "fair" return for the corresponding risk. That truism combined with a wealth of low-hanging fruit bodes well for advocates of GTAA.

The Fundamental Index Approach

The Fundamental Index approach produced mixed results vis-à-vis capitalization-weighted indexes in 2008. The published FTSE RAFI® series witnessed relative performance successes (there were no absolute victories in 2008!) in Japan, Australia, Canada, international small companies, and the emerging markets. However, since the launch of the RAFI methodology was commercialized in late 2005, 2008 marked the first and only calendar year of shortfall, albeit slight, by a global all country RAFI strategy relative to a global, all country cap-weighted index. The RAFI strategy posted a decline of –42.5% versus the MSCI All Country World Index of –41.9%, a slight shortfall of 0.6 percentage points, following outperformance of 6.0% and 2.0% in 2007 and 2008, respectively. Combining the entire post-2005 experience, the global, all country Fundamental Index strategy has outperformed the MSCI World by a very respectable 1.8% annualized over three years.[4]

Unquestionably, the largest drag on the global Fundamental Index strategy was the U.S. market. There will always be exceptions to the rule—outliers in statistical speak. Last year, that outlier was the United States. The FTSE RAFI US 1000 Index trailed the S&P 500 by nearly 3 percentage points. As we have commented, the Fundamental Index approach typically enjoys a tailwind boosting performance when value stocks are winning in the market. Thus, many followers of the Fundamental Index strategy were surprised by the U.S. shortfall, because value stocks seemed to outperform in 2008. The Russell 1000 Value Index outperformed the Russell 1000 Growth Index by 159 basis points. However, many observers would disagree with the notion that 2008 was a value year. As shown in **Figure 3**, the S&P/Citigroup Growth and Value Indexes showed the opposite—the S&P 500/Citigroup Value underperformed the Growth index by 430 basis points.[5] Combining the two series, we find that 2008 was probably a down year—or at best a flat year—for value stocks relative to growth stocks in the United States.

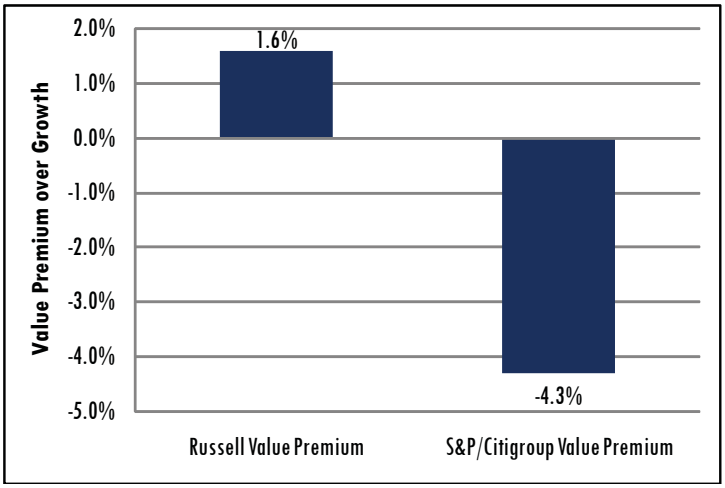
The lack of a sizable value premium in the nasty 2008 equity sell-off is highly unusual over the past 30 years. In **Figure 4**, we outline all of the S&P 500 down markets greater than 15% since 1979. Value won handily in the markets of the early 1980s and 2000–2002 while also outperforming in the crash of 1987. Value stocks have performed better in past bear markets because they enter the periods with cheaper valuations whereas the growth shares are "priced for perfection."[6] As the economic

[4]Performance through August 2008 represents Research Affiliates simulated results. Performance for September 2008 through December 2008 is that of the FTSE RAFI All-World 3000 Index.

[5]A possible explanation for these differences is the rebalancing methodologies used by the three cap-weighted index providers. Frank Russell Company rebalances at the end of June; S&P/Citigroup in December.

[6]Note that in past bear markets, most of the outperformance by the value stocks happened in the second half of the bear market. This fact invites a provocative question: Is the bear market of 2007–2008 over?

Figure 3. Was 2008 a Value Year or Not?

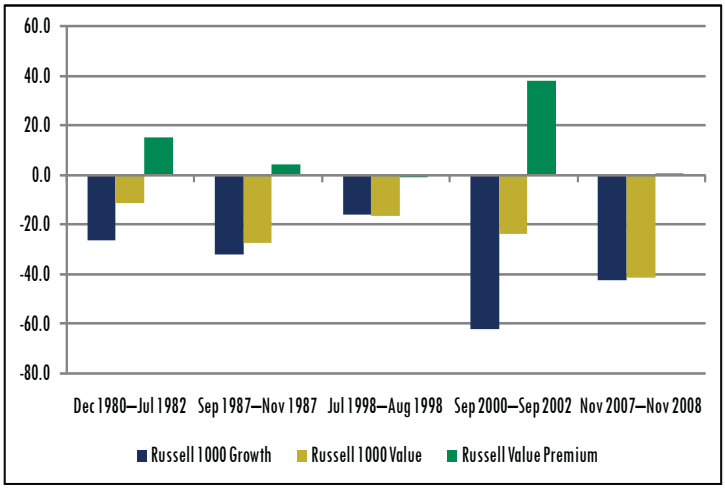


Source: Research Affiliates

picture worsens, growth shares have historically suffered more because of the greater revision to future expectations for them. (In the mini sell-off of 1998, growth *slightly* outperformed value, but that bear market never took hold; it was over before many of us returned from our summer vacations!) In this latest bear market, we find for the first time in a sustained bear market in the past 30 years, that value's performance versus growth is virtually flat.

We believe the major reason that 2008 bucked the trend toward a clear outperformance by value in a down market is "distress." Value stocks are cheaper for a reason: They have issues, warts, and problems. Normally, as the economy heads south, these problems don't prove to be a hindrance to value performance because an *expectation* of problems is built into the value stocks' prices. When the outlook turns from recessionary to depressionary, however, the floor under the cheap valuations caves in. Investors' primary question turns from "how long will it take for the company or industry to turn around?" to "how long will it *exist*?"

Figure 4. Style Performance When S&P 500 Is Down by Less Than 15%



Source: Research Affiliates

More to the point, investors stop asking, "What's the return *on* our money?" and start asking, "Will we ever see a return *of* our money?" With these questions circulating, any security giving off a whiff of distress—in the form of high debt levels, liquidity issues, and so on—begins to sell off regardless of its relative price.[7]

Table 1 provides an attribution of returns based on deciles of the price-to-book ratio (P/B), which often serves as a proxy for the continuum from value to growth. Consistent with our expectations, the FTSE RAFI US 1000 was considerably underweighted in the most expensive stocks in the large-cap universe (7.9% versus 13.8%). This is a natural outcome from weighting stocks based upon today's size, not expectations of how large they will be in 5 or 10 years. Just like previous bear markets, these high priced growth stocks got hammered (down 42.7% in the Russell 1000) as a softening economy rapidly altered expectations. The RAFI strategy earned excess returns for having less exposure and better stock selection. However, the RAFI strategy promptly gave up this premium and then some on the flip side of the spectrum. The fear of distress caused the cheapest stocks to do even worse than the most expensive. Thus, the RAFI strategy entered 2008 with a larger exposure to the bottom two deciles of P/B. Looking at the 10th decile (stocks priced below 1.1x's book value as of December 31, 2007), the FTSE RAFI US 1000 strategy had a 6.6% exposure to these stocks versus the Russell's 4.4% exposure. This small delta was magnified enormously when this batch of stocks finished with declines averaging more than 65%.

The fear of distress, and its effect, is also clearly seen in the role of industry/sector "detractors" in the FTSE RAFI US 1000 relative performance. The U.S. automobile industry was the poster child for distress (it detracted 57 basis points from the FTSE RAFI US 1000 net performance) toward the end of 2008, but this sector represented a rather small holding in both the RAFI and Russell indices. The financial sector held a much larger cumulative position in the FTSE RAFI US 1000 (with a beginning weight of 18.7%) and in the Russell 1000 (17.5%), and it went through a crisis in which many companies' ongoing viability was cast into doubt. The small overweight in financials in the FTSE RAFI US 1000 was the primary detractor in the RAFI index underperformance in the U.S. large company market. As we stated in August,[8] the current upheaval in this sector bodes well for future RAFI performance for two reasons. First, most financial stocks are priced to reflect the most dire of outcomes, meaning that if they simply avoid the worst-case scenarios they could provide outsize performance. Second, every failure of a financial firm reduces competition and gives the survivors more pricing power.

One other factor, which we'll focus on in an upcoming *RAFI Fundamentals*, is the interplay between relative performance and relative valuation multiples. Intuition tells us that buying whatever has recently performed best is folly, and that whatever has plunged is (at least) more attractive than it once was. If we assume mean reversion holds, a strategy that allocates greater amounts to yesterday's laggards but only suffers a fraction of their performance shortfall would seem to be well positioned for price reversals and deliver the goods over a full market cycle.

Many observers may miss the fact that the RAFI strategy performed very nearly well enough outside the United States, particularly in emerging markets, to offset the shortfall in the United States. Indeed, the Fundamental Index concept trailed on a global, all country basis by a scant 60 basis points, after winning handily in 2006 and 2007—all of which occurred after the publication of our methodology and commercial indexes. We believe a 60 basis point global shortfall to capitalization weighting for 2008 is well within the range of expected outcomes in a volatile market like the current one. A prudent fiduciary maintains a long-term view and avoids making snap judgments based on short-term trends. Looking at the RAFI approach's performance over a long period of time, we are pleased to see that the cumulative outperformance remains.

Conclusion

The collective psyche of investors did a 180 in the past 12 months from a greed-induced spring bubble in commodities to the panic-driven selling of "Everything but Treasuries" in the fall. With the books finally closed on 2008, investors can finally take a breath and evaluate the dramatically altered landscape of the capital markets. *This assessment will reveal a host of opportunities*. The massive meltdown in virtually

[7] Indeed, we can venture back to the depressionary 1930s to see value shares underperforming growth in a severe down market. The Frank Russell Company indices don't extend this far back but Gene Fama and Ken French constructed the Fama–French Large Cap Growth and Value time series to illustrate style performance during this stretch.

[8] See the August 2008 issue of *RAFI Fundamentals*, "The Anti-Bubble Bursts."

Table 1. 2008 Return Attribution by Price/Book Deciles

	FTSE RAFI US 1000		Russell 1000 Index		Variance		
Price/Book Decile	12/31/07 Weight	Base Return	12/31/07 Weight	Base Return	Stock Selection	Group Weight	Total
1. Above 7.999	7.9%	–36.7%	13.8%	–42.7%	0.4%	0.3%	0.7%
9. 1.167–1.541	12.5%	–49.2%	10.5%	–49.4%	0.0%	–0.7%	–0.7%
10. Below 1.167	6.6%	–68.5%	4.4%	–66.2%	–0.3%	–1.7%	–2.0%

Source: Research Affiliates.

all risky asset classes has led many to offer healthy looking forward returns for the first time in years—in some cases, careers. Ignoring the scars caused by the fall, a systematic and model-driven GTAA process scrutinizes this newly golden opportunity set.

The selling of distressed equities has led many companies' prices to deviate wildly from their economic footprint, exactly the kind of environment that provides attractive prospects for the Fundamental Index approach. Low hanging asset class fruit and an index methodology that capitalizes on the severe mispricings in today's equity market? Over the long term, investors keen on achieving sustainable investment success would be well served to embrace both. And that's a rule we can live with.

Performance Update

TOTAL RETURN AS OF 12/31/08	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED 3 YEAR	ANNUALIZED 5 YEAR	ANNUALIZED 10 YEAR	ANNUALIZED 10 YEAR VOLATILITY
FTSE RAFI® 1000 Index[A]	FR10XTR	-39.99%	-39.99%	-9.55%	-2.04%	2.17%	15.09%
S&P 500[B]	SPTR	-37.00%	-37.00%	-8.36%	-2.19%	-1.38%	15.10%
Russell 1000[C]	RU10INTR	-37.60%	-37.60%	-8.66%	-2.04%	-1.09%	15.33%
FTSE RAFI® US 1500 Index[D]	FR15USTR	-38.28%	-38.28%	-10.04%	-0.57%	7.28%	19.23%
Russell 2000[E]	RU20INTR	-33.79%	-33.79%	-8.29%	-0.93%	3.02%	20.36%
FTSE RAFI® Developed ex US 1000 Index[F]	FRX1XTR	-43.89%	-43.89%	-6.02%	3.25%	5.10%	16.48%
MSCI EAFE[G]	GDDUEAFE	-43.06%	-43.06%	-6.92%	2.10%	1.18%	16.42%
FTSE All World Series Developed ex US[H]	FTS5DXUS	-43.33%	-43.33%	-6.36%	2.65%	2.07%	16.62%
FTSE RAFI® Developed ex US Mid Small[I]	FRSDXUS	-42.36%	-42.36%	-9.97%	2.14%	4.91%	16.06%
MSCI EAFE Small[J]	GCUDEAFE	-46.78%	-46.78%	-13.45%	1.51%	3.12%	18.85%
FTSE RAFI® Emerging Markets[K]	FREM	-49.27%	-49.27%	1.14%	14.43%	13.67%	24.17%
MSCI Emerging Markets[L]	MXEF	-54.48%	-54.48%	-7.07%	5.07%	6.61%	24.15%
FTSE RAFI® Canada[M]	FRCANTR	-43.94%	-43.94%	-5.80%	5.65%	9.59%	18.03%
S&P/TSX 60[N]	TX60AR	-43.96%	-43.96%	-4.52%	6.90%	4.97%	21.52%
FTSE RAFI® Australia Index[O]	FRAUSTR	-48.02%	-48.02%	-4.09%	5.26%	10.02%	19.13%
S&P/ASX 200 Index[P]	AS51	-52.81%	-52.81%	-9.12%	1.11%	4.66%	20.56%
FTSE RAFI® Japan[Q]	FRJPNTR	-26.25%	-26.25%	-7.94%	2.76%	0.54%	17.75%
MSCI Japan[R]	GDDUJN	-29.11%	-29.11%	-10.27%	1.03%	-4.59%	17.98%
FTSE RAFI® UK Index[S]	FRGBRTR	-50.10%	-50.10%	-9.49%	-0.79%	1.34%	19.63%
MSCI UK[T]	GDDUUK	-48.32%	-48.32%	-9.88%	-1.24%	-2.47%	16.16%

Definition of Indices: (A) The FTSE RAFI® 1000 comprises the 1000 largest companies selected and weighted using our Fundamental Index methodology; (B) The S&P 500 Index is an unmanaged market index that focuses on the large-cap segment of the U.S. equities market; (C) 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; (D) The FTSE RAFI® 1500 comprises the 1001st to 1500th largest companies selected and weighted using our Fundamental Index methodology; (E) The Russell 2000 is a market-capitalization weighted benchmark index made up of the 2,000 smallest U.S. companies in the Russell 3000; (F) The FTSE RAFI® Developed ex US 1000 Index comprises the largest 1000 non US-listed companies by fundamental value, selected from the constituents of the FTSE Developed ex US Index; (G) MSCI EAFE (Morgan Stanley Capital International Europe, Australasia, Far East) is an unmanaged index of issuers in countries of Europe, Australia, and the Far East represented in U.S. dollars; and (H) The FTSE All World ex-US Index comprises Large and Mid-Cap stocks providing coverage of Developed and Emerging Markets excluding the United States. It is not possible to invest directly in any of the indexes above; (I) The FTSE RAFI® Developed ex US Mid Small Index tracks the performance of small- and mid-cap equities of companies domiciled in developed international markets (excluding the United States), selected based on the following four fundamental measures of firm size: book value, cash flow, sales, and dividends. The equities with the highest fundamental strength are weighted according to their fundamental scores. The Fundamentals Weighted® portfolio is rebalanced and reconstituted annually. Performance represents price return only; (J) The MSCI EAFE Small Cap Index targets 40% of the eligible small-cap universe (companies with market capitalization ranging from US$200 to US$1,500 million) in each industry group of each country in the MSCI EAFI Index; (K) The FTSE RAFI® Emerging Markets Index comprises the largest 350 companies selected and weighted using the Fundamental Index® methodology; (L) The MSCI Emerging Markets Index is an unmanaged, free-float-adjusted cap-weighted index designed to measure equity market performance of emerging markets; (M) The FTSE RAFI® Canada Index comprises the Canadian stocks represented among the constituents of the FTSE RAFI® Global ex US 1000 Index, which in turn comprises the 1,000 non-U.S.-listed companies with the largest fundamental value, selected from the constituents of the FTSE Developed ex US Index; (N) 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; (O) The FTSE RAFI® Australia Index comprises the Australian stocks represented among the constituents of the FTSE RAFI® Global ex US 1000 Index, which in turn comprises the 1,000 non-U.S.-listed companies with the largest fundamental value, selected from the constituents of the FTSE Developed ex US Index; (P) The S&P/ASX 200 Index, representing approximately 78% of the Australian equity market, is a free-float-adjusted, cap-weighted index; (Q) The FTSE RAFI® Japan Index comprises the Japanese stocks represented among the constituents of the FTSE RAFI® Global ex US 1000 Index, which in turn comprises the 1,000 non-U.S.-listed companies with the largest fundamental value, selected from the constituents of the FTSE Developed ex US Index; (R) 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; (S) The FTSE RAFI® UK Index comprises the U.K. stocks represented among the constituents of the FTSE RAFI® Global ex US 1000 Index, which in turn comprises the 1,000 non-U.S.-listed companies with the largest fundamental value, selected from the constituents of the FTSE Developed ex US Index; (T) 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

Note: Annualized 9 year for: FTSE RAFI Developed ex US Mid Small, FTSE RAFI Emerging Markets, FTSE RAFI Canada, FTSE RAFI Japan, and FTSE RAFI UK.

Source: Based on price data from Bloomberg.

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