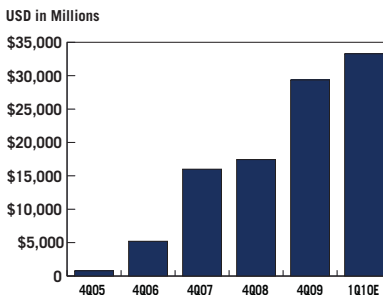


Fundamentals



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RAFI® Managed Assets*



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FIFTY YEARS OF THE POPULARITY WEIGHTED INDEXING

A half century is a long time, particularly one that spans the remarkable pace of technological and social change over the past 50 years. Lucky enough to witness the past five (and a half!) decades, I marvel not only at how much our lives have changed, but also at the ebbs and flows in fashion, movies, music, and pop culture. What's in, what's out, what's hot, what's not? My how the fads rotate! I figured the long hair and bell bottoms from my Santa Barbara college days would forever be a fashion relic, like today's tattoos for women and piercings for men. Yet, three years ago my son visited from college, sporting shaggy locks and the latest "wide legged" jeans. Now, I am told, they are no longer in vogue, replaced by "skinny legged" jeans. As they say in France, *Plus ça change, plus c'est la même chose*.

Let's rewind to Ike's last year in office and consider the top 10 names by market capitalization in the S&P 500 Index. As **Table 1** shows, they are all familiar names, except maybe Texas Company (which became Texaco, now part of Chevron) and, for the younger set, Standard Oil of New Jersey (which became Exxon and begat Exxon Mobil). Only 4 of the top 10 remain in the top 10 today, all with much-reduced market clout: the four comprised 18% of the stock market in 1960, and have a 7% footprint today.

How many of the six new stocks in today's top ten were familiar names

back then? Well, no harm in missing three of these which didn't even exist: Microsoft, Apple, and Walmart. This is the miracle of entrepreneurial capitalism: three of the top four market-cap companies were mere ideas a few decades ago! The other three—Johnson & Johnson, Proctor & Gamble, and JPMorgan Chase—were respected names in 1960, although J. D. Rockefeller would have been horrified to see J.P. Morgan in front of the Chase name.

The pattern is similar when we look at the top 10 publicly traded companies, ranked by the economic scale of their business, albeit with more mergers.¹ As **Table 2** shows, 6 of the 1960 top 10 survive in today's top 10, albeit in altered form as four companies. Socony Mobil and Standard Oil of New Jersey eventually joined to form Exxon Mobil, while Gulf Oil joined Texas Company along with Standard Oil of California as the main constituents of Chevron. As with the capitalization-weighted lists, there are six newcomers. We can also see a similar reduction in concentration, with the six survivors (merged down to four) comprising 20% of the publicly-traded U.S. economy in 1960, and half as much today.

So what? Ben Graham once suggested that, in the short run, the stock market is a voting machine and, in the long run, a weighing machine.

Table 1. Top 10 Largest U.S. Stocks by Market Capitalization, 1960 vs. 2010

Rank	1960		2010	
	Company	Weight	Company	Weight
1	American Telephone & Telegraph	6.9%	Exxon Mobil	2.8%
2	General Motors	6.2%	Microsoft	2.4%
3	E.I. du Pont Nemours	4.9%	Walmart Stores	1.8%
4	Standard Oil Co of NJ	4.3%	Apple	1.7%
5	General Electric	3.5%	Johnson & Johnson	1.5%
6	IBM	3.2%	Procter & Gamble	1.5%
7	Texas Company	2.1%	IBM	1.5%
8	Union Carbide	1.8%	JPMorgan Chase	1.5%
9	Eastman Kodak	1.7%	AT&T	1.4%
10	Sears Roebuck & Company	1.5%	General Electric	1.4%

Source: Research Affiliates based on data from Compustat, CRSP, and Bloomberg.

Table 2. Top 10 Largest U.S. Stocks by Financial Scale, 1960 vs. 2010

Rank	1960		2010	
	Company	Weight	Company	Weight
1	American Telephone & Telegraph	7.4%	Exxon Mobil	2.9%
2	General Motors	6.6%	General Electric	2.2%
3	Standard Oil Co of NJ	5.3%	Bank of America	2.2%
4	E.I. du Pont Nemours	2.5%	AT&T	2.0%
5	Ford Motor	2.4%	Citigroup	1.8%
6	General Electric	2.0%	Walmart Stores	1.7%
7	Texas Company	1.7%	Chevron	1.7%
8	Socony Mobil Oil	1.7%	Microsoft	1.6%
9	Gulf Oil	1.7%	JPMorgan Chase	1.6%
10	Sears Roebuck & Company	1.4%	Verizon Communications	1.5%

Note: Average of weights by sales, cash flow, book value, and dividends.
Source: Research Affiliates based on data from Compustat, CRSP, and Bloomberg.

Companies come and go in Schumpeter's "creative destruction." Consider that if the market is doing its job right, its top 10 picks in market cap should tend to be among the top 10 in *future* economic scale. So, how well did the market "vote" on the future winners? We can test this.

With the dawn of 2010, we now have five decades of data on the largest U.S. stocks by capitalization and fundamental size.² We find that, as Niels Bohr said, "predicting is very difficult, especially about the future."³ Picking the six newcomers on either list with 50 years' clairvoyance would have been difficult, even ignoring the companies that were not yet conceived. However, all six newcomers by market cap were in the top 10 market cap list at some stage in the intervening 50 years.

As we'll see shortly, the cap-weighted list has had 34 different companies in the top 10 in the past 50 years. So, the market has presciently picked 34 of the 10 largest companies in the U.S. economy today. Good job!

Fallen Angels and Flip-Flops

An examination of the top 10 names of capitalization weighting over time vividly illustrates the perils of weighting our portfolios by popularity. The top 10 holdings in capitalization weighting zip up and down on the market-cap popularity meter. Meanwhile, turnover in the top companies, measured by financial scale rather than by popularity, happens at a far more sedate pace.

A stock can vault into the top 10 in two ways: it may deserve to be there by dint of glowing future prospects, or it can get there because of a pricing error (i.e., it is overpriced). To get a sense of the prevalence of overvalued stocks and how their prices adjust, let's look at the top 10 by market cap every 5 years for the past 50 years.

As seen in **Table 3**, America's largest market cap stocks is a familiar roster—GM, IBM, American Telephone and Telegraph, Standard Oil of New Jersey (Exxon), and so forth. In the first snapshot (1960), we find Union Carbide is eighth on the list, but it is gone five years later. Union Carbide's stock price trailed the broad market by enough that it fell off the top 10 list; it's marked in brown. If a stock never returns to the list, as is the case with Union Carbide, we label it a Fallen Angel: a company that was once a top 10 darling of Wall Street and is beloved no more.

Over the past 50 years, excluding companies that merged into today's top 10 list, there are 25 Fallen Angels, like Union Carbide. All 25 would have hurt the cap-weighted index fund investor significantly: they held far too much in a stock that subsequent events showed to have been overpriced. Why did the index fund investor have so much invested in these Fallen Angels when they were overpriced? Because they were overpriced! *Price, hence pricing error, drives the weights in a cap-weighted portfolio.*

In 1965, the list refreshes with Union Carbide being replaced by Gulf Oil. As a newcomer, Gulf Oil is marked in green. This time it was DuPont's turn to be a Fallen Angel. DuPont was replaced in 1970 by Xerox. And so forth, with each fallen angel hurting the cap-weighted investor.

Xerox falls in a special category. It's a Flip-Flop. It disappeared five years after it arrived. There are 16 Flip-Flops during the past 50 years. Each of the Flip-Flops hurts index investors in two ways—they held too little before the company took off and too much when it was at its peak and ready for a plunge.

As we look at **Table 3** (and **Table 4**), remember that there are no green boxes in 1960 because we are not comparing with 1955, and there are no brown boxes in 2010 because we cannot know the 2015 top 10 list. So, some of these five newest additions to the list may turn out to be Flip-Flops.

Table 3. Top 10 Companies by Capitalization, 1965-2010

Rank	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010
1	AT&T	AT&T	IBM	AT&T	IBM	IBM	EXXON	GENERAL ELECTRIC	MICROSOFT	GENERAL ELECTRIC	EXXON MOBIL
2	GENERAL MOTORS	GENERAL MOTORS	AT&T	IBM	AT&T	EXXON	GENERAL ELECTRIC	AT&T	GENERAL ELECTRIC	EXXON MOBIL	MICROSOFT CORP
3	DUPONT	EXXON	GENERAL MOTORS	EXXON	EXXON	GENERAL ELECTRIC	IBM	EXXON	CISCO	CITIGROUP	WALMART
4	EXXON	IBM	EASTMAN KODAK	EASTMAN KODAK	GENERAL MOTORS	GENERAL MOTORS	AT&T	COCA COLA	WALMART	MICROSOFT	APPLE INC
5	GENERAL ELECTRIC	TEXACO	EXXON	GENERAL MOTORS	AMOCO	AT&T	PHILIP MORRIS	PHILIP MORRIS	EXXON MOBIL	PFIZER	JOHNSON & JOHNSON
6	IBM	DUPONT	SEARS ROEBUCK	SEARS ROEBUCK	MOBIL	SHELL OIL	MERCK	WALMART	INTEL	BANK OF AMERICA	PROCTER & GAMBLE
7	TEXACO	SEARS ROEBUCK	TEXACO	PROCTER & GAMBLE	GENERAL ELECTRIC	AMOCO	BRISTOL-MEYERS	MERCK	LUCENT	JOHNSON & JOHNSON	IBM
8	UNION CARBIDE	GENERAL ELECTRIC	XEROX	GENERAL ELECTRIC	CHEVRON	DUPONT	DUPONT	IBM	IBM	IBM	JPMORGAN CHASE
9	EASTMAN KODAK	GULF OIL	GENERAL ELECTRIC	AMOCO	ATLANTIC RICHFIELD	SEARS ROEBUCK	AMOCO	PROCTER & GAMBLE	CITIGROUP	AIG	AT&T INC
10	SEARS ROEBUCK	EASTMAN KODAK	GULF OIL	CHEVRON	SHELL OIL	EASTMAN KODAK	BELLSOUTH	DUPONT	AOL	INTEL	GENERAL ELECTRIC

New to Top 10

Falling Off Top 10

Flip Flop

Source: Research Affiliates.

Table 4. Top 10 Companies by Fundamental Scale, 1965-2010

Rank	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010
1	AT&T	GENERAL MOTORS	AT&T	AT&T	AT&T	AT&T	EXXON	EXXON	EXXON MOBIL	EXXON MOBIL	EXXON MOBIL
2	GENERAL MOTORS	AT&T	GENERAL MOTORS	GENERAL MOTORS	GENERAL MOTORS	EXXON	IBM	IBM	FORD	CITIGROUP	GENERAL ELECTRIC
3	EXXON	EXXON	EXXON	EXXON	EXXON	IBM	GENERAL MOTORS	GENERAL MOTORS	GENERAL ELECTRIC	GENERAL ELECTRIC	BANK OF AMERICA
4	DUPONT	FORD	FORD	IBM	IBM	GENERAL MOTORS	FORD	FORD	GENERAL MOTORS	WALMART	AT&T
5	FORD	TEXACO	IBM	TEXACO	MOBIL	MOBIL	AT&T	GENERAL ELECTRIC	CITIGROUP	FANNIE MAE	CITIGROUP
6	GENERAL ELECTRIC	DUPONT	TEXACO	FORD	FORD	TEXACO	MOBIL	AT&T	AT&T	BANK OF AMERICA	WALMART
7	TEXACO	GENERAL ELECTRIC	GULF OIL	GULF OIL	TEXACO	AMOCO	GENERAL ELECTRIC	MOBIL	PHILIP MORRIS	AT&T	CHEVRON
8	MOBIL OIL	SEARS ROEBUCK	MOBIL	MOBIL	GENERAL ELECTRIC	CHEVRON	DUPONT	PHILIP MORRIS	FANNIE MAE	CHEVRON	MICROSOFT
9	GULF OIL CORP	IBM	GENERAL ELECTRIC	CHEVRON	GULF OIL	GENERAL ELECTRIC	CHEVRON	DUPONT	WORLDCOM	GENERAL MOTORS	JPMORGAN CHASE
10	SEARS ROEBUCK	CHEVRON	SEARS ROEBUCK	SEARS ROEBUCK	CHEVRON	DUPONT	AMOCO	CHEVRON	IBM	AIG	VERIZON

New to Top 10

Falling Off Top 10

Merged Off Top 10

Flip Flop

Source: Research Affiliates.

Notice also that the pace of change in this top 10 list is accelerating. Only 15 of the 50 changes in the list occurred in the first 25 years. Indeed, in the first 25 years, there was only one change affecting the top half of the list: between 1975 and 1980, Eastman Kodak fell from fourth-largest market cap clear off the top 10 list. In succeeding years, there were 12 additional such changes. Does this faster-changing top 10 list suggest a faster-evolving economy or a more erratic market, making more and/or larger errors? The evidence would appear to support the latter, though it's tough to extract statistical significance from these data.

Let's turn our attention to the 10 largest *companies*, measured by economic scale of their respective businesses—i.e., by the RAFI® metrics of profits, sales, assets, and dividends—not by market cap, hence not by popularity. Excluding companies that merged into the current top 10 list, there are only 10 Fallen Angels, not 25. Fully half of the companies that have ever been on this top 10 list remain there today. And, instead of 16 Flip-Flops, there are only 3.

It bears mention that 7 of the 10 Fallen Angels and 2 of the 3 Flip-Flops occurred in the past 10 years! Some of these are a consequence of fraud (Worldcom) or reckless leverage and aggressive accounting (Fannie Mae and AIG). Perhaps our regulators—and we, as investors—could have been more vigilant in demanding a higher standard of ethics from our business titans.

The RAFI methodology weights companies by economic scale. So, the top 10 companies by economic scale are the top 10 holdings of the RAFI US Index. Logically, an index that suffers fewer Fallen Angels and almost no Flip-Flops should be expected to post better results. Of course, this discussion is solely focused on the very top end of the indexes. But, that's where a popularity-weighted index can do the most damage. Companies can get into the top 10—selected by market cap—either because they deserve it or because they're overvalued. A company cannot fall into the top 10, from some higher list, by dint of being undervalued!

Can Accounting Games Hurt a RAFI Portfolio?

The RAFI methodology uses financial measures of size, largely derived from accounting data, which naturally leads to the question: is the RAFI methodology vulnerable to accounting irregularities? A company can artificially (and, at least for Worldcom, fraudulently) inflate its way to the top of our portfolio if we're weighting an index on the basis of accounting metrics. Or, a company could engineer significant sales and profits on the back of leverage and outsized risks.

So, how vulnerable is the RAFI methodology? Returning to Table 4, we witness Ford, GM, Worldcom, AIG, Fannie Mae, and Bank of America all being in the

top 10 in the RAFI portfolio during the "Naughties." Even though it's still in the top 10, we might add Citigroup because it would not reside in the top 10 net of the government stake. What would an equally weighted portfolio of these seven "asteroids" have delivered during the decade? A loss exceeding 75%! The S&P 500's decline of 1% per year during the Naughties pales next to the 14% annualized loss in our "asteroid" portfolio.

With the combined skills of Bernie Ebbers, Franklin Raines, Chuck Prince, Rick Wagoner, et al. featuring prominently in the RAFI top 10 holdings, and with the "asteroid" portfolio delivering a 75% loss for the decade, it seems clear that a RAFI portfolio should have posted poor results. Not so! In fact, the methodology posted its best decade ever as seen in **Figure 1**. How did a RAFI portfolio shrug off the impact of having such "bad" stocks prominently on its top 10 list?

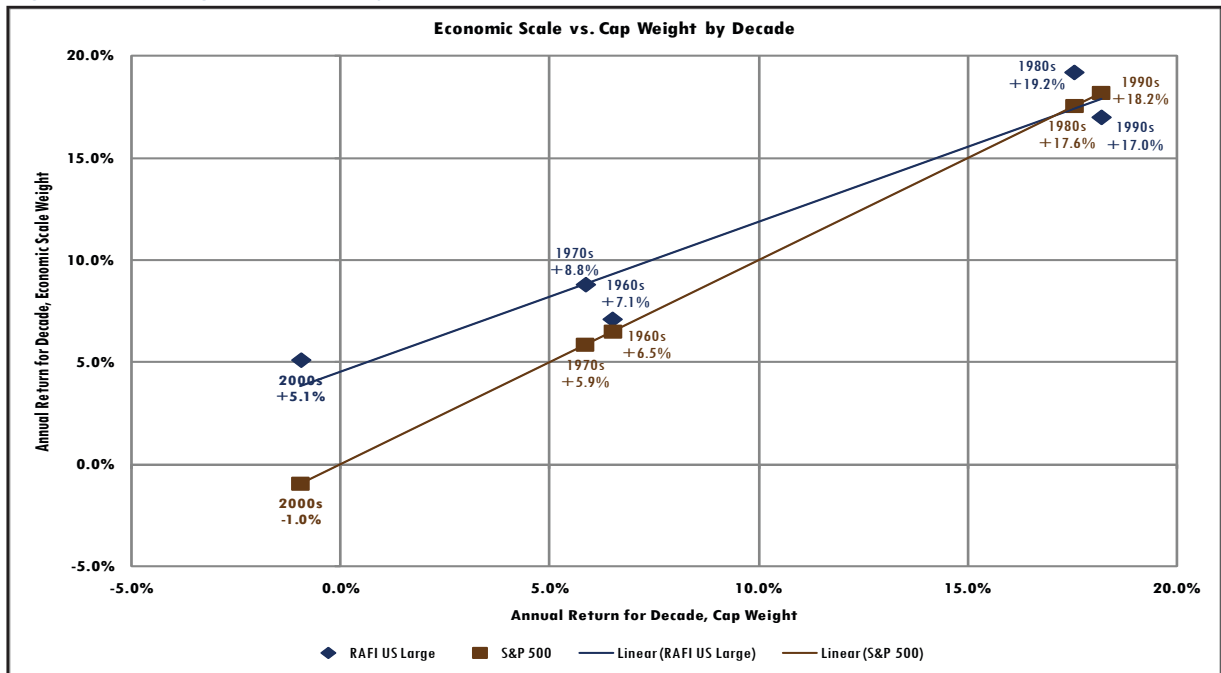
The Fundamental Index® methodology involves rebalancing and, in so doing, largely avoids bubbles and profits from anti-bubbles. Annually anchoring on fundamental size, the RAFI methodology trimmed the tech and media darlings leading up to the bear market of 2000–2002.⁴ As value stocks relentlessly beat growth in the middle part of the decade, the RAFI methodology systematically reduced its weight to these repeated outperformers resulting in a smaller and smaller value bias, right before value fell off a cliff. Then, in the great contra-trade of 2009 (see the May 2009 issue of *Fundamentals...* we called it as it was happening!), the RAFI methodology bought into the unloved deep value names and reduced exposure to the beloved safe havens and growth stocks.

Which is Clairvoyant?

We often are asked why we would want to ignore all the valuable insights regarding a company's future prospects that are embedded in the price of a stock. After all, the market cap is based on share price which reflects the consensus of millions of investors as to the fair value for a company. Our reason, quite simply, is that these insights *are already in the price*: if a company's share price is high or low because its prospects are brilliant or bleak, the share price is already discounting those consensus expectations. The future risk-adjusted returns for these companies will be identical, absent any shocks that are not already reflected in the share price!

In principle, then, cap weight ranks ought to predict future direction for economic scale ranks. That is, if a company is ranked lower by cap weight than by economic scale, the market is suggesting that it should shrink in the years ahead. However, the reciprocal does not hold true: assuming that cap weight incorporates all current

Figure 1. RAFI US Large Excess Returns by Decade



Source: Research Affiliates.

information about future prospects for a company, if a company is ranked higher or lower by economic scale than by cap weight, this should tell us precisely nothing about whether the cap weight rank is headed higher or lower.

How does this work out? *Both are clairvoyant!* For instance, in 1960, Gulf Oil and Mobil (called Socony Mobil at the time) were on the Fundamental Index top 10 list, but neither made the top 10 list by market cap. So, the cap-weighted market was saying that they were going to shrink. They did. They fell off of the Fundamental Index top 10 list in the next five years. During the 50 years, there were 64 instances in which the cap weight rank and the Fundamental Index rank differed, and in which the Fundamental Index rank changed in the next five years. In 46 cases (72%), the difference correctly predicted the next change in Fundamental Index rank, and in 18 cases (28%), cap weight had it wrong.

Turn it around. Does the Fundamental Index rank predict the next change in cap weight rank? Yes, it does. There were 76 cases in which the cap weight rank and the Fundamental Index rank differed, and in which the cap weight rank changed over the next five years. In 49 cases (64%), the Fundamental Index rank predicted the change in the cap weight rank, while in 27 cases (36%), the Fundamental Index rank got it wrong.

How is this possible? Suppose the correct rank is between cap weight rank and Fundamental Index rank. In other words, suppose the market cap is clairvoyant in picking winners and losers, but overpays for the winners. Then, we'd get exactly this outcome. This dovetails perfectly with the work that we published on the topic of clairvoyant value this past summer.⁵

Conclusion

Will Rogers once quipped, "Popularity is the easiest thing in the world to gain and it is the hardest thing to hold." The box load of clothes we donate to charity every few years can attest to how quickly something can go from all the rage to yesterday's news. For all but a few, fame and favor is fleeting. This holds true for fashion and stocks. The top of the capitalization index is filled with companies at the height of their popularity and, judging by the amount of Fallen Angels, due for a fall.

In contrast, the Fundamental Index approach is immune to how popularity pushes select stocks' prices—and portfolio weights—into the stratosphere. Consider it the classic blue blazer, the khaki dress slacks, or the little black dress. None will land on the cover of *GQ* or *Vogue* but all will likely stay in your closet for a long time, saving you and your wallet from chasing fads, crashes, and bubbles.

Endnotes

1. For Table 2, we use the RAFI methodology to compute the size of a business. Using this approach, a company that represents 4% of all sales (as a percentage of all publicly-traded companies), 3% of all book value, 2% of all dividends, and 1% of all cash flow has a RAFI weight of 2.5%. Averaging these four numbers is simpler than arguing about which one is the best measure of a company's economic size in the economy.
2. The RAFI data starts in 1962 as this is the first time we have five years of trailing data on U.S. companies. In 1960, we have data on the 700 largest companies giving us a pretty clear indication of the largest companies by fundamental size.
3. This is often ascribed to Yogi Berra. Not true.
4. A 1.5% weight in Worldcom would obviously lead to 150 bps of lost performance at the portfolio level. But a 4% weight in Cisco in early 2000 cost the capitalization weight crowd more than twice as much.
5. Arnott, Robert D., Feifei Li, and Katrina Sherrerd, "Clairvoyant Value and the Value Effect," *Journal of Portfolio Management*, vol. 35, no. 3, Spring 2009: 12–26, and "Clairvoyant Value II: The Growth/Value Cycle," *Journal of Portfolio Management*, vol. 35, no. 4, Summer 2009: 142–157.

Performance Update

TOTAL RETURN AS OF 3/31/10	BLOOMBERG TICKER	YTD	12 MONTH	ANNUALIZED 3 YEAR	ANNUALIZED 5 YEAR	ANNUALIZED 10 YEAR	ANNUALIZED 10 YEAR VOLATILITY
FTSE RAFI® 1000 Index ^A	FR10XTR	8.93%	79.66%	-2.04%	4.27%	5.71%	17.55%
S&P 500 ^B	SPTR	5.39%	49.77%	-4.17%	1.92%	-0.65%	15.93%
Russell 1000 ^C	RUTOINTR	5.70%	51.60%	-3.98%	2.31%	-0.36%	16.25%
FTSE RAFI® US 1500 Index ^D	FR15USTR	10.88%	104.23%	0.89%	7.18%	11.22%	22.40%
Russell 2000 ^E	RU20INTR	8.85%	62.76%	-3.99%	3.36%	3.68%	21.03%
FTSE RAFI® Developed ex US 1000 Index ^F	FRX1XTR	0.84%	70.67%	-3.83%	6.67%	6.21%	19.05%
MSCI EAFE ^G	GDDUEAFE	0.94%	55.20%	-6.55%	4.24%	1.68%	17.84%
FTSE All World Series Developed ex US ^H	FTSDXUS	1.39%	57.53%	-5.16%	5.28%	2.62%	18.10%
FTSE RAFI® Developed ex US Mid Small ^I	FRSDXUS	3.44%	78.57%	-3.82%	5.67%	9.36%	18.07%
MSCI EAFE Small ^I	MCUDEAFE	4.19%	66.20%	-10.37%	1.47%	4.22%	19.83%
FTSE RAFI® Emerging Markets ^K	TFREMU	2.80%	86.70%	10.45%	21.42%	19.51%	25.43%
MSCI Emerging Markets ^L	GDUEEGF	2.45%	81.55%	5.46%	16.00%	10.09%	25.08%
FTSE RAFI® Canada ^M	FRCANTR	5.73%	58.80%	3.56%	9.64%	11.00%	14.27%
S&P/TSX 60 ^N	TX60AR	2.56%	37.41%	0.56%	8.27%	4.34%	16.75%
FTSE RAFI® Australia ^O	FRAUSTR	-0.04%	41.91%	-0.74%	8.56%	10.97%	12.72%
S&P/ASX 200 Index ^P	ASA51	1.36%	41.71%	-2.44%	8.07%	8.90%	13.38%
FTSE RAFI® Japan ^Q	FRJPNTR	10.06%	36.52%	-13.46%	0.39%	1.04%	18.24%
MSCI Japan ^R	GDDLJN	8.65%	30.59%	-15.75%	-1.33%	-3.78%	18.18%
FTSE RAFI® UK ^S	FRGBRTR	6.58%	58.47%	-0.60%	5.36%	5.35%	16.84%
MSCI UK ^T	GDDUUK	5.83%	50.78%	0.07%	6.60%	2.39%	14.77%
RAFI Investment Grade ^U		2.53%	22.38%	6.96%	5.90%	6.76%	5.62%
Merrill Lynch US Corporate Master ^V	COA0	2.75%	24.84%	5.71%	5.21%	6.69%	6.22%
RAFI High Yield ^W		4.61%	35.57%	10.25%	9.93%	10.08%	9.43%
Merrill Lynch US High Yield BB-B Rated ^X	HOA4	4.36%	43.36%	5.28%	6.73%	6.54%	10.13%

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 1001 st 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 EAFE 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-US-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-US-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-US-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-US-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; (U) The RAFI® 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; (V) 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; (W) The RAFI® 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; (X) The Merrill Lynch U.S. High Yield Master II 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.

Source: All index returns are calculated using Total Return data from Bloomberg except for the FTSE RAFI Developed ex US Mid Small (FRSDXUS) and the MSCI EAFE Small (MCUDEAFE) which uses price return data.

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