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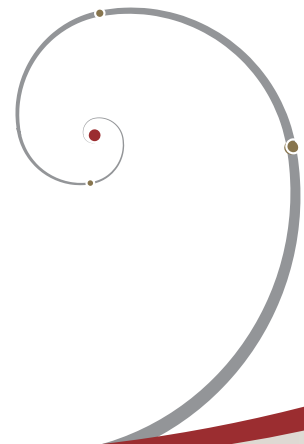
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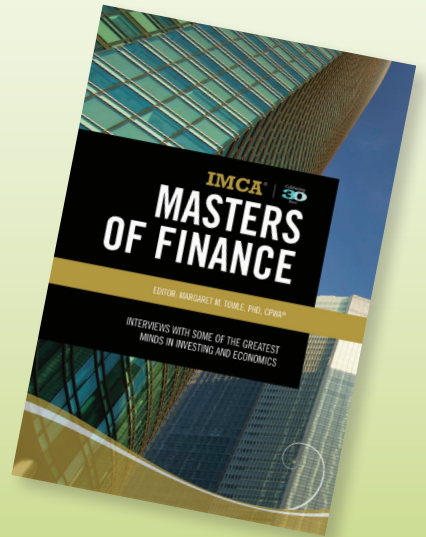
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ACTIVE VS. PASSIVE:

An Empirical Review for the Taxable Investor

By Dmitriy Katsnelson

The active versus passive debate goes back more than 40 years, to when Jack Bogle, founder of the Vanguard Group Inc., launched the Vanguard 500, the first index mutual fund. Ever since, ever-changing market dynamics have squashed and subsequently rekindled the debate in sequential cycles of booms and busts.

This debate became more interesting in the 1990s when several papers (e.g., Jeffrey and Arnott 1993) were published positing the additional benefits of tax efficiency inherent in passive options. Most of the initial research focused on data sampling and re-sampling through methods such as Monte Carlo analysis. Empirically, the ability to analyze after-tax returns began in 1993, when Morningstar introduced an after-tax methodology that took into consideration prevailing tax rates on short- and long-term capital gains. This methodology was revised in 2001, when the Securities and Exchange Commission (SEC) mandated that mutual funds report standardized after-tax returns in their prospectuses.[1]

Passive strategies still have many critics despite the increased popularity of exchange-traded funds (ETFs), explaining why there are more active funds than stocks in the United States. Much of the acceptance of passive investment has occurred in larger-cap asset classes where the markets are assumed to be more efficient, thus making it more difficult for active managers to outperform. However, analysis accounting for taxation and fees reveals that passive investment is also a viable solution in the smaller market-capitalization segments of the U.S. market, as well as in international markets. This article examines after-tax returns of active and passive funds.

Academic Research

Most research on after-tax returns focuses on U.S. large-cap stocks, mainly because they present the longest and most robust history of both active and passive. The seminal work by Arnott et al. (2001) focused on Monte Carlo-based sampling for an after-tax analysis on the Vanguard S&P 500 fund.

This article emulates past empirical research, such as Longmeier and Wotherspoon (2006), which focused on an empirical review of after-tax returns. That 2006 review analyzed active mutual funds versus respective indexes (adjusted for tax using the Quisenberry (2003) modified after-tax index model) instead of an investable passive proxy. At the time this was necessary because many ETFs or passive mutual funds did not have long-enough track records for an apples-to-apples comparison like the one presented in this article. Even with the adjusted index returns, the Longmeier and Wotherspoon findings yielded data very similar to our analysis, with most active managers across style boxes lagging respective passive proxies after-tax. Of the many follow-up papers that utilized different approaches, the expectations have been fairly consistent. Active managers start off with after-tax headwinds anywhere between 100 basis points (bps) to 300 bps (Luck 2000, 3) relative to passive options.

Analysis

This analysis is based on Morningstar Institutional universes, which are more "style pure" than the broader Morningstar categories.[2] The institutional universes also allow for closer examination of the smaller subsectors of the 1940 Act space to glean the sources of alpha at the core of an allocation decision. It should be noted that we only reviewed 1940 Act funds and not tax-managed separate accounts. There is no good proxy or repository of empirical data for after-tax/after-fees performance of passive separate account managers because results vary depending on custody costs, negotiated management fees, and tracking error targeting.[3]

We reviewed the five-, 10-, and 15-year periods where applicable, with a focus on the 10-year period. The five-year period includes 2009–2013, which reflects a close proxy for the strongest bull market since the Great Recession. The 10-year period (2004–2013) represents a volatile decade for equity markets that culminated in a return consistent with the averages seen historically going back to 1926. Lastly, the 15-year period represents 1999–2013, accounting for two bubbles and two busts. We focused on pre-liquidation after-tax returns rather than post-liquidation to eliminate the variable of timing.

We omitted many universes in this analysis. Because after-tax returns do not account for state taxes, we did not examine municipal bond funds. The idiosyncrasies of state-specific taxes along with differing investor qualifications offered significant challenges. Furthermore, we avoided asset classes where there were not appropriate passive investment options with track records of at least five years. We also avoided target date funds because they are

used primarily in retirement accounts that are tax-deferred/free.

Findings: Domestic Equities

Table 1 shows an annotated Morningstar style box for the 10-year period ending December 2013 before accounting for taxes.[4] Table 2 reflects after-tax data. The top line in each style box reflects the passive mutual fund/ETF return over the period. The Percentile figure reflects where that fund fell within the Morningstar Institutional category over the period. The Universe Median reflects the median return and the Universe 25th reflects the corresponding percentile return over that period. Where the boxes are marked green, the passive fund beat both the median and 25th-percentile return. Where highlighted yellow, the passive strategy beat only the median, and where highlighted red, it lagged both the median and the 25th-percentile return.

The first observation is that even before accounting for taxes, the past decade was very difficult for active managers. The median active manager return failed to outperform a passive proxy on a pre-tax basis in each style box. After-tax, the top 25th-percentile managed to outperform the passive proxy in only two of the nine style boxes.

Five-year data show a slight improvement for active management before tax (only active large-cap value and small-cap value medians beat the passive proxies), but the data still support passive investment. None of the active medians outpaced passive strategies after-tax, and in only four of the nine segments did the active 25th-percentile win out. The five-year window also brings microcap into the fold, which is an important component because active alpha theoretically should be easier to produce in this very illiquid asset class. However, when accounting for taxes, this hypothesis is ultimately proved untrue, with the passive option performing in-line with the median for the universe over a five-year period. Going back further, one could theoretically use the DFA Microcap fund as a passive proxy for the space. The same story holds, with DFA reflecting 26th-percentile and

45th-percentile after-tax returns over the trailing 10 and 15 years, respectively.

Fifteen-year data exist for only the large-cap, mid-cap core, and small-cap style boxes, but the general theme remains the same. The median for every style box except for large-cap growth lags the passive option. The outperformance of large-cap growth is curious and also brings the variable of survivorship bias into the equation, tilting the scales even further in favor of passive. Many large-cap

Table 1: U.S. Style Box 10 Years Before Tax (Morningstar Institutional Universe)

	Return	Value	Core	Growth
Large	Vanguard MF	7.4%	8.0%	7.9%
	Percentile	48%	19%	44%
	Universe Median	7.3%	7.2%	7.5%
	Universe 25th %	8.1%	7.8%	8.7%
Mid	iShares ETF	10.1%	10.1%	9.5%
	Percentile	21%	33%	43%
	Universe Median	9.1%	9.6%	9.4%
	Universe 25th %	10.0%	10.3%	10.4%
Small	Vanguard MF	9.5%	10.2%	10.6%
	Percentile	41%	27%	24%
	Universe Median	9.2%	9.4%	9.5%
	Universe 25th %	10.1%	10.3%	10.5%
Microcap (5-Year)	iShares ETF		20.4%	
	Percentile		73%	
	Universe Median		21.7%	
	Universe 25th %		23.6%	
Source: Morningstar				

Table 2: U.S. Style Box 10 Years After Tax (Morningstar Institutional Universe)

	Return	Value	Core	Growth
Large	Vanguard MF	6.9%	7.7%	7.7%
	Percentile	27%	11%	33%
	Universe Median	6.1%	6.4%	6.8%
	Universe 25th %	7.0%	7.1%	8.0%
Mid	iShares ETF	9.5%	9.7%	9.4%
	Percentile	8%	18%	28%
	Universe Median	7.9%	8.4%	8.5%
	Universe 25th %	8.5%	9.4%	9.5%
Small	Vanguard MF	9.1%	9.9%	10.5%
	Percentile	20%	11%	9%
	Universe Median	7.7%	8.3%	8.5%
	Universe 25th %	8.9%	9.3%	9.6%
Microcap (5-Year)	iShares ETF		20.1%	
	Percentile		49%	
	Universe Median		20.0%	
	Universe 25th %		22.6%	
Source: Morningstar				

growth managers ceased operations following the burst of the tech bubble in the early 2000s, winnowing the universe substantially. According to a 2013 Vanguard study, when including those strategies that shuttered, the number of active large-cap growth funds that beat the index (not accounting for taxes) falls to less than 20 percent.

The second realization is that the passive funds are losing 10–60 bps to taxes on an annual basis, compared to 70–170 bps for active. This 60–110 bps difference is at the lower end of the academic research expectations but still within the assumed range. Other academic theories validated by the empirical data included that value managers tend to be less tax efficient than growth managers (Brunel 2000). The opposite was reflected in the empirical data of Longmeier and Wotherspoon (2006), who conceded this likely was due to an anomaly attributable to the high capital gains that growth managers realized during the late 1990s; Longmeier and Wotherspoon (2006, 4) state, "Notably, in 2001 and 2002, growth stocks produced negative returns, but tax laws do not allow mutual funds to distribute their losses, forcing any tax benefit to be deferred." That anomaly aside, value should be less efficient. Value stocks normally carry a higher dividend yield compared to growth stocks over time, which are taxable. Furthermore, value managers by definition should suffer from greater turnover because value stocks that graduate to growth must be sold, whereas growth managers that are not valuation-conscious can own growth almost indefinitely.

Our data do not prove that passive large-cap funds are more efficient than passive small-cap funds. Theoretically, passive large-cap managers should be more efficient because passive small-mid-cap managers are forced to sell stocks as they graduate up the market-cap spectrum, resulting in greater turnover. Longmeier and Wotherspoon (2006) showed that turnover's inverse relationship to after-tax returns was pervasive, explaining nearly 50 percent of tax-alpha variation. The empirical data, however, showed no notable difference in tax cost between large- and small-cap passive investments. This is possibly explained by the concept of "good turn-

over" and "bad turnover" (Bouchey 2010, 5). Graduation up the cap spectrum that generates long-term rather than short-term gains is considered good turnover. Furthermore, since, on average, more small-cap compa-

nies fail, their relegation out of small cap can trigger tax-efficient capital losses.

Findings: International Equities
International style boxes are a relatively new

Table 3: International 10 Years Before Tax (Morningstar Institutional Universe)		
	Return	**Core**
International Large	Vanguard MF	7.3%
	Percentile	41%
	Universe Median	7.0%
	Universe 25th %	8.1%
Emerging Markets	Vanguard MF	10.4%
	Percentile	48%
	Universe Median	10.4%
	Universe 25th %	11.8%
Europe	Vanguard MF	7.4%
	Percentile	52%
	Universe Median	7.4%
	Universe 25th %	10.2%
Pacific Asia ex Japan	iShares ETF	11.1%
	Percentile	54%
	Universe Median	11.2%
	Universe 25th %	12.7%
Source: Morningstar		

Table 4: International 10 Years After Tax (Morningstar Institutional Universe)		
	Return	**Core**
International Large	Vanguard MF	6.6%
	Percentile	33%
	Universe Median	5.7%
	Universe 25th %	7.0%
Emerging Markets	Vanguard MF	10.0%
	Percentile	27%
	Universe Median	9.1%
	Universe 25th %	10.1%
Europe	Vanguard MF	6.7%
	Percentile	44%
	Universe Median	6.3%
	Universe 25th %	8.6%
Pacific Asia ex Japan	iShares ETF	10.0%
	Percentile	39%
	Universe Median	9.6%
	Universe 25th %	11.3%
Source: Morningstar		

phenomenon, with passive style options arising only within the past five years. However, international large, emerging market, and regional proxies have been around for much longer. Table 3 shows pre-tax returns for the 10-year period ending December 2013.[5] Table 4 shows after-tax data.

The takeaways are similar to that in the United States, although to a slightly lesser degree. Passive still beats the after-tax medians across the board but generally lags the top 25th-percentile active managers, reflecting greater potential for active-manager alpha generation. This relationship persists for five- to 15-year periods for international large and emerging markets, where there is sufficient data for longer-term review.

Findings: Fixed Income and Other Equities

We reviewed similar data for fixed income and nontraditional equities but found either lacking passive proxies or insufficient history. For the fixed income universes, this is likely due to the scarcity of pure passive solutions because most passive options reflect some degree of universe sampling. The aggregate bond universe, for example, represents more than 8,000 bonds. Most passive managers own only a fraction of the securities, in effect becoming active managers themselves. In the few areas where passive-esque options did have a long-enough track record, pre/post-tax returns varied little between active and passive. Intuitively, this makes sense because most of the return comes via coupon and not via capital appreciation (which is where passive can widen the gap via lower/smarter turnover).

Elsewhere, the only notable findings were within U.S. real estate investment trusts (REITs). A Vanguard passive REIT fund provided returns that fell into the 45th, 33rd, and 36th percentiles over the trailing five-, 10-, and 15-year periods on an after-tax basis.

Unrealized Gains

One important component often noted by active managers is that passive funds offer more risk with respect to future distributions. That is, because passive funds are not realizing gains unless there is an index

Table 5: U.S. Style Box Potential Capital Gains (Morningstar Institutional Universe)

	Return	Value	Core	Growth
Large	Active (MF/ETF)	13%	16%	24%
	Passive Mutual Fund	34%	34%	28%
	Passive ETF	7%	15%	12%
Mid	Active (MF/ETF)	8%	19%	24%
	Passive Mutual Fund	22%	26%	11%
	Passive ETF	−10%	6%	−7%
Small	Active (MF/ETF)	16%	24%	22%
	Passive Mutual Fund	21%	21%	32%
	Passive ETF	11%	7%	18%
Microcap (5 Year)	Active (MF/ETF)		19%	
	Passive Mutual Fund		N/A	
	Passive ETF		−25%	

Source: Morningstar

Table 6: International Potential Capital Gains (Morningstar Institutional Universe)

	Return	Core
International Large	Active (MF/ETF)	−13%
	Passive Mutual Fund	11%
	Passive ETF	5%
Emerging Markets	Active (MF/ETF)	−2%
	Passive Mutual Fund	−2%
	Passive ETF	−21%
Europe	Active (MF/ETF)	−3%
	Passive Mutual Fund	2%
	Passive ETF	0%
Pacific Asia ex Japan	Active (MF/ETF)	2%
	Passive Mutual Fund	−1%
	Passive ETF	−9%

Source: Morningstar

change, they accrue long-term capital gains that they will have to pay out eventually. Because active managers distribute realized gains more consistently, they have fewer unrealized gains to carry forward. In practice, this theory holds only partially true.

When discussing mutual funds alone, it is true that active funds carry far fewer unrealized gains. In tables 5 and 6, there are only a few anomalies (mid growth and small core) where the average passive mutual fund has less potential capital gains exposure.[6] When factoring ETFs into the fold, however, that changes dramatically due to the inherent tax efficiency of an ETF's in-kind creation/redemption process.

In short, unlike mutual funds that have to buy and sell securities to meet investor contributions/redemptions, ETFs have the ability to receive and deliver shares in kind, often choosing to deliver their lowest cost-basis shares during creation and highest cost-basis shares during redemption. This allows some ETFs to not distribute capital gains at all and accrue very little gain regardless of the market environment.

Conclusion

The generally accepted passive argument subscribes to the following hypothesis: Use cheap passive options for your portfolio's beta (generally U.S. large-cap stocks) and use active managers in less-efficient areas, such as U.S.

small-cap and emerging markets. In practice, when accounting for taxes, fewer asset classes lend themselves to the "less efficient" moniker. Bringing potential for capital gains into the discussion only enhances the argument for passive if expressed through ETFs. As has been echoed by academic research over the past 30+ years: "Taxes matter." ●

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References

Arnott, Robert, Andrew Berkin, and Jia Le. 2001. Loss Harvesting: What's It Worth to the Taxable Investor? *Journal of Wealth Management* 3, no. 4 (spring): 10–19.

Bouchey, Paul. 2010. Tax-Efficient Investing in Theory and Practice. White paper, Parametric (spring). http://www.parametricportfolio.com/wp-content/uploads/2010/09/TaxEfficient-Investing-Theory-and-Practice_2010_New.pdf.

Brunel, Jean L. P. 2000. Tax-Aware Equity Investing. *AIMR Conference Proceedings. Investment Counseling for Private Clients II* (August): 50–57. http://www.cfapubs.org/doi/pdf/10.2469/cp.v2000.n3.3020.

Jeffrey, Robert H., and Robert Arnott. 1993. Is Your Alpha Big Enough to Cover Its Taxes? *Journal of Portfolio Management* 19, no. 3 (spring): 15–25.

Longmeier, Geoff, and Gordon Wotherspoon. 2006. The Value of Tax Efficient Investments: An Analysis of After-Tax Mutual Fund and Index Returns. *Journal of Wealth Management* 9, no. 2 (fall): 46–53.

Luck, Christopher G. 2000. Tax-Advantaged Investing. *Investment Management Reflections*. FirstQuadrant L.P. no. 4.

Quisenberry, C.H. 2003. Optimal Allocation of a Taxable Core and Satellite Portfolio Structure. Parametric Portfolio Associates (April): 1–11. http://www.parametricportfolio.com/wp-content/uploads/2010/09/core_satellite_allocation.pdf.

Endnotes

1. Morningstar revised its after-tax methodology to reflect the Securities and Exchange Commission (SEC) guidelines and has revised it several times since to reflect changes in the tax code. The pre-liquidation return reflects the tax effects of fund distributions, such as short-term capital gains, long-term capital gains, and dividends. Shareholders must pay tax on any distributions they receive from the fund in the year in which those payments are distributed. The pre-liquidation after-tax return does not reflect the capital gains/losses that investors might incur from selling the fund at the end of the time period. Morningstar also refers to this measure as "Return after Tax on Distributions." Read the full "Morningstar Definitions of Pre-Liquidation After-Tax Return" at http://corporate.morningstar.com/US/documents/MethodologyDocuments/MethodologyPapers/MorningstarAfterTaxReturn_Methodology.pdf.

2. Morningstar Direct was used as the engine of this analysis. Institutional categories were filtered to include only funds without a front- or back-end load (loads are counted in after-tax returns) and the oldest share class of those funds, in order to avoid double counting for multiple share classes.

3. Separate account tax-managed accounts generate tax alpha by investing in a subset of a passive index stocks and then generating alpha by realizing losses in like stocks (i.e., sell Pepsi and buy Coke when there is a potential loss). A client's tolerance for tracking error (i.e., performance/volatility dispersion vs. an underlying benchmark) can play a significant role in the level of tax alpha.

4. Vanguard Investor Share class mutual funds were used as proxies for large- and small-cap passive mutual funds. iShares Russell Mid cap and iShares Russell microcap ETFs were used as proxies for mid and micro due to no corresponding Vanguard proxy. The microcap style box reflects only a five-year return because no purely passive investment has more than a 10-year track record. We found that pre- and after-tax returns for the ETF and Vanguard mutual funds were substantially similar over common timeframes.

5. Vanguard Investor Share class mutual funds were used as proxies for international large, emerging markets, and Europe. The iShares MSCI Pacific ex-Japan ETF was used for Asia Pac/ex Japan due to the lack of a corresponding Vanguard proxy.

6. These numbers reflect the average potential capital-gains exposure of the funds in Morningstar Institutional Universes as defined by endnote 2. Morningstar defines potential capital gains exposure in the following way: "Potential capital gain exposure measures how much the fund's assets have appreciated, and it can be an indicator of possible future capital gain distributions. Morningstar calculates potential capital gain exposure (PCGE) to give investors some idea of the potential tax consequences of their investment in a fund. PCGE measures the gains that have not yet been distributed to shareholders or taxed. It is especially relevant for investors who are considering a new purchase of a fund. If a lot of gains are embedded in the fund, the investor potentially may receive capital-gain distributions for gains that happened before they purchased the fund. A positive PCGE means that the fund's holdings generally have increased in value. So, a high PCGE can indicate the potential for upcoming capital-gain distributions. A negative PCGE means that the fund has reported losses on its books. The fund may be able to use those losses to offset future gains, thereby reducing the possibility of a capital-gain distribution. Thus, investors should expect funds with negative capital-gain exposure to be highly tax-efficient going forward."

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ACTIVE SHARE UPDATE:

Choices Abound in Active and Passive

By Adam Calamar, CFA®

Passively managed equity funds have exploded in popularity in recent years, thanks to the perception that they charge low fees while providing market returns with market risk. The true story is much more complicated, because performance, fees, and portfolio turnover can vary widely among funds billing themselves as "passively managed." Investors need to look beneath the hood and make sure the strategy they seek is the strategy they get.

What Is Active Share?

Active share is a metric that quantifies the size of the bet that active managers are taking relative to their benchmarks. Active share looks at portfolio holdings (stocks, bonds, etc.) and how they differ from the holdings of the benchmark index. For example, are there stocks in the manager's fund that aren't in the index? Are there larger or smaller weights in certain stocks compared to the weights of those same stocks in the index? The active share of a portfolio may vary from zero percent for an index fund that exactly mirrors the benchmark to 100 percent for a portfolio with no overlap. In short, active share focuses on stock selection—the conviction of a manager to veer away from the weightings of the index.

Active Share Revisited

In 2010, Jensen published a white paper titled "Mutual Funds through the Lens of 'Active Share'" (Mertens and Calamar 2010). In this paper, we explored active share, a novel metric for evaluating mutual fund managers based on the similarities between their portfolio holdings and the stock market index the fund uses as a benchmark. Active share enables investors to determine

Figure 1: Total Assets—Active and Passive Funds (U.S. Open-Ended Mutual Funds and ETFs), as of December 31, 1993–December 31, 2012

Source: Morningstar
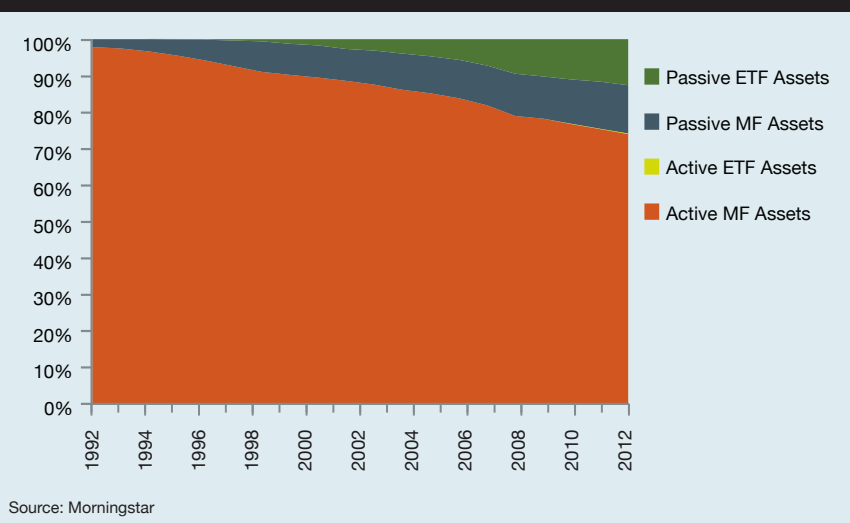
if an investment manager is truly investing with conviction or merely copying an index, also known as "closet indexing."

What differentiates a passive strategy from an active one? Generally speaking, a passive fund tries to replicate the performance and characteristics of a stock market index. Actively managed funds seek to outperform an index through portfolio management decisions, such as stock selection and/or risk management. Importantly, investors considering both types of strategies need to ensure they know which active funds aren't truly active and which passive funds aren't truly passive.

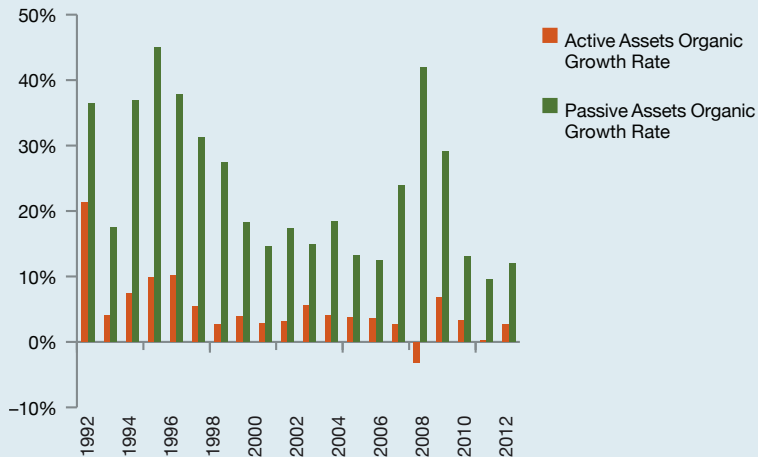## The Growth of Passively Managed Funds

As shown in figure 1, passive funds have grown considerably as a percent of total fund assets, though the marketplace is still dominated by traditional actively managed funds. Exchange-traded funds (ETFs) have become a popular passive fund vehicle, though they have yet to catch on with actively managed funds. This is likely because ETFs are required to make daily holdings disclosures, which some active fund managers balk at supplying due to the fear that another fund manager might deduce and copy their strategy. Further, performance trends from active ETFs have not been encouraging, although it is still in the early days and relatively few active ETF offerings are available (Rompotis 2009).

Despite lower market share, passive funds have grown considerably faster than active funds. The annual organic growth rates (or, growth in assets excluding larger market movements) for passive funds are more than double the rate of active funds (see figure 2).

Figure 2: Annual Organic Growth Rate—Active and Passive Funds (U.S. Open-Ended Mutual Funds and ETFs), as of December 31, 1993–June 30, 2013

Source: Morningstar

These impressive growth rates leave little doubt that passively managed funds are hugely popular. Not surprisingly, investors are now inundated with choices, many of which, upon closer inspection, present nothing that is really new or different. Often, fund companies are simply shouting "me too," and marketing products with little or no differentiation.

To sell passively managed funds, a false dichotomy is often presented to investors—the idea that one can either invest in a solely active or passive manner, as if these options are mutually exclusive. Upon closer inspection, we believe that these approaches are not as irreconcilable as they might seem.

The Case for Passive Investing
The primary argument for passive investing is that the higher fees charged by active managers are not justified because active managers, on average, do not consistently outperform their benchmark indexes after fees and expenses are considered. In a vacuum, this argument is valid until we consider that even the most perfectly managed passive fund, one that delivers a precise market return, is guaranteed to underperform if it charges even $0.01 in fees or expenses. Active funds, on the other hand, at least have the possibility of outperforming the index.

Another factor driving the perceived superiority of passive management is the phenomenon known as "performance chasing." When investors withdraw money from active managers who fail to beat their benchmarks, they frequently invest the proceeds with managers that have provided better returns, often on a short-term basis (Phillips et al. 2013; Bagnoli and Watts 2000). The most damaging consequence of chasing performance is that, because very few (if any) managers outperform in every market environment, performance chasers can end up buying high and selling low. Once their new investment manager's performance slips (as market conditions change), they lose faith and move on to the next "hot" investment opportunity. Performance chasing thus contributes to the perception that the average active manager underperforms because the calculations of "averages of all active managers" are typically dollar-weighted and these popular, over-bought funds receive the highest weights.

Additionally, it is difficult to get a handle on how active an active manager really is without inspecting their portfolio holdings. A number of self-described active managers are really closet indexers, constructing portfolios with a large number of stocks that differ very little from those in the index. If these closet indexers are included

in the sum of active managers, they will lower the average outperformance and further support the claim that "the average active manager does not outperform."

Performance Considerations
Taken together, this evidence may explain why researchers have found that some active managers, particularly the most concentrated, high-conviction managers, actually have outperformed the index over time, even after fees (Cohen et al. 2009; Kacperczyk et al. 2005; Di Mascio 2013; Williams 2013; Cremers and Petajisto 2009; Petajisto 2013).

Mertens and Calamar (2010) highlighted research from Cremers and Petajisto (2009), which suggested that high-conviction active managers outperform over time and low-conviction closet indexers tend to trail their benchmark indexes. Petajisto (2013) found that the most active funds outperformed their benchmarks after all fees and expenses while closet indexers did not, and that these patterns held up across different time periods and within different market capitalization strategies.

Despite these findings, Petajisto (2013) also found that closet indexing has become more popular over time, especially with larger funds and during times of high volatility. This may explain why the average mutual fund in his study underperformed, even though the most active funds outperformed.

Looking at a large pool of mutual funds, divided up not by active share but simply by those managers describing themselves as active or passive, we reached conclusions similar to Petajisto (2013), Mertens and Calamar (2010), and those of other academic researchers.[1]

Figure 3 shows the best and worst actively managed funds—and an interesting pattern emerges. In figure 3, we see that the best and worst active funds, measured by their respective top and bottom deciles, are fairly evenly spaced above and below their benchmarks. In other words, they outperform and underperform with about the
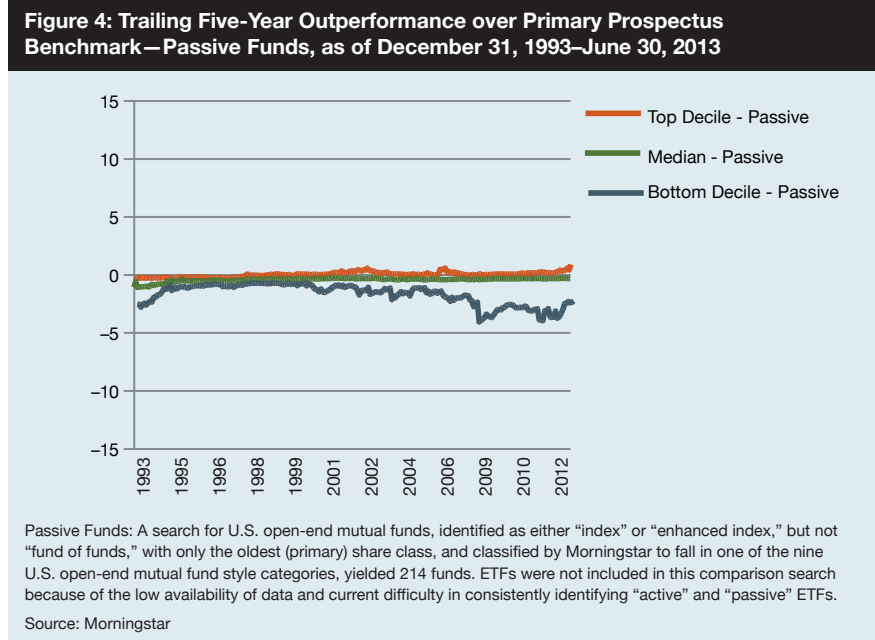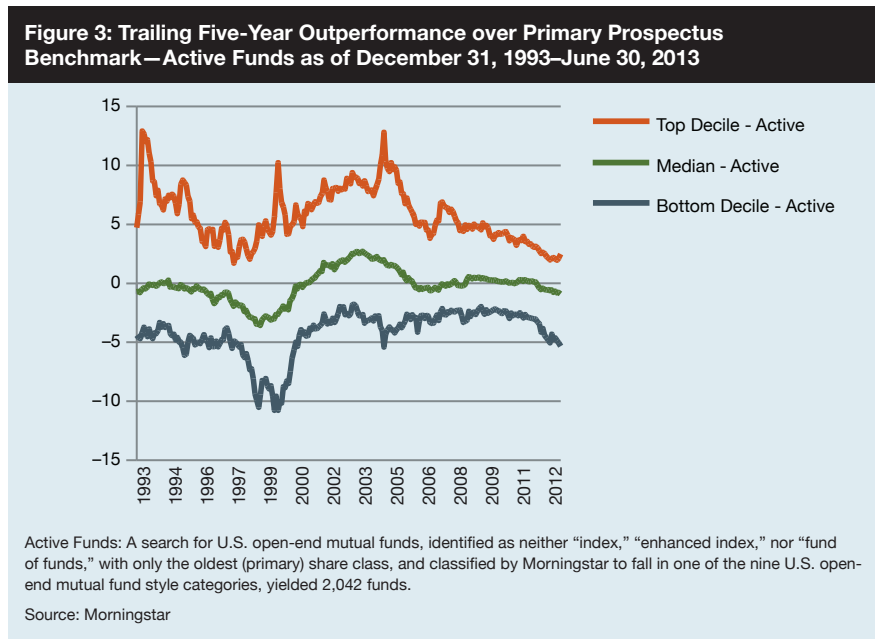
same levels of magnitude. For passive funds, however, things look quite different (see figure 4).

Interestingly, while the best passive funds might barely beat their benchmarks (usually by deviating from the benchmark holdings), the worst passive funds tend to fall significantly short of their benchmarks. We attribute this to the recent introduction of a variety of higher-fee passive funds, as well as the popularity (and overcrowding) in the passive fund marketplace. Taken together, the largest passive funds are finding it increasingly difficult to trade their positions efficiently: As fund sizes increase (the top three passive funds in our search each have assets well in excess of $100 billion) it becomes more difficult for the fund to manage liquidity and trading (Chen et al. 2004).

While the same trading issues affect large active funds, active managers have more options. For example, they can spread liquidity by investing in more stocks, trade their positions more slowly, or simply choose not to buy a stock (passive funds are required to buy a new stock when it is added to an index), making it more difficult for other investors to predict their trades and front-run those funds.

Arguably, the most important issue to note is that the performance differences between active and passive managers can be substantial. As shown in figures 3 and 4, the median passive fund slightly underperformed its benchmark due to fees, generally speaking. But an active fund can substantially beat or miss its benchmark based on the manager's skill and/or if the fund's holdings vary meaningfully from its benchmark.

While departing from an index can lead to short-term periods of relative underperformance, most active managers' ultimate goal is to beat the benchmark over the long run. At Jenson, we believe that by building a high-conviction portfolio of high-quality companies, we can help investors preserve more capital during market downturns. Our approach to active management differs from many of our riskier peers, but there is a growing body of evidence suggesting that outper-

Figure 3: Trailing Five-Year Outperformance over Primary Prospectus Benchmark—Active Funds as of December 31, 1993–June 30, 2013

Active Funds: A search for U.S. open-end mutual funds, identified as neither "index," "enhanced index," nor "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 2,042 funds.

Source: Morningstar

Figure 4: Trailing Five-Year Outperformance over Primary Prospectus Benchmark—Passive Funds, as of December 31, 1993–June 30, 2013

Passive Funds: A search for U.S. open-end mutual funds, identified as either "index" or "enhanced index," but not "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 214 funds. ETFs were not included in this comparison search because of the low availability of data and current difficulty in consistently identifying "active" and "passive" ETFs.

Source: Morningstar

formance by high-active-share managers comes primarily from the same downside protection we seek to achieve (Williams 2013).

Therefore, investors must decide if the potential to outperform a benchmark over the long term justifies the higher fees charged by active managers. For most investors, these decisions cannot simply be made in a vacuum, as asset allocation among different strategies and asset classes requires careful thought, planning, and

customization for each investor's needs, goals, and risk tolerance.

Passive Funds Are Not Always Passive; Active Funds Are Not Always Active

Due to the variety of funds available, it can be difficult for investors to navigate the plethora of investing options: Morningstar, for example, currently identifies 76 different passively managed mutual funds benchmarked to the S&P 500 index.[2]

Proving that index funds are not always inexpensive, the net expense ratio for these 76 funds ranges from a low of 0.04 percent to a high of 1.90 percent, with a median of 0.40 percent. Further, these funds range substantially in their investing behavior with the most concentrated 10 percent of them having fewer than 115 holdings (median 503), and the 10 percent that trade the most have more than 130-percent portfolio turnover[3] (median 7 percent). Clearly, some of these funds do not passively mirror the S&P 500 Index. Rather, there is a wide variety of funds, and some utilize enhanced indexing strategies in an effort to (slightly) outperform their benchmarks and thus justify their fees and expenses.

Likewise, the choices aren't much clearer for actively managed funds. Morningstar identifies 538 different actively managed mutual funds benchmarked to the S&P 500 index,[4] with expense ratios from as low as 0.12 percent to as high as 6.14 percent, with a median of 1.15 percent. These funds have highly diverse holdings, with the least concentrated 10 percent of funds holding more than 208 securities (most likely the closet indexers), and the most concentrated 10 percent of funds holding fewer than 32 (median 58). Trading activity is similarly varied: The top 10 percent have turnover of more than 115 percent and the bottom 10 percent have turnover of less than 11 percent (median 41 percent).

Overall, regardless of the funds' stated strategies, their expenses, diversification, and trading activity vary greatly. Just because a fund calls itself "passive" does not mean it is inexpensive or well-diversified. Likewise, just because a fund calls itself "active" does not mean that it is going to be significantly different from an index.

To their detriment, many investors don't examine closely enough the characteristics of the funds they place in their portfolios, and often either simply buy a popular index fund or jump from one active fund to the next in the vain hope that they will eventually catch the performance they doggedly pursue.

Figure 5: Net Expense Ratios—Active Funds and Passive Funds, as of December 31, 2012
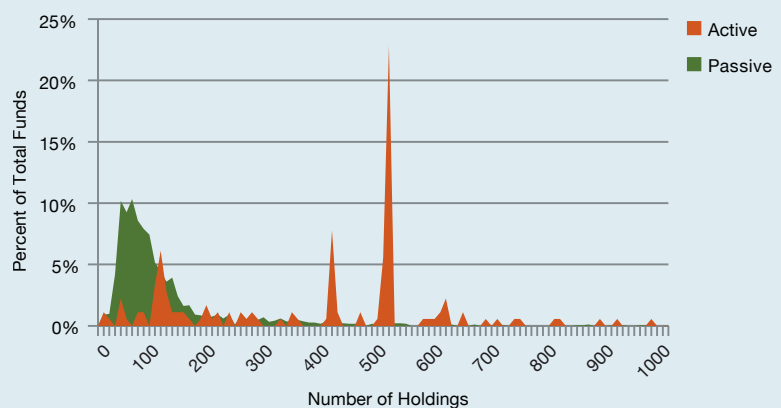
Active Funds: A search for U.S. open-end mutual funds, identified as neither "index," "enhanced index," nor "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 2,042 funds.

Passive Funds: A search for U.S. open-end mutual funds, identified as either "index" or "enhanced index," but not "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 214 funds. ETFs were not included in this comparison search because of the low availability of data and current difficulty in consistently identifying "active" and "passive" ETFs.

Source: Morningstar

Figure 6: Number of Holdings as of December 31, 2012—Active Funds and Passive Funds

Active Funds: A search for U.S. open-end mutual funds, identified as neither "index," "enhanced index," nor "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 2,042 funds.

Passive Funds: A search for U.S. open-end mutual funds, identified as either "index" or "enhanced index," but not "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 214 funds. ETFs were not included in this comparison search because of the low availability of data and current difficulty in consistently identifying "active" and "passive" ETFs.

Source: Morningstar

Do Passive Funds Provide Good Diversification?

One great virtue of passive investing is that it provides a low-cost method for investors to diversify their portfolios.
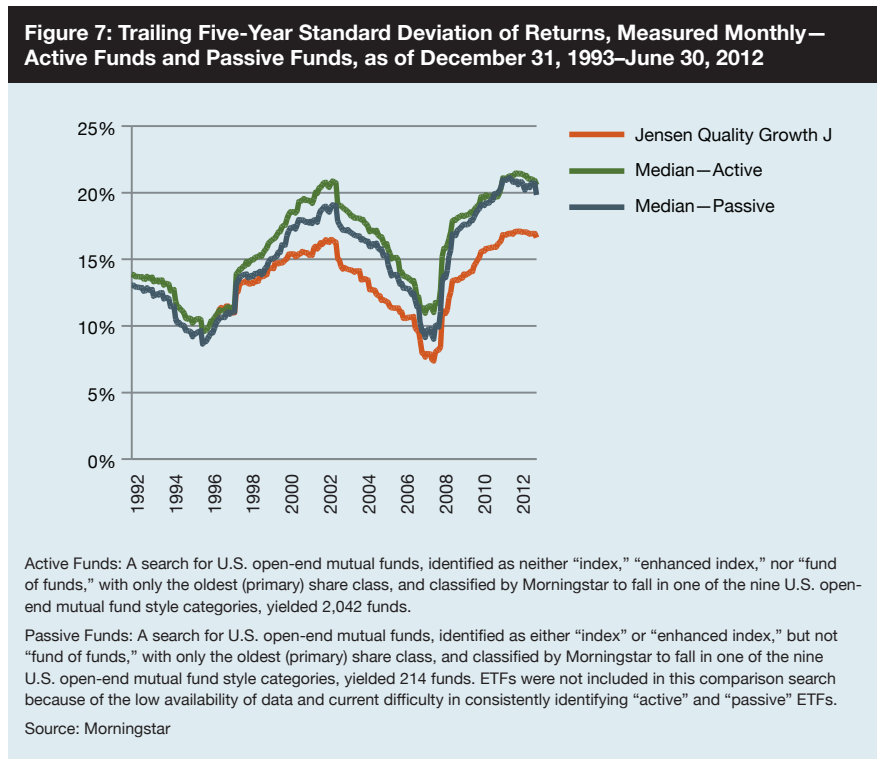
Prior to the availability of index funds, investors would have to incur significant trading and portfolio management costs if they wanted to own every stock in an index.

However, the benefits from diversification only apply if the stocks are not perfectly correlated. If an index fund has 500 stocks that are less than perfectly correlated, the theory goes, the investor will achieve the average return of those stocks but with below-average risk—with risk defined simply as the standard deviation (volatility) of returns (Elton and Gruber 1977).

As always, there are some differences between theory and practice: The theory of diversification is based on random, equally weighted stock selection. However, in practice this is not the case because index funds are almost always weighted based on company size, resulting in positions more heavily concentrated in larger companies. Further, the stocks are not selected at random for all indexes, particularly the S&P 500 Index and the Dow Jones Industrial Average, where the stocks are selected by committee vote.

Importantly, since the 2008 downturn, correlations have increased between stock returns and mutual fund returns, and between mutual fund returns and their benchmarks (Blanchett 2013). Many possible causes for this growing correlation have been investigated: increases in algorithmic trading, which now makes up about three-quarters of daily trading volume and can cause increased correlation among stocks (Huh 2011); increases in the popularity of index funds, which buy or sell all stocks in their index at once, pressuring prices upward or downward (Barberis et al. 2005); and spikes in overall stock market volatility, which tend to be associated with increased correlations. Recall that during the second half of 2008, correlations between many publicly traded asset classes (stocks, bonds, etc.) increased dramatically as investors sold whatever they could to seek the safety of cash (Philips et al. 2012).

Unfortunately, the higher the correlation between a fund's holdings, the smaller benefit the investor receives from diversification. As correlations approach 1.0, the index behaves more like a single stock. This is an important issue for many index funds, because researchers have found that as

Figure 7: Trailing Five-Year Standard Deviation of Returns, Measured Monthly—Active Funds and Passive Funds, as of December 31, 1993–June 30, 2012

Active Funds: A search for U.S. open-end mutual funds, identified as neither "index," "enhanced index," nor "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 2,042 funds.

Passive Funds: A search for U.S. open-end mutual funds, identified as either "index" or "enhanced index," but not "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 214 funds. ETFs were not included in this comparison search because of the low availability of data and current difficulty in consistently identifying "active" and "passive" ETFs.

Source: Morningstar

soon as a stock is added to a popular index, its correlation with that index increases substantially (Philips et al. 2012). If correlations continue to grow in times of trouble (economic or otherwise, and they certainly have in the past), then investors lose or reduce the benefit of diversification during the time when it is most needed.

Consequently, a highly diversified passive fund is not necessarily the path to a lower volatility portfolio; figure 7 shows there is little difference in the median standard deviation of returns between active funds and passive funds. Individual funds, however, can be found with lower volatility.

In general then, the diversification benefit from an index fund must come from the large number of holdings and not the absolute standard deviation. After all, if one of 500 companies fails, it should be less damaging to the portfolio than if one of only 50 companies fails. However, because indexes typically are not equally weighted, and the stocks are not randomly selected, this benefit is lessened if the company that falters happens to be one of the larger holdings in the index fund.

In many parts of the world, stock indexes, and even economies, can be dominated by a few large companies. In the S&P 500 Index, the five largest companies typically make up about 10 percent of the index's weight. In other indexes, however, particularly in emerging markets, the five largest companies can make up more than 40 percent of the index, and often these five companies are concentrated in the same industry or type of business as well. As such, blindly weighting indexes by company size can lead to reduced diversification and expose investors to significant single-company risk.

For example, at its peak in late 2012 Apple Inc. made up nearly 5 percent of the S&P 500 Index. Apple's stock price later declined, surprising many investors with the large impact that it had on these diversified index funds. Because index funds typically do not have any overlay of analysis or risk management, they always will be subject to this risk. Instead, we believe it is wiser to select a fund manager holding a smaller number of companies, but who understands each company thoroughly, and can actively manage risk, industry exposures, and individual company exposures.

Do Passive Funds Provide Greater Tax Efficiency?

In general, passive funds do tend to have lower tax costs than many active funds, especially if these funds are delivered in an ETF format instead of a traditional mutual fund. Compared with active funds, passive funds typically have lower portfolio turnover, as index constituents rarely change and generate fewer realized capital gains. ETF structures for passive funds enhance this advantage due to their immunity to the tax consequences of inflows and outflows. For example, if a mutual fund experiences a redemption, the fund typically must sell shares of the underlying stocks to fund the withdrawal, which may create a tax event for the other investors in the fund. In the case of an ETF, however, when one investor decides to redeem their shares, they simply sell the share of the ETF on the secondary market, and the tax event is experienced only by the single investor.

However, with regard to active funds as a whole, the picture can be brighter for long-term investors in certain active funds. There are many active funds available, including the Jensen Quality Growth Fund, offering relatively low portfolio turnover. The Fund's average turnover over its past five years is 16.13 percent. It may not be a surprise to learn that, due to the downturn in 2008, active managers actually have a lower median tax cost ratio over the past five years due to tax-loss carry forwards.

Final Thoughts

Passive strategies continue to gain popularity with investors, there is clearly an element of "you get what you pay for" across the spectrum of investing options. A passive fund may be less expensive than an active fund, but it may be limited in its ability to provide meaningful diversification, risk reduction, or additional tax benefits. Certainly there is very little chance that a passive fund is going to beat the market. Further, passive funds aren't exactly a set-it-and-forget-it investment option. Proper due diligence on the part of the investor is still required.

Meanwhile, academic research indicates that the once-maligned active funds actu-

Figure 8: Morningstar's Tax Cost Ratio—Active Funds and Passive Funds, as of December 31, 2012
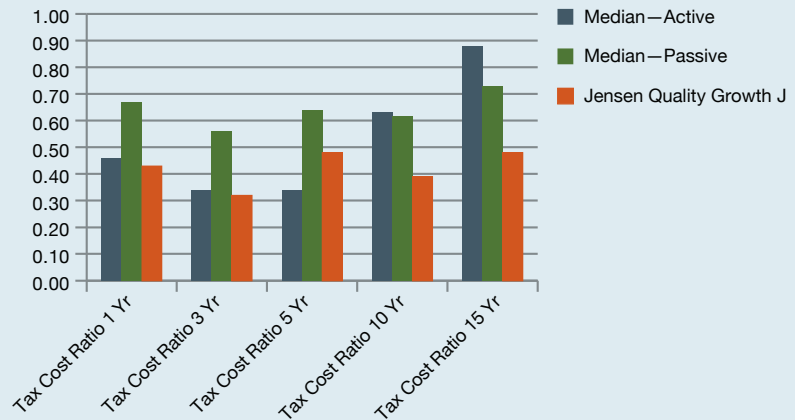
Note: The Morningstar Tax Cost Ratio measures how much a fund's annualized return is reduced by the taxes investors pay on distributions. Mutual funds regularly distribute stock dividends, bond dividends, and capital gains to their shareholders. Investors then must pay taxes on those distributions during the year they were received. Like an expense ratio, the tax cost ratio is a measure of how one factor can negatively impact performance. Also like an expense ratio, it is usually concentrated in the range of 0–5 percent. Zero percent indicates that the fund had no taxable distributions and 5 percent indicates that the fund was less tax efficient.

Active Funds: A search for U.S. open-end mutual funds, identified as neither "index," "enhanced index," nor "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 2,042 funds.

Passive Funds: A search for U.S. open-end mutual funds, identified as either "index" or "enhanced index," but not "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 214 funds. ETFs were not included in this comparison search because of the low availability of data and current difficulty in consistently identifying "active" and "passive" ETFs.

Source: Morningstar

Figure 9: Annual Portfolio Turnover—Active Funds and Passive Funds, as of December 31, 1993–December 31, 2012

Active Funds: A search for U.S. open-end mutual funds, identified as neither "index," "enhanced index," nor "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 2,042 funds.

Passive Funds: A search for U.S. open-end mutual funds, identified as either "index" or "enhanced index," but not "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 214 funds. ETFs were not included in this comparison search because of the low availability of data and current difficulty in consistently identifying "active" and "passive" ETFs.

Source: Morningstar

ally can be very good investments—lending credence to a truly active investment approach. As we have seen, many of the usual generalizations about active funds and passive funds may not hold up to closer inspection and depend greatly on the particular fund and how it is managed.

As a component of a larger portfolio, however, a passive fund may be an appropriate choice due to its low operating expenses. When combined with selected high-conviction active funds, active and passive funds can potentially be used to construct larger portfolios with relatively low correlation between different asset classes.

Irrespective of the fund type, both passive and active funds require the same level of due diligence, thanks to the vast universe of funds available. It is possible, however, to find those diamonds in the rough: active funds with a consistent investment strategy, a high-conviction philosophy, a long track record, an experienced management team, reasonable fees, and long-term returns above the benchmark.

Not all active strategies may fit this bill, nor will they be appropriate for all investors. At Jensen we believe that our high-conviction Quality Growth Fund's portfolio of 25 to 30 quality businesses can provide long-term capital appreciation with less risk than the broader market. In particular, we believe that our focused, low-volatility strategy can potentially reduce risk and preserve more capital during market downturns.

In addition, individual business risk is reduced and future opportunities are maximized by selecting companies with durable competitive advantages that consistently produce returns in excess of the cost of capital. By focusing on the long-term investment horizon, we believe we can minimize trading costs and tax events for our fund shareholders, and that our portfolio companies can deliver superior risk-adjusted returns to the long-term investor. ●

For more information, contact info@jenseninvestment.com.

Endnotes

1. A search for U.S. open-end mutual funds, identified as neither "index," "enhanced index," nor "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 2,042 funds.
2. A search for U.S. open-end mutual funds, identified as either "index" or "enhanced index," but not "fund of funds," with only the oldest (primary) share class, and classified by Morningstar to fall in one of the nine U.S. open-end mutual fund style categories, yielded 214 funds. ETFs were not included in this comparison search because of the low availability of data and current difficulty in consistently identifying "active" and "passive" ETFs.
3. Turnover is a measure of a fund's trading activity, which is calculated by taking the lesser of the fund's purchases or sales (excluding all securities with maturities of less than one year, i.e., cash) and dividing by average monthly net assets. The resulting percentage approximates the percentage of the portfolio's holdings that have changed over the past year; however, a turnover ratio of 100 percent or more does not necessarily suggest that all securities in the portfolio have been traded. Morningstar gathers turnover ratios directly from each fund's annual report.
4. See endnote 1.

References

Bagnoli, Mark E., and Susan G. Watts. 2000. Chasing Hot Funds: The Effects of Relative Performance on Portfolio Choice. *Financial Management* 29, no. 3 (autumn). http://ssrn.com/abstract=267743.

Barberis, Nicholas, Andrei Shleifer, and Jeffrey Wurgler. 2005. Comovement. *Journal of Financial Economics* 75, no. 2: 283–317.

Blanchett, David. 2013. Are Active Mutual Funds Becoming Less Active? *Journal of Indexes* 16, no. 2 (March/April): 40–43. http://www.indexuniverse.com/publications/journalofindexes/joi-articles/16022-are-active-mutual-funds-becoming-less-active.html.

Chen, Joseph S., Harrison G. Hong, Ming Huang, and Jeffrey D. Kubik. 2004. Does Fund Size Erode Mutual Fund Performance? The Role of Liquidity and Organization. *American Economic Review* 94, no. 5 (December): 1,276–1,302.

Cohen, Randy, Christopher Polk, and Bernard Silli. 2009. Best Ideas (March 15). http://ssrn.com/abstract=1364827.

Cremers, Martijn, and Antti Petajisto, 2009. How Active Is Your Fund Manager? A New Measure That Predicts Performance. *Review of Financial Studies* 22, no. 9 (September): 3,329–3,365.

Di Mascio, Rick. 2013. Research Paper 07 – Client Inspired Research. http://www.inalytics.com/industry-insight/.

Elton, E. J., and M. J. Gruber. 1977. Risk Reduction and Portfolio Size: An Analytic Solution. *Journal of Business* 50, no. 4 (October): 415–437.

Huh, Yesol. 2011. Algorithmic Trading and Liquidity Commonality. Stanford Graduate School of Business (December 1). http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2337523.

Kacperczyk, Marcin, Clemens Sialm, and Lu Zheng. 2005. On Industry Concentration of Actively Managed Equity Mutual Funds. *Journal of Finance* 60, no. 4 (August): 1,983–2,011.

Mertens, Dave, and Adam Calamar. 2010. Mutual Funds through the Lens of "Active Share." Jensen Investment Management (May). https://www.jenseninvestment.com/files/7913/3217/6311/Mutual_Funds_through_the_Lens_of_Active_Share.pdf.

Petajisto, Antti. 2013. Active Share and Mutual Fund Performance (January 15). http://ssrn.com/abstract=1685942.

Philips, Christopher, David Walker, and Francis Kinniry, Jr. 2012. Dynamic Correlations: The Implications for Portfolio Construction. Vanguard Research (April). https://pressroom.vanguard.com/nonindexed/dynamic_correlations.pdf.

Phillips, Blake, Kuntara Pukthuanthong, and Raghavendra Rau. 2013. Do Mutual Fund Investors Chase False Returns? (October). http://ssrn.com/abstract=2168768.

Rompotis, Gerasimos Georgiou. 2009. Active vs. Passive Management: New Evidence from Exchange Traded Funds (February 4). http://ssrn.com/abstract=1337708.

Williams, Tina B. 2013. Is Active Equity Management Alpha on Permanent or Temporary Disability? FIS Group. http://www.fisgroup.com/Content/Files/PDFDocs/ActiveEquityManagement.pdf.

Disclosures

The Fund's investment objectives, risks, charges, and expenses must be considered carefully before investing. The prospectus contains this and other important information about the investment company, and it may be obtained by calling 1-800-992-4144, or by visiting www.jenseninvestment.com. Read it carefully before investing.

All factual information contained in this paper is derived from sources which Jensen believes are reliable, but Jensen cannot guarantee complete accuracy.

Any charts, graphics, or formulas contained in this piece are only for the purpose of illustration. The views of Jensen Investment Management expressed herein are not intended to be a forecast of future events, a guarantee of future results, nor investment advice. Diversification does not assure a profit or protect against a loss in a declining market. Past performance does not guarantee future results.

The Jensen Quality Growth Fund is non-diversified, meaning that it may concentrate its assets in fewer individual holdings than a diversified fund, and therefore is more exposed to individual stock volatility than a diversified fund.

Investing involves risks; loss of principal is possible. The Jensen Quality Growth Fund did not hold any shares of Apple, Inc. as of 12/31/2013.

The S&P 500 Index is a market value weighted index consisting of 500 stocks chosen for market size, liquidity, and industry group representation. The Index is unmanaged, and one cannot invest directly in the Index.

The Dow Jones Industrial Average: (DJIA) The average price of 30 selected industrial stocks, often used as a measure of general market trends.

Standard Deviation: Is applied to the annual rate of return of an investment to measure the investment's volatility.

Active Share: The greater the difference between the asset composition of the fund and its benchmark, the greater the active share.

Correlation: Statistical measure of how two securities move in relation to each other.

Active investing generally has higher management fees because of the manager's increased level of involvement while passive investing generally has lower management and operating fees. Investing in both actively and passively managed mutual funds involves risk, and principal loss is possible.

Both actively and passively managed mutual funds generally have daily liquidity. There are no guarantees regarding the performance of actively and passively managed mutual funds. Actively managed mutual funds may have higher portfolio turnover than passively managed funds. Excessive turnover can limit returns and can incur capital gains.

Exchange-Traded Funds (ETF's) are securities that track an index, a commodity or basket of assets like an index fund, but trade like a stock on an exchange. ETF's experience price changes throughout the day as they are bought and sold. Mutual Funds are structured and maintained to match their investment objectives and generally are priced and traded only once a day at the market close. ETF's may have lower expenses than a mutual fund, and both generally offer daily liquidity. There are no guarantees regarding the performance of Mutual Funds or ETF's. Tax features may vary based on individual circumstances. Consult a tax professional for further guidance.

Jensen Investment Mangement is the adviser to the Jensen Quality Growth Fund which is distributed by Quasar Distributors, LLC.

PASSIVE AND FUNDAMENTAL INDEX INVESTING:
A Factor Analysis

By Tom Goodwin, PhD

nterest in passive investing has risen in recent years. Many investors, increasingly cost-sensitive in the wake of the financial crisis, are not convinced that active management will deliver excess returns, net of fees, over their benchmarks. Passive investing traditionally has focused on replicating cap-weighted benchmark indexes, either through index mutual funds, exchange-traded funds (ETFs), or the creation of matching in-house portfolios. Cap-weighted indexes provide cost-effective exposure to various segments of the equity market with a high degree of liquidity and capacity. This assures investors of a return that closely tracks the broad equity market at a low cost.

Parallel to investors' increased interest in passive investing has been the growth in numbers of indexes based on strategies that depart from those of cap-weighted indexes. These new indexes aim to incorporate exposures or strategies that typically are not available in cap-weighted indexes. Variously termed "strategy indexes," "smart beta indexes," or "alternative indexes," they make up a middle ground between the traditional opposites of passive and active investing. They are attractive for their low cost compared to actively managed funds, and for their ability to customize exposures and incorporate specific strategies, options that generally are not possible in traditional passive investing.

Among the most innovative of these smart beta strategy indexes are "fundamentally weighted indexes" (Arnott et al. 2005). The Russell Fundamental Index® methodology, which Russell developed in collaboration with Research Affiliates®, weights stocks by accounting measures such as sales revenue, cash flow, and dividends. The key characteristic of these weights is that the size of a company is measured without any direct link to current market price; see Russell (2012) for the precise construction methodology. This stands in sharp contrast to the standard practice of weighting the stocks in an index by capitalization as measured by current market price, i.e., cap weighting. As we shall see, fundamental indexes have a value tilt, but because the weights are divorced from current market prices, the result is a time-varying value strategy that is distinct from those characterizing traditional cap-weighted value indexes. This provides a complementarity that investors can exploit to diversify existing equity portfolios.

This article explores how an investor might combine cap-weighted and fundamental indexes to shape factor exposures that historically have improved the risk-return profile of the whole portfolio. The emphasis is on exploration, with no intention of arriving at a single optimal portfolio. To make the analysis more clear, we look at a hypothetical passive investor in U.S. equities who uses the Russell 3000 all-cap U.S. index as a benchmark. This investor is convinced by the extensive literature on the subject that long-term rewards are to be gained by tilting portfolios to value and small-cap factors (Fama and French 1992). The traditional approach to incorporating these views is to allocate portions of the portfolio to cap-weighted value and cap-weighted small-cap indexes. This article uses a factor analysis to show how, historically, Russell Fundamental Index strategies would have added new dimensions of diversification for this hypothetical investor.

The Fama-French-Carhart Four-Factor Model

The Fama-French-Carhart four-factor model is a workhorse in academic research. Fama and French (1992) extended the single-factor capital asset pricing model (CAPM) of Sharpe (1964) to include factors for both value and small cap. Carhart (1997) showed that a fourth factor—momentum—was an important explanation of stock returns as well.

The complete model is expressed as

$$Index - rf = a + b \times (Market - rf) + c \times SMB + d \times HML + e \times MOM + error, \quad (1)$$

where rf is the risk-free rate of financial theory, proxied by the one-month T-bill. $Market$ is the cap-weighted return of all the stocks on the NYSE, AMEX, and NASDAQ exchanges. SMB (small minus big) is the return to a portfolio of small-cap stocks minus the return to a portfolio of large-cap stocks, and thus is an estimate of how well the market rewards a tilt to small-cap stocks. Likewise, HML (high minus low) is the return to a portfolio of stocks with high book/price ratios minus the return to a portfolio of stocks with low book/price ratios. This too is an estimate of how well the market rewards a tilt to value stocks; see Fama and French (1993) for a detailed description of how the factors are constructed. MOM (momentum) is the return to a portfolio holding many of the previous 12 months' best-performing stocks minus the return to

a portfolio holding many of the previous 12 months' worst-performing stocks; see Carhart (1997) for details. The coefficients *b*, *c*, *d*, and *e* measure the exposures of the index to each factor. The contribution of the factor to the index return would then be the exposure times the market or factor rewards: $b \times (Market - rf)$, $c \times SMB$, etc.

The intercept of equation 1, *a*, plays an interesting role in this model. It is a systematic return that cannot be explained by the four factors. This could be due to value added or subtracted from the way the exposures change over time, or to exposures that are not in the model. Academic researchers call it "alpha" or "abnormal return," but practitioners tend to think of true alpha as being an additional return from active stock-picking insights, which cannot be indexed. For lack of a better term, we will call it "alpha" as well, but the reader should keep in mind that it is more realistically thought of as being a return that cannot be explained by the included factors.

All four factors are derived by use of cap-weighted methodologies, so we expect that they cannot capture all of the return variation in a Fundamental Index investment. This might show up in the estimated intercept as well as in a lower R-squared. In this analysis, that turns out to be the case. But before we get into the empirical results, a brief digression on the relationship between the Fundamental Index concept and traditional value indexes is in order.

The Fundamental Index Approach and Traditional Value Indexes
One of the knocks on the Fundamental Index construct is that it is just "old wine in a new bottle," i.e., merely a value index with

a new name (Asness 2006). To illustrate the logic behind this argument, we look at a very simple version of a fundamental index, one weighted solely by book value.[1]

The exact relationship between the fundamentals weight and the market-cap weight of a particular stock produces

$$W_{i,F} = W_{i,C} \; \frac{B_i/P_i}{B_m/P_m} \; , \qquad (2)$$

where $W_{i,F}$ is the fundamentals weight on stock *i*, $W_{i,C}$ is the market-cap weight on stock *i*, B_i/P_i is the book/price ratio of stock *i*, and B_m/P_m is the book/price ratio of the cap-weighted market.[2] Equation 2 shows that a stock will have a greater weight in a fundamental index than in the cap-weighted market if it has a high book/price ratio relative to the market cap-weighted average book/price ratio. Because stocks with above-average book/price ratios also are classified as value stocks, it is clear that the fundamental index has a value tilt.

However, if the book value of the stock rises and the price does not move, then the fundamentals weight will rise, but the cap weight will not. Conversely, if the market price of the stock rises, but the book value stays the same, then the cap weight will rise while the fundamentals weight will not budge.[3] Traditional value indexes select a subset of stocks based on price ratios such as book/price and then cap-weight that subset of value stocks; see Russell (2013) for the construction methodology of all of the cap-weighted indexes in this article. We can see that it's true that a fundamental index has a value tilt, but it's also true that a value index has a tilt toward fundamental index characteristics. The point is that even though they are correlated, they are not the

same, and they may exhibit different behaviors over market cycles. As we will see, combining these differing behaviors would have presented diversification opportunities for the hypothetical investor.

Factor Model Estimates of Large-Cap Value and Fundamental Indexes
We start in the large-cap space and look at factor exposure estimates over a long period before we look at how those exposures might vary over time. The Russell Fundamental U.S. Large Company Index (FDM LC) has the largest percentage of U.S. stocks—87.5 percent—as measured by a composite score of sales adjusted for leverage, retained cash flow, and dividends plus buybacks. The Russell 1000® Value Index (R1000V) is a cap-weighted subset of the Russell 1000® Index (the largest 1,000 U.S. stocks by cap weight), which has an above-average book/price ratio, among other characteristics. Thus, because the hypothetical investor wants exposure to value, we do not consider the Russell 1000. Table 1 shows the exposure estimates of the R1000V Index and the FDM LC indexes.[4]

Comparing the estimates in table 1 shows that both indexes had negative exposures to the small-cap factor (SMB), which is to be expected from a large company index; and that both indexes had significant exposures to the value factor (HML), which also is to be expected. The only noteworthy difference between the two is that the alpha estimate for the FDM LC was positive and statistically significant at the 10-percent level.[5]

One might conclude, if table 1 were the only evidence, that the two indexes aren't much different. But these estimates are based on averages over many years, with no indica-

Table 1: Exposures of the Russell Fundamental Large Company and Russell 1000 Value Indexes

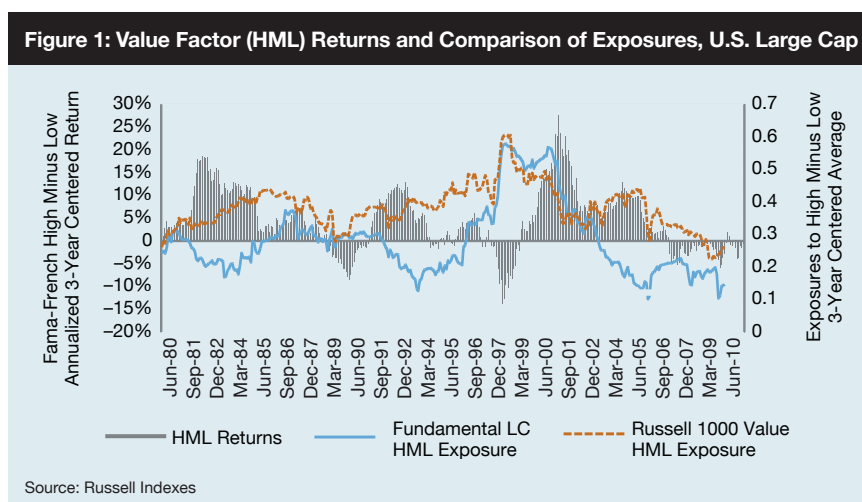| Index	Alpha	Market	Small Cap	Value	Momentum	RSQ	Dates
R1000V	−0.50%	0.99	−0.15	0.39	−0.042	0.97	Dec. 1979–Dec. 2012
	(−1.12)	(81.27)	(−6.34)	(13.75)	(−2.13)		
FDM LC	1.14%	0.96	−0.11	0.34	−0.059	0.95	Dec. 1979–Dec. 2012
	(1.83)	(62.14)	(−4.60)	(8.35)	(−3.06)		

Notes: Figures in parentheses are t-ratios calculated using Newey-West robust standard errors. A t-ratio above around 1.7 in absolute value is significant at the 10-percent level; a t-ratio above around 1.9 is significant at the 5-percent level. Alphas are compounded and annualized. The Russell Fundamental Indexes went "live" on February 24, 2011. Data on the Russell Fundamental Indexes prior to the inception date is backfilled, calculated in the same manner as the live data. None of the R1000V data is backfilled.

Source: Russell Indexes

tion of how they might vary over time. Rolling 36-month Fama-French regressions were run to examine this aspect. Figure 1 shows rolling 36-month exposures to the value factor HML. The actual HML returns also are displayed. The series are centered in the middle of the 36-month windows to visually pinpoint the timing.

Figure 1 shows that the exposure to HML was time-varying for both the R1000V and the FDM LC, but the volatility of the FDM LC exposure was 63-percent higher than the volatility of the R1000V exposure. Note that although both indexes always maintain a value exposure, the dynamic range of exposures was wider for the FDM LC. This more pronounced dynamic is a consequence of weighting by non-price measures of size. In an article about style timing, Asness et al. (2000) show that "value spreads … are important indicators of the attractiveness of value over growth." The range of value spreads is greater with fundamental indexes than with traditional cap-weighted value indexes, which may offer additional predictive power.

Another interesting aspect of figure 1 is the differences in timing across style cycles. The exposures to both indexes would have risen dramatically in tandem during the late 1990s, just before the dot-com collapse with its resurgence of value returns. But the exposure of the Fundamental Index would have dropped sharply in the run-up to the recent financial crisis, while the exposure of value remained steady until the actual financial crisis. Since the crisis, the HML exposure of the Russell Fundamental Index

Figure 1: Value Factor (HML) Returns and Comparison of Exposures, U.S. Large Cap

Source: Russell Indexes

has remained much reduced compared with the value index; this would have provided a tailwind, as value has underperformed growth for much of the post-2008 period. Overall, the differing dynamics of the two indexes was best illustrated by how the value exposure of the Fundamental Index would have taken a deeper dip ahead of value underperformance.

The Fundamental Index Approach and Traditional Small-Cap Indexes

Next, we turn to the hypothetical investor's goal of obtaining an exposure to small cap. The usual suspect would be an allocation to the Russell 2000® (R2000), because that is the most heavily invested index of small-cap U.S. stocks.[6] The R2000 is made up of the smallest 2,000 stocks of the Russell 3000® all-cap benchmark (the R1000 makes up the largest 1,000 stocks of the R3000). The R2000 covers around 8 percent of the total capitalization of the market. The investor might also be inter-

ested in the Russell 2000 Value (R2000V) index, because it combines both desired exposures—size and value—by selecting a subset of the R2000 that has a high book/price ratio, among other characteristics.

As an additional source of exposures, the investor might consider the Russell Fundamental U.S. Small Company index (FDM SC). It includes the bottom 12.5 percent of stocks ranked by composite scores of accounting measures of size. As with the FDM LC, the FDM SC has a value tilt.

Table 2 displays the results for the three small-cap/small-company indexes. History for the FDM SC is available only from July 1996, so all estimates are made from that date to ensure an apples-to-apples comparison. All three indexes would have had significant small-cap exposure, with the R2000 showing the most; the R2000V would have followed, and then the FDM SC. All three also would

Table 2: Exposures of the Russell Fundamental Small Company, Russell 2000 and Russell 2000 Value Indexes

Index	Alpha	Market	Small Cap	Value	Momentum	RSQ	Dates
R2000	−2.22%	1.01	0.79	0.27	−0.00060	0.98	Jul. 1996–Dec. 2012
	(−3.31)	(53.35)	(33.30)	(8.13)	(−0.024)		
R2000V	−1.25%	0.91	0.65	0.70	−0.038	0.95	Jul. 1996–Dec. 2012
	(−1.23)	(39.56)	(18.27)	(15.65)	(−1.30)		
FDM SC	2.98%	0.98	0.53	0.60	−0.10	0.94	Jul. 1996–Dec. 2012
	(2.26)	(29.07)	(7.26)	(11.51)	(−3.29)		

Notes: Figures in parentheses are t-ratios calculated using Newey-West robust standard errors. A t-ratio above around 1.7 in absolute value is significant at the 10-percent level; a t-ratio above around 1.9 is significant at the 5-percent level. Alphas are compounded and annualized. The Russell Fundamental Indexes went "live" on February 24, 2011. Data on the Russell Fundamental Indexes prior to the inception date is backfilled, calculated in the same manner as the live data. None of the R2000 or R2000V data is backfilled.

Source: Russell Indexes

have shown a value tilt, with the R2000V having the largest tilt, which is expected.

Differences between the three indexes would have arisen with alpha and momentum. The FDM SC would have had an alpha over this period of almost 3 percent, which is statistically significant; the two cap-weighted indexes would have had negative alphas. On the other hand, the FDM SC would have had a negative exposure to momentum (i.e., anti-momentum) that also was statistically significant, and the two cap-weighted indexes would have had small and statistically insignificant momentum exposures. These complementary differences could have proven useful in the construction of portfolios, as shown below.

Figure 2 shows rolling 36-month exposures to the small-cap factor SMB. The actual SMB returns also are displayed. The series are centered in the middle of the 36-month windows to visually pinpoint the timing. The SMB exposure in the R2000 would have shown the least volatility of the three, and would have been consistently larger. This makes sense, because the subset of stocks in the R2000V tends to be the relatively larger companies within the R2000; the FDM SC index includes the bottom 12.5 percent of the market by accounting measures, and the R2000 includes the bottom 8 percent by cap weight.

Looking at the time variation of the exposures, we can see that they all would have jumped in the aftermath of the bursting of the dot-com bubble. We also can see that an upward trend would have occurred in exposures to the SMB factor, especially with FDM SC. Since the financial crisis, the FDM SC would have had exposures close to, and at times larger than, those of the R2000. This would have been fortuitous for FDM SC returns, because small cap has outperformed large cap for most of the period since 2008.

Portfolios of Indexes for Large- and Small-Cap Segments

The preceding analysis of the characteristics of Russell Fundamental Index strategies and cap-weighted indexes leads us to consider how the hypothetical investor might

Figure 2: Small-Cap Factor (SMB) Returns and Comparison of Exposures U.S. Small Cap

Source: Russell Indexes
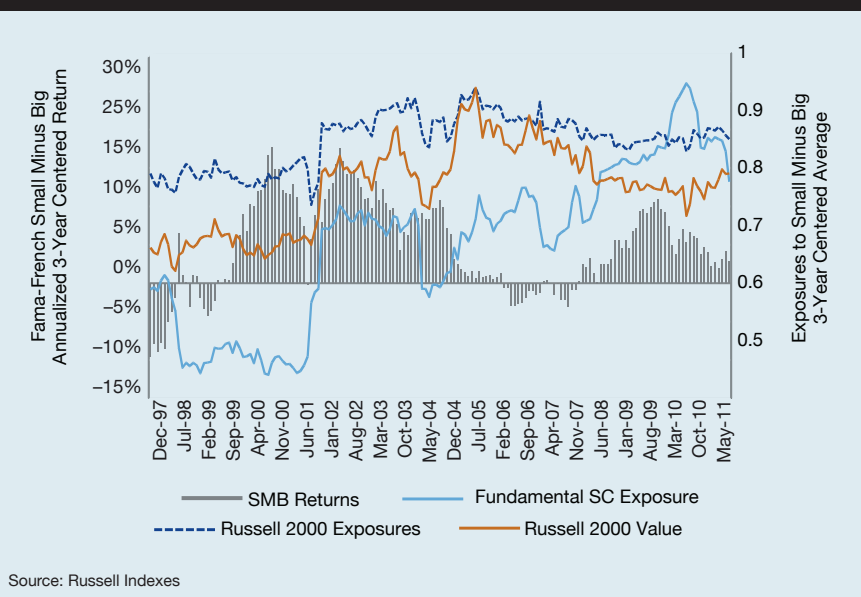
Figure 3: Russell 1000 Value Index—Growth of a Dollar by Factor

Source: Russell Indexes
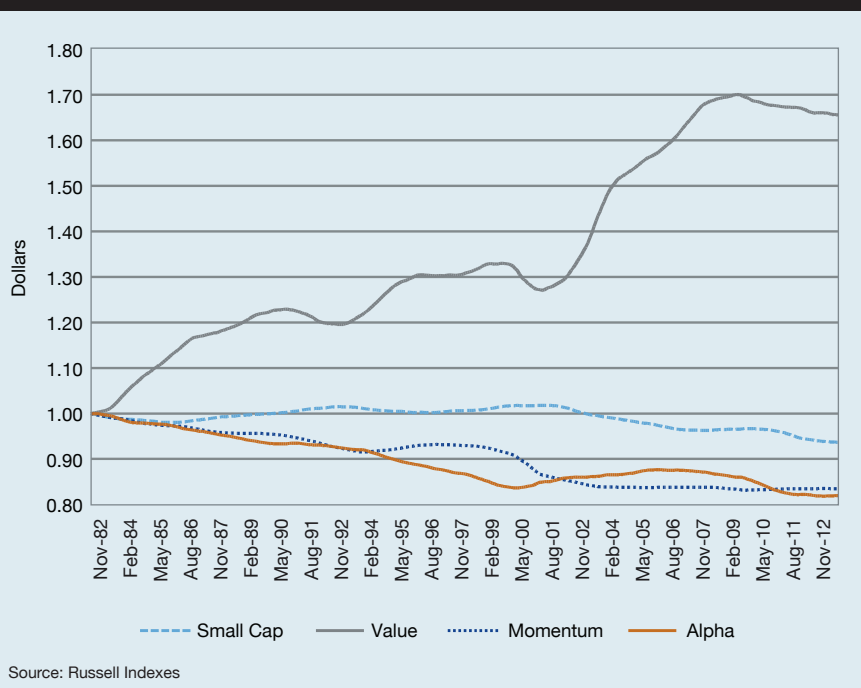
have combined the indexes to produce a portfolio with a desirable set of exposures.

We start with the large-cap segment of the investor's portfolio. Given the hypothetical investor's belief in a value premium, a good place to start building a passive portfolio might be the Russell 1000 Value (R1000V)

Index. The factor exposure estimates in table 1 and figure 1 suggest that the R1000V would have delivered substantial value exposures, which is the primary goal. But it is useful to get a clearer picture of other factors that would have contributed positively—or negatively—to returns. Figure 3 shows rolling exposure estimates

multiplied by three-year average factor returns to get smoothed cumulative returns to each of the factors, shown as the growth of a dollar. This amounts to a kind of factor-based performance attribution.

Figure 3 shows that the R1000V would have delivered on its promised value exposure over this period, and that value would have been rewarded. In spite of the dips in the value cycle in the 1990s and in the most recent period, the value factor in the Russell Value Index would have delivered a 66-percent cumulative return (1.7 percent annualized). However, the next most notable aspect of figure 3 is that all three other sources of return—alpha, momentum, and small cap—would have detracted from performance. This is where we could have turned to an alternatively weighted index for additional diversification.

Figure 4 shows the growth of a dollar by factor for the Russell Fundamental U.S. Large Company Index (FDM LC). Contrasting figure 4 with figure 3, several things stand out. First, the return on the value factor in the FDM LC would have been 53 percent (1.4 percent annualized)—significant, but less than the value factor in the R1000V. That is as expected, given that the R1000V is designed to capture the value factor as measured by book/price and the HML return is also book/price. What also stands out is that the negative small-cap return we saw in the R1000V would have been neutralized in the FDM LC. Importantly, alpha would have become a major contributor to returns. Momentum would have been a drag on returns, but that is typical for an alternatively weighted index, because weights don't change when market prices go on a run but accounting measures stay the same.

Given the contrasting returns to the small-cap factor and to alpha, it might have made sense for the investor to explore a blend of the two indexes. Figure 5 shows the growth of a dollar by factor for a 50/50 blend of the R1000V and the FDM LC. We can see this would have resulted in only a small diminution of cumulative returns to the value factor, while alpha would have been pulled into positive territory and the negative

return to the small-cap factor would have been neutralized.

Summary statistics in table 3 show how these different return streams would have sorted out for the R1000V, the FDM LC, and the 50/50 blend. Note that the 50/50

blend would have had a lower tracking error with respect to the Russell 3000 benchmark than either index alone, illustrating the diversification benefits.

Turning to the investor's small-cap segment, table 2 and figure 2 indicate that

Figure 4: Russell Fundamental Large Company Index—Growth of a Dollar by Factor
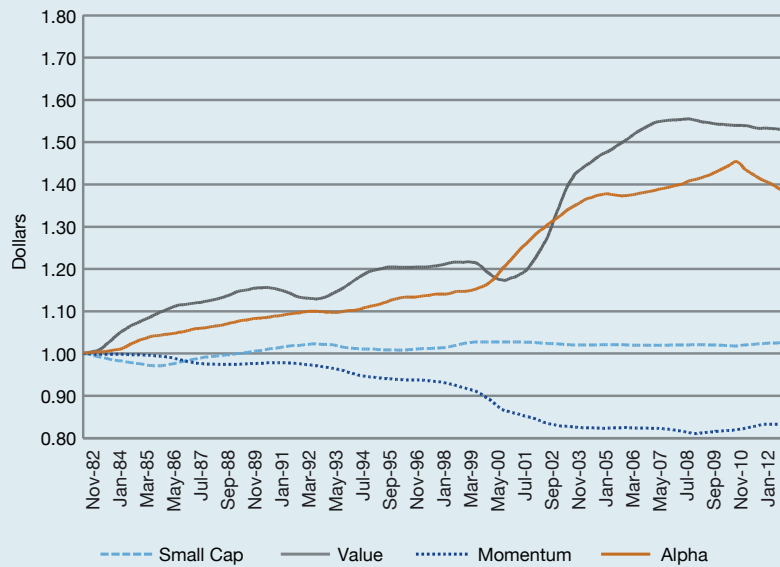
Source: Russell Indexes

Figure 5: 50/50 Portfolio of Fundamental LC and R1000 Value—Growth of a Dollar by Factor

Source: Russell Indexes

Table 3: Summary Statistics of the FDM LC, the R1000V, and a 50/50 Blend of Both							
Index	Return	Volatility	Sharpe Ratio	Excess Return	Tracking Error	Information Ratio	Dates
R1000V	12.27%	14.97%	0.79	0.41%	5.08%	0.08	Dec. 1979–Dec. 2012
FDM LC	13.43%	14.77%	0.88	1.57%	5.14%	0.31	Dec. 1979–Dec. 2012
50 FDM LC 50 R1000V	12.85%	14.78%	0.84	0.99%	4.85%	0.20	Dec. 1979–Dec. 2012

Notes: Excess return and tracking error are calculated relative to the Russell 3000 all-cap benchmark. All values are annualized and arithmetic. The Russell Fundamental Indexes went "live" on February 24, 2011. Performance data for the Russell Fundamental Indexes prior to February 24, 2011 is backfilled, but was calculated in the same manner as the more recent, live data. None of the R1000V data is backfilled.

Source: Russell Indexes

the Russell 2000 would have supplied a consistently larger exposure to the small-cap premium. Figure 6 shows the cumulative returns to the factors. As advertised, the R2000 would have delivered a large return to the small-cap factor. It would even have had a decent return to the value factor, and the momentum factor return would have been neutral. The one negative component would have been the alpha return.

We now turn to the Russell Fundamental Small Company (FDM SC) index to look for complements to the R2000. Figure 7 shows that the FDM SC would not have delivered as much return to the small-cap factor as the R2000 would have. But the FDM SC would have delivered a larger return to the value factor and a very large alpha. Momentum would still have been a detractor, but a relatively minor one.

Following what was done for the large-cap segment, we constructed a 50/50 blend of the R2000 and the FDM SC. The cumulative return attribution is shown in figure 8. The strong returns to the small-cap and value factors would have been maintained in the blended portfolio. The real benefit of combining the indexes would have been in how the FDM SC alpha brought up the negative alpha of the R2000 while the R2000 momentum returns brought up the negative FDM SC momentum returns. The portfolio of blended indexes would have had no significant systematic return drag tied to any factor. The summary statistics in table 4 show that tracking error to the Russell 3000 benchmark would have been reduced with a blended portfolio.

Figure 6: Russell 2000 Index—Growth of a Dollar by Factor
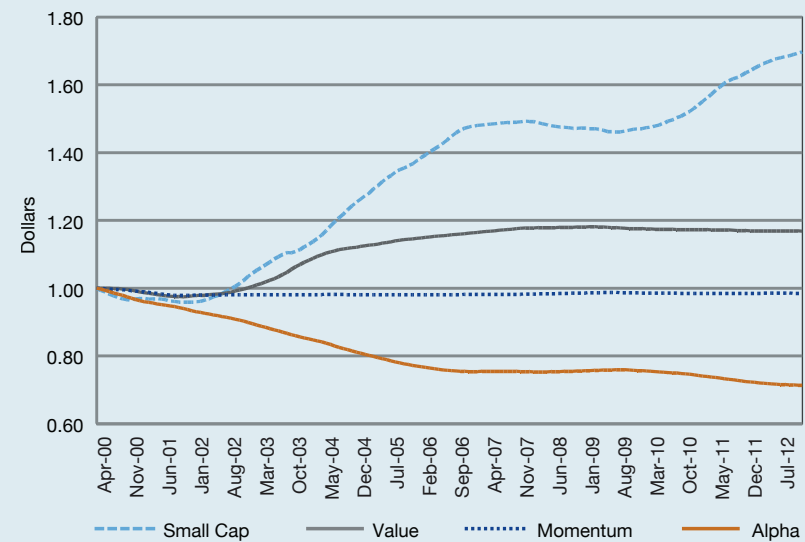
Source: Russell Indexes

Figure 7: Russell Fundamental Small Company Index—Growth of a Dollar by Factor

Source: Russell Indexes

All-Size Portfolios of Indexes

In this final set of comparisons we looked at the whole portfolio of U.S. stock indexes. To recap: the hypothetical passive investor wished to have significant exposure to both value and small-cap premiums while still maintaining substantial market exposure. We assumed a 60/40 portfolio of the R1000V and the R2000 in order to obtain significant value and small-cap exposures. As the R2000 is only 8 percent of the cap weight of the R3000, the 40-percent small-cap weight was a rather large overweight—perhaps more than a tracking-error-sensitive investor would have been comfortable with. There was nothing magical about the 60/40 mix; the purpose was simply to make the small-cap exposure large enough to illustrate its effect in an all-cap portfolio.

Figure 9 shows what the cumulative returns to all factors would have been. It also shows what the returns to the market factor would have been, illustrating that most of the index return volatility would have been attributable to broad market movements. Figure 9 demonstrates that the R1000V/R2000 combination would have delivered the required exposures and returns to the value and small-cap premiums. The return detractors would have been momentum and alpha.

Next we drew on the results in the previous section to construct a 60/40 large/small portfolio, but with the 50/50 R1000V/FDM LC portfolio for the large-cap segment and the 50/50 R2000/FDM SC portfolio for the small-cap segment. The overall portfolio, then, was 30-percent R1000V, 30-percent FDM LC, 20-percent R2000, and 20-percent FDM SC. Cumulative return attributions are displayed in figure 10, which

Figure 8: 50/50 Portfolio of Fundamental SC and R2000—Growth of a Dollar by Factor

Source: Russell Indexes
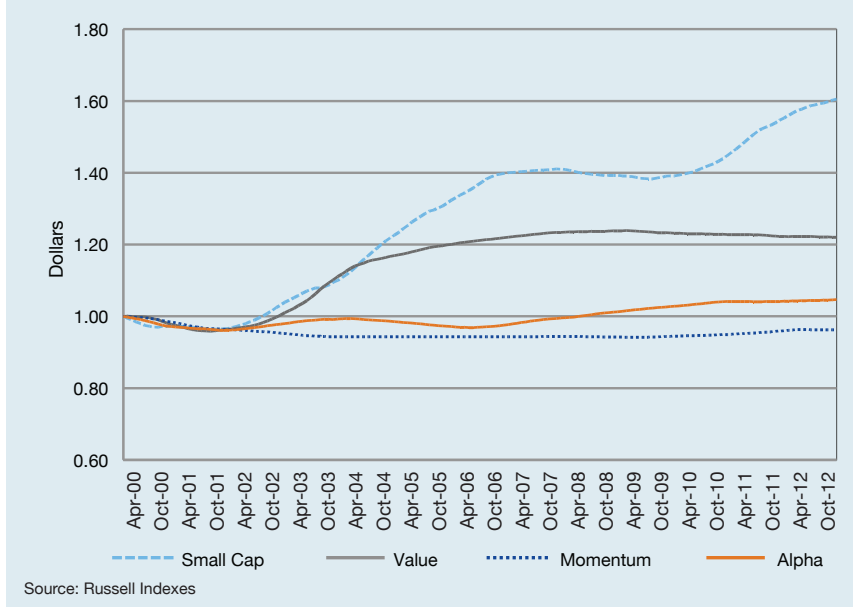
Figure 9: 60/40 Portfolio of R1000 Value and R2000—Growth of a Dollar by Factor

Source: Russell Indexes
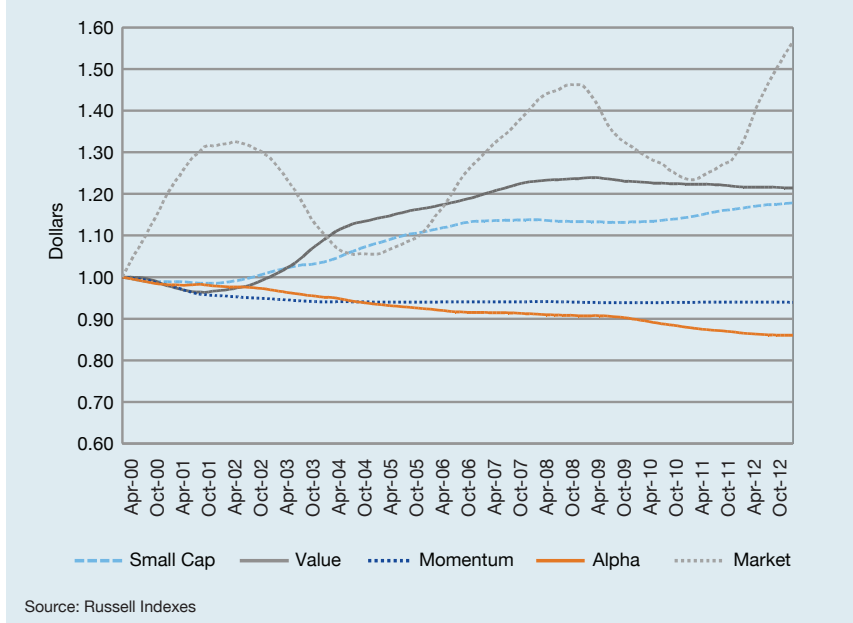
Table 4: Summary Statistics of the FDM SC, the R2000, and a 50/50 Blend of Both

Index	Return	Volatility	Sharpe Ratio	Excess Return	Tracking Error	Information Ratio	Dates
R2000	9.02%	21.04%	0.41	1.04%	10.57%	0.10	Jul. 1996–Dec. 2012
FDM SC	14.00%	19.47%	0.71	6.03%	9.34%	0.65	Jul. 1996–Dec. 2012
50 FDM SC 50 R2000	11.51%	19.89%	0.56	3.54%	9.17%	0.39	Jul. 1996–Dec. 2012

Notes: Excess return and tracking error are calculated relative to the Russell 3000 all-cap benchmark. All values are annualized and arithmetic. The Russell Fundamental Indexes went "live" on February 24, 2011. Performance data for the Russell Fundamental Indexes prior to February 24, 2011 is backfilled, but was calculated in the same manner as the more recent, live data. None of the R2000 data is backfilled.

Source: Russell Indexes

Figure 10: 30/30/20/20 Portfolio of R1000V, FDM LC, R2000, FDM SC—Growth of a Dollar by Factor

Source: Russell Indexes

would have been −53.17 percent, while it would have been −54.43 percent for the all-cap-weighted portfolio. Additional diversification from blending in a portion of the Fundamental Index strategy would have contributed additional downside protection.

Summary and Conclusion

This article has examined how Fundamental Index strategies would have been a beneficial addition to cap-weighted passive portfolios. We employed the Fama-French-Carhart four-factor model to allow a decomposition of returns by factor. Rolling regressions of factor exposures demonstrated clear differences between Fundamental Index investments and those of cap-weighted value indexes, debunking the claim that they are the same. Cumulative returns by factor provided a return attribution that showed the strengths and weaknesses of the Fundamental Index approach and its cap-weighted counterparts. The analysis showed that combining Fundamental Index strategies and cap-weighted indexes would have increased diversification across factor exposures. This would have resulted in better downside risk and return properties. Negative momentum was the one factor that would not have been effectively diversified away. Offsetting negative momentum would have been a possible opportunity for active management or a momentum index, but that is a question for another article.

Finally, perhaps the most striking differences were between the positive alphas of the Fundamental Index strategy and the negative alphas of the purely passive cap-weighted strategy. In principle, many things could have contributed to those intercepts.

shows that the strong value and small-cap returns would have been maintained while alpha would have been brought well into positive territory. Momentum would have remained a detractor to performance.

The summary statistics in table 5 show that the portfolio including Russell Fundamental Index investments would have shown improvement over the all-cap-weighted portfolio along several dimensions. Total returns, Sharpe ratio, and excess returns all would have been higher than in an all-cap-weighted portfolio. Tracking-error-sensitive investors might have been put off by the higher tracking error, but the risk/reward trade-off as measured by the information ratio shows that the additional bench-

mark-relative volatility would have been rewarded. The tracking error could have been reduced by reducing the level of small-cap exposure to something below 40 percent.

Finally, we compare downside risk between the two portfolios by looking at maximum drawdown, which measures the maximum drop in the portfolio's value from peak to trough. Rolling 36-month maximum drawdown for the portfolio with Fundamental Index exposures would have been the same as or less than the drawdown of the all-cap-weighted portfolio during the period July 1996–December 2012. Over that entire period, the maximum drawdown for the portfolio with Fundamental Index assets

Table 5: Summary Statistics of the All-Cap Portfolios							
Portfolio	Return	Volatility	Sharpe Ratio	Excess Return	Tracking Error	Information Ratio	Dates
60 R1000V 40 R2000	8.75%	16.98%	0.49	0.78%	4.83%	0.16	Jul. 1996–Dec. 2012
30 R1000V 30 FDM LC 20 R2000 20 FDM SC	10.08%	16.75%	0.58	2.11%	5.30%	0.40	Jul. 1996–Dec. 2012

Notes: Excess return and tracking error are calculated relative to the Russell 3000 all-cap benchmark. All values are annualized and arithmetic.

Source: Russell Indexes

Proponents of the Fundamental Index strategy have claimed that the negative alphas of the cap-weighted strategy would have been due in part to the performance drag inherent in cap-weighting; i.e., that overvalued stocks have tended to be overweighted and undervalued stocks have tended to be underweighted. Proponents also have claimed that the positive alpha deriving from the Fundamental Index approach would have been due in part to the way the dynamics of the fundamental value tilt would have had a greater style spread, compared to cap-weighted value indexes. So when divergence from cap-weighted spreads is high, the Fundamental Index will have a larger value tilt, and this tends to precede an increase in value's outperformance. Future research will endeavor to reveal more about this compelling strategy. ●

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Endnotes

1. Russell does not use book value in its Fundamental Indexes because it was found to essentially duplicate the other three size measures of adjusted sales, retained operating cash flow, and dividends plus buybacks. But book value divided by price is the single value factor used in Russell value indexes.
2. The equation can be verified by noting that $B_m = \sum_i B_i N_i$ and $P_m = \sum_i P_i N_i$, where N_i is the number of shares of stock i in the cap-weighted market.
3. Strictly speaking, this is only true once a year at annual rebalancing.
4. Factor returns have been downloaded from French (2013). We use French's estimate of market returns in the regressions to maintain consistency with the other factor returns. Substituting the returns of the Russell 3000 for French's market returns makes little difference. All Russell index data are from Russell Investments (2012, 2013).
5. Russell indexes are unmanaged and cannot be invested in directly. One must invest in either an index mutual fund or an exchange-traded fund (ETF), both of which incur tracking error (a measure of how accurately the investment tracks the index) and fees. Throughout this article, we assume that both tracking error and fees are small enough to be ignored.
6. Source: Compiled by Russell Product & Market Research using data from Morningstar Direct database as of December 31, 2012.

References

Arnott, R., J. Hsu, and P. Moore. 2005. Fundamental Indexation. *Financial Analysts Journal* 61, no. 2 (March/April): 83–99.

Asness, C. 2006. The Value of Fundamental Indexing. *Institutional Investor* 40, no. 10 (October): 94–99.

Asness, C., J. Friedman, R. Krail, and J. Liew. 2000. Style Timing: Value versus Growth. *Journal of Portfolio Management* 26, no. 3 (spring): 50–60.

Carhart, M. 1997. On Persistence in Mutual Fund Performance. *Journal of Finance* 52, no. 1 (March): 57–82.

Fama, E., and K. French. 1992. The Cross-Section of Expected Stock Returns. *Journal of Finance* 47, no. 2 (June): 427–465.

———. 1993. Common Risk Factors in the Returns on Stocks and Bonds. *Journal of Financial Economics* 33, no. 1 (February): 3–56.

French, K. 2013. Data Library. http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

Russell Fundamental Index Series Construction and Methodology, 2012. *Russell Investments* (October); http://www.russell.com/indexes.

Russell Global Indexes Construction and Methodology. 2013. *Russell Investments* (March), 78 pp. http://www.russell.com/indexes.

Sharpe, W. 1964. Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk. *Journal of Finance* 19, no. 3 (September): 425–442.

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