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White Paper

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The Next Chapter in the Active versus Passive Debate (2010 Update)

An analysis of active manager performance, consistency and persistency

In March 2007, we authored “[The Next Chapter in the Active versus Passive Management Debate](#),” where we evaluated the persistency of top quartile mutual funds¹ in 17 different categories during the ten-year period ending December 2006. Having updated that study through the ten-year period ending December 2009, our key observations remain largely unchanged.

Key Observations:

- 85 percent of ten-year top quartile mutual funds¹ were unable to avoid at least one three-year stretch in the bottom half of their peer groups. This is down modestly from 89 percent in our 2007 study.
- 62 percent of ten-year top quartile mutual funds¹ were unable to avoid the bottom half during a five-year period. This is up significantly from 51 percent in our 2007 study.
- Owning the 52nd percentile mutual fund¹ in all 17 categories would have matched the indexed return for a 70 percent equity and 30 percent fixed income portfolio during the ten-year period. In aggregate, top quartile managers generated +1.6 percent of annual alpha, while bottom quartile managers generated annual alpha of -1.1 percent. In our 2007 study, the 48th percentile managers matched the index return, with the top and bottom quartiles generating annual alphas of +1.0 and -1.3 percent, respectively.
- With few exceptions, the greater an asset class’ absolute return during a three-year period, the greater the likelihood and magnitude of median manager underperformance and vice versa. In other words, indices tend to perform better than median managers in up markets and worse in down markets. This is consistent with our 2007 findings.
- There are often ignored factors that can preclude passively managed investment products from keeping pace with the indices they are designed to track. The impact of each factor depends on the asset class and index. The proliferation of exchange-traded index funds in recent years has allowed us to analyze the impact of these factors in various asset classes.
- For each individual asset class, the active versus passive decision should be viewed as ‘*active manager versus index fund*’ rather than ‘*active manager versus index*’. Failure to do so risks overstating the case for passive management.
- Falling prey to natural human behavioral tendencies during the manager selection and termination process generally leads to failure. Investors need to make better efforts to understand their managers’ investment processes, sub-styles and investment philosophies before investing to develop the confidence and patience required for long-term success. Otherwise, they should invest passively.

¹Distinct portfolio share classes (only) from Morningstar mutual fund database. Not corrected for survivorship bias.

Consistency and persistency of manager returns

“If an investor was skillful—or lucky—enough to have picked only funds destined to be top performers a decade ago, the path to performance excellence would still have been perilous because top quartile managers frequently fell below the median of their peer groups during three- and five-year periods.”

- The Next Chapter in the Active vs. Passive Debate (March 2007)

In this 2010 update, we used the same parameters from our 2007 study to measure the frequency of (ten-year) top quartile manager underperformance over three- and five-year periods. Despite the volatile market conditions over the last three years, our findings remain consistent with our 2007 study’s results. We examined the performance of 1,996 mutual funds with ten-year records in the Morningstar mutual fund database^{1,2} across the same 17 categories (up from 1,596 funds in 2007). As Exhibit 1 illustrates, about 85 percent (429 out of 502) of all ten-year top quartile funds spent at least one three-year stretch in the bottom half of their peer group (down modestly from 89 percent in the 2007 study). Once the fund fell into the bottom half during a three-year period, it stayed there for an average of 1.13 years. About 62 percent of ten-year top quartile funds spent at least one five-year stretch in the bottom half (up significantly from 51 percent three years ago).

Exhibit 1

Ten-year top quartile funds (ending December 31, 2009)¹ that fell below median during one or more three- and five-year periods

Category	Number of funds with 10-year records ¹	Number of 10-year top quartile funds	Number of 10-year top quartile funds below median for a 3-year period	Percent of 10-year top quartile funds below median for a 3-year period	Median consecutive years spent in bottom half	Percent of 10-year top quartile funds below median for a 5-year period
Intermediate Bond	222	56	49	88%	1.00	64%
High Yield Bond	88	22	20	91%	1.50	73%
International Bond	48	12	11	92%	1.00	50%
Large Cap Value	183	46	44	96%	1.75	74%
Large Cap Core	315	79	64	81%	1.00	61%
Large Cap Growth	281	70	59	84%	1.25	60%
Mid Cap Value	37	9	9	100%	0.75	67%
Mid Cap Core	79	20	17	85%	1.38	75%
Mid Cap Growth	139	35	29	83%	1.25	66%
Small Cap Value	55	14	13	93%	2.00	57%
Small Cap Core	116	29	22	76%	1.00	41%
Small Cap Growth	138	35	30	86%	1.50	74%
Real Estate	42	11	9	82%	1.00	36%
International Value	57	14	13	93%	0.75	50%
International Core	107	27	18	67%	0.25	33%
International Growth	34	9	9	100%	1.25	89%
Emerging Markets	55	14	13	93%	1.13	64%
Total	1,996	502	429	85%	1.13	62%

¹Distinct Portfolio Only: Many fund families offer multiple versions of the same fund, but with variations on the sales fees that are charged and/or investor qualifications. The “distinct portfolio only” feature removes all but one of these options. Morningstar normally designates the oldest share class as the distinct portfolio, which is often, but not always, the ‘A’ share class.

²Morningstar mutual fund data was used because it is less prone to some reporting biases compared to other databases. For example, poorly performing managers frequently stop reporting to manager databases during poor performance stretches. While the Morningstar data is not immune to survivorship bias, each mutual fund that survived the ten-year stretch was captured regardless of performance. In addition, the Morningstar data generates returns net of expenses. Many other databases show returns gross of fees. Since fees for institutional investors are often tiered based on asset size, and trading costs are not uniform, it is problematic to calculate objective after-expense returns.

More than simply falling out of the top half of the peer group, it is the duration of the visit to the bottom half that can test an investor's patience. On average, ten-year top quartile funds spent about 23 percent of all their three-year periods in the bottom half of their peer groups, up modestly from 22 percent in our 2007 study. Therefore, during a typical quarterly performance review for the fortunate investors who managed to pick (only) ten-year top quartile funds, about one-fourth of their investment managers would have generated below median returns for the prior three-year period. Top quartile funds also spent, on average, about 19 percent of rolling five-year periods in the bottom half of their peer groups, up significantly from 12 percent in our 2007 study.

Exhibit 2

Average percent of three-year and five-year periods spent in the bottom half by ten-year top quartile funds (*ending December 31, 2009*)

Category	Average percent of 3-year periods spent in bottom half	Average percent of 5-year periods spent in bottom half
Intermediate Bond	21%	15%
High Yield Bond	30%	29%
International Bond	20%	12%
Large Cap Value	28%	23%
Large Cap Core	22%	20%
Large Cap Growth	25%	22%
Mid Cap Value	22%	17%
Mid Cap Core	31%	33%
Mid Cap Growth	23%	22%
Small Cap Value	31%	31%
Small Cap Core	19%	12%
Small Cap Growth	29%	27%
Real Estate	17%	3%
International Value	19%	14%
International Core	15%	13%
International Growth	26%	15%
Emerging Markets	19%	12%
Average	23%	19%

For even the best long-term performing managers, underperforming during a three- or five-year period is an eventual near certainty. Therefore, rigid investment policy language that calls for terminating managers who underperform (over three or even five years) must be avoided. Blindly following such a rigid rule leads to a cycle of failure where managers are hired after strong performance and terminated after poor performance. When the manager is underperforming, a thorough review should seek to answer some essential questions. *Is this just the manager's inevitable visit to the bottom of the peer group or is the management team or process falling apart? Is the manager's underperformance consistent with his process, investment constraints or sub-style? Does the manager still possess a competitive advantage over the majority of peers? Have there been any organizational changes (i.e., personnel or significant change in assets) that might be impacting performance? Do the conditions that allowed the manager to have success in the past still remain or has there been a fundamental shift?*

While it may be easier to avoid these difficult questions, terminate the underperforming manager and start fresh with a new top performer (who will undoubtedly disappoint one day), such practice leads to a self-defeating cycle.

What peer group rank was required to beat indices?

As Exhibit 3 shows, median and top quartile funds in the *international bond*, *high yield bond* and *international core* categories had difficulty keeping pace with their indices over the last decade. On the other hand, median and top quartile funds in the *large cap growth*, *small cap growth*, *small cap core* and *international growth* categories fared far better.

Exhibit 3

Index returns compared to median and top quartile funds
(Ten years ending December 31, 2009)^{1,2}

Category	10-year index return	10-year index peer group rank	Median manager return	Median manager alpha	Top quartile manager return	Top quartile manager alpha
Intermediate Bond	6.3%	21%	5.8%	-0.5%	6.2%	-0.1%
High Yield Bond	7.1%	6%	5.4%	-1.7%	6.1%	-0.9%
International Bond	10.3%	4%	7.1%	-3.2%	8.3%	-2.0%
Large Cap Value	2.5%	63%	3.0%	0.5%	4.4%	1.9%
Large Cap Core	-0.9%	60%	-0.4%	0.6%	1.8%	2.8%
Large Cap Growth	-4.0%	81%	-1.8%	2.2%	0.1%	4.1%
Mid Cap Value	7.6%	43%	7.0%	-0.5%	8.7%	1.1%
Mid Cap Core	5.0%	54%	5.4%	0.4%	6.6%	1.6%
Mid Cap Growth	-0.5%	61%	0.7%	1.3%	3.9%	4.4%
Small Cap Value	8.3%	57%	8.4%	0.2%	10.3%	2.0%
Small Cap Core	3.5%	79%	6.3%	2.8%	8.5%	5.0%
Small Cap Growth	-1.4%	71%	0.7%	2.0%	3.9%	5.3%
Real Estate	10.6%	31%	10.1%	-0.5%	10.9%	0.3%
International Value	4.0%	50%	4.1%	0.0%	5.8%	1.8%
International Core	1.6%	33%	0.6%	-1.0%	2.3%	0.7%
International Growth	-1.0%	73%	0.6%	1.6%	2.4%	3.3%
Emerging Markets	10.1%	31%	9.3%	-0.8%	11.6%	1.5%

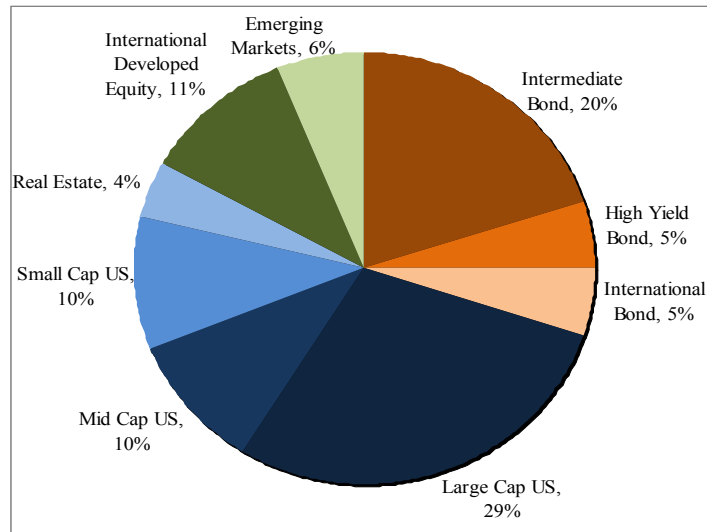
¹Indices: Barclays Aggregate Bond, Citigroup High Yield, Citigroup Non U.S. WGBI, Russell 1000 Value, S&P 500, Russell 1000 Growth, Russell Mid Cap Value, Russell Mid Cap, Russell Mid Cap Growth, Russell 2000 Value, Russell 2000, Russell 2000 Growth, Dow Jones Wilshire RESI, Citigroup PMI Value World ex U.S., MSCI EAFE, Citigroup PMI Growth World ex U.S., MSCI Emerging Markets.

²Impact of survivorship bias on the Morningstar database is not quantified.

What average peer group rank was required to justify active management at the aggregate portfolio level?

The hypothetical allocation mix in Exhibit 4 represents a traditional 70 percent equity and 30 percent fixed income portfolio. The U.S. and international developed equities are allocated among *value*, *core*, and *growth* styles.

Exhibit 4
Hypothetical asset allocation mix



The weighted-average annual ten-year index return for this hypothetical mix was 3.84 percent. If an investor owned this hypothetical asset allocation mix, the **52nd percentile funds** (or slightly below median managers) across all asset classes would have matched the weighted-average index return¹. The categories in which the 52nd percentile was below the index return (i.e., *high yield bond*) were offset by categories where the 52nd percentile was above the index (i.e., *small cap growth*). Therefore, the positive alpha bogey for this hypothetical investor was a peer group rank of 52nd percentile². In our 2007 study, which analyzed 1997-2006 returns, this 70/30 mix required modestly higher-ranked managers (in the 48th percentile across all asset classes) to match the weighted-average index return.

¹This analysis does not factor in the impact of portfolio rebalancing.

²This analysis does not adjust for survivorship bias.

Exhibit 5

52nd percentile fund selection to match indices for hypothetical portfolio versus an entire alpha range
(Ten years ending December 31, 2009)

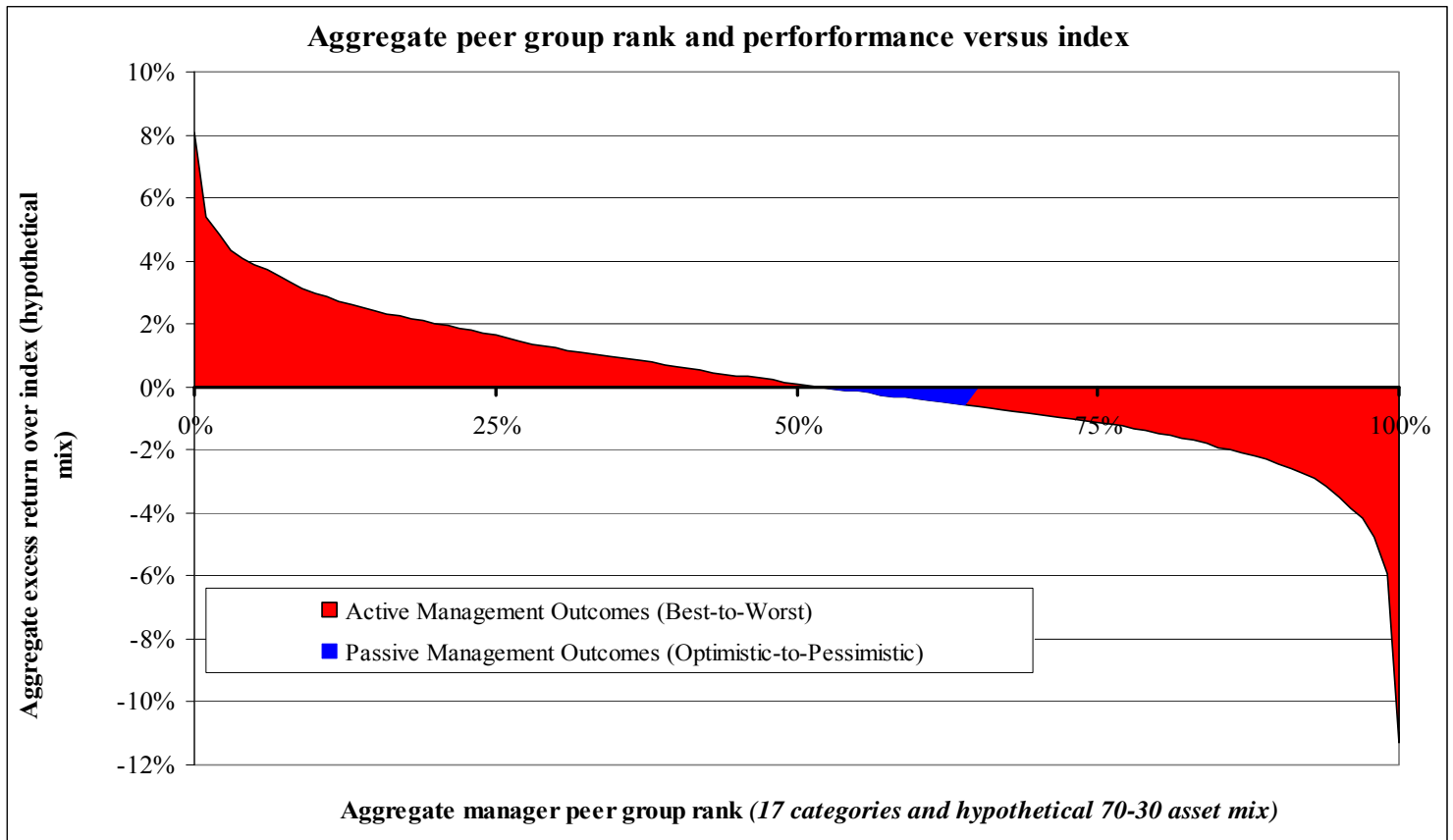
Category	Asset mix	10-year index return	Index peer group rank	Absolute top managers		Top decile managers		Top quartile managers		Median managers		52 percentile managers (required to match indices)		Bottom quartile managers		Bottom decile managers		Absolute bottom managers	
				Return	Alpha	Return	Alpha	Return	Alpha	Return	Alpha	Return	Alpha	Return	Alpha	Return	Alpha	Return	Alpha
Intermediate Bond	20%	6.3%	21%	8.9%	2.6%	6.8%	0.4%	6.2%	-0.1%	5.8%	-0.5%	5.8%	-0.5%	5.3%	-1.0%	4.6%	-1.7%	0.7%	-5.7%
High Yield Bond	5%	7.1%	6%	8.9%	1.9%	6.6%	-0.4%	6.1%	-0.9%	5.4%	-1.7%	5.3%	-1.8%	4.2%	-2.8%	3.3%	-3.7%	-9.4%	-16.5%
International Bond	5%	10.3%	4%	11.8%	1.5%	9.7%	-0.6%	8.3%	-2.0%	7.1%	-3.2%	7.1%	-3.2%	6.1%	-4.2%	5.0%	-5.3%	4.2%	-6.1%
Large Cap Value	6%	2.5%	63%	11.9%	9.4%	5.5%	3.0%	4.4%	1.9%	3.0%	0.5%	2.9%	0.4%	1.7%	-0.8%	0.5%	-1.9%	-1.9%	-4.3%
Large Cap Core	17%	-0.9%	60%	13.2%	14.2%	3.7%	4.6%	1.8%	2.8%	-0.4%	0.6%	-0.6%	0.4%	-1.3%	-0.3%	-2.1%	-1.2%	-11.8%	-10.8%
Large Cap Growth	6%	-4.0%	81%	17.9%	21.9%	1.7%	5.7%	0.1%	4.1%	-1.8%	2.2%	-1.9%	2.1%	-3.4%	0.5%	-5.3%	-1.3%	-26.6%	-22.6%
Mid Cap Value	3%	7.6%	43%	11.8%	4.2%	10.6%	3.0%	8.7%	1.1%	7.0%	-0.5%	7.0%	-0.6%	6.3%	-1.3%	1.8%	-5.8%	-3.2%	-10.8%
Mid Cap Core	4%	5.0%	54%	12.4%	7.4%	8.6%	3.7%	6.6%	1.6%	5.4%	0.4%	5.3%	0.3%	2.9%	-2.1%	1.4%	-3.6%	-14.1%	-19.0%
Mid Cap Growth	3%	-0.5%	61%	11.0%	11.5%	6.4%	6.9%	3.9%	4.4%	0.7%	1.3%	0.7%	1.2%	-1.9%	-1.3%	-4.3%	-3.8%	-21.0%	-20.5%
Small Cap Value	3%	8.3%	57%	13.5%	5.3%	11.6%	3.4%	10.3%	2.0%	8.4%	0.2%	8.4%	0.1%	7.4%	-0.9%	6.5%	-1.7%	0.1%	-8.2%
Small Cap Core	4%	3.5%	79%	14.5%	11.0%	10.8%	7.3%	8.5%	5.0%	6.3%	2.8%	6.2%	2.7%	4.2%	0.7%	1.9%	-1.6%	-35.6%	-39.1%
Small Cap Growth	3%	-1.4%	71%	12.7%	14.1%	6.4%	7.8%	3.9%	5.3%	0.7%	2.0%	0.6%	1.9%	-1.8%	-0.5%	-4.8%	-3.4%	-25.3%	-24.0%
Real Estate	4%	10.6%	31%	19.0%	8.4%	11.5%	0.9%	10.9%	0.3%	10.1%	-0.5%	10.1%	-0.5%	9.6%	-1.0%	8.4%	-2.2%	6.5%	-4.1%
International Value	4%	4.0%	50%	8.2%	4.1%	6.7%	2.6%	5.8%	1.8%	4.1%	0.0%	3.9%	-0.1%	2.1%	-1.9%	1.0%	-3.0%	-2.6%	-6.6%
International Core	3%	1.6%	33%	11.3%	9.7%	4.1%	2.5%	2.3%	0.7%	0.6%	-1.0%	0.6%	-1.0%	-0.5%	-2.1%	-1.9%	-3.4%	-7.1%	-8.7%
International Growth	4%	-1.0%	73%	5.2%	6.2%	3.9%	4.9%	2.4%	3.3%	0.6%	1.6%	0.4%	1.4%	-1.1%	-0.1%	-2.4%	-1.4%	-5.8%	-4.8%
Emerging Markets	6%	10.1%	31%	14.9%	4.8%	12.6%	2.5%	11.6%	1.5%	9.3%	-0.8%	9.2%	-0.9%	7.8%	-2.3%	6.5%	-3.6%	2.7%	-7.4%
Aggregate excess alpha of managers				8.1%		3.0%		1.6%		0.1%		0%		-1.1%		-2.4%		-11.3%	

Important alpha and beta considerations

The betas (or risk premiums) of the asset classes, represented by passive index exposures, created a weighted-average 3.84 percent return over the last decade. Any (unleveraged) return above 3.84 percent for this investor must have come at the expense of another investor. Unlike beta, alpha is a zero sum game and has no risk premium. As shown in Exhibit 6, the red area reflects the total opportunity set of active management over the last ten years for this hypothetical portfolio mix. If an investor picked funds destined to be the best performers across all asset classes and styles (an extremely unlikely scenario), active management would have added about 8.1 percent of alpha annually to the 3.8 percent index return for an 11.9 percent annual gain. On the other hand, had an investor picked the funds destined to be the worst performers ten years ago (an equally unlikely scenario), active management would have trimmed 11.3 percent off the 3.8 percent index return for a 7.5 percent annual loss. The positive alpha earned by above average manager selectors must come at the expense of the below average manager selectors.

Exhibit 6

Hypothetical Portfolio Alpha Opportunity (January 1, 2000 – December 31, 2009)



The blue area in Exhibit 6 represents a theoretical opportunity set for passive management, factoring in management fees, opportunity costs, index replication error and transaction costs. For illustrative purposes, these implicit and explicit costs are estimated to be somewhere between an optimistic 0.10 and a pessimistic 0.50 percent. Of course, better and worse outcomes for passive management are possible, as we will discuss later in the “Owning index funds ≠ owning indices” section.

In theory, the only way median managers can outperform an index net of fees is for there to be an asymmetric relationship between top and bottom investor alpha. In this ten-year period, the poorest performing managers destroyed more value than the best performing managers created (distribution skewness = -0.65). The distribution is also leptokurtic, meaning it is more peaked around the mean with extreme values at both ends of the spectrum (distribution kurtosis = 4.05). So long as the terrible managers destroy more value than the excellent managers create, it is possible for the median manager to beat the index return net of expenses.

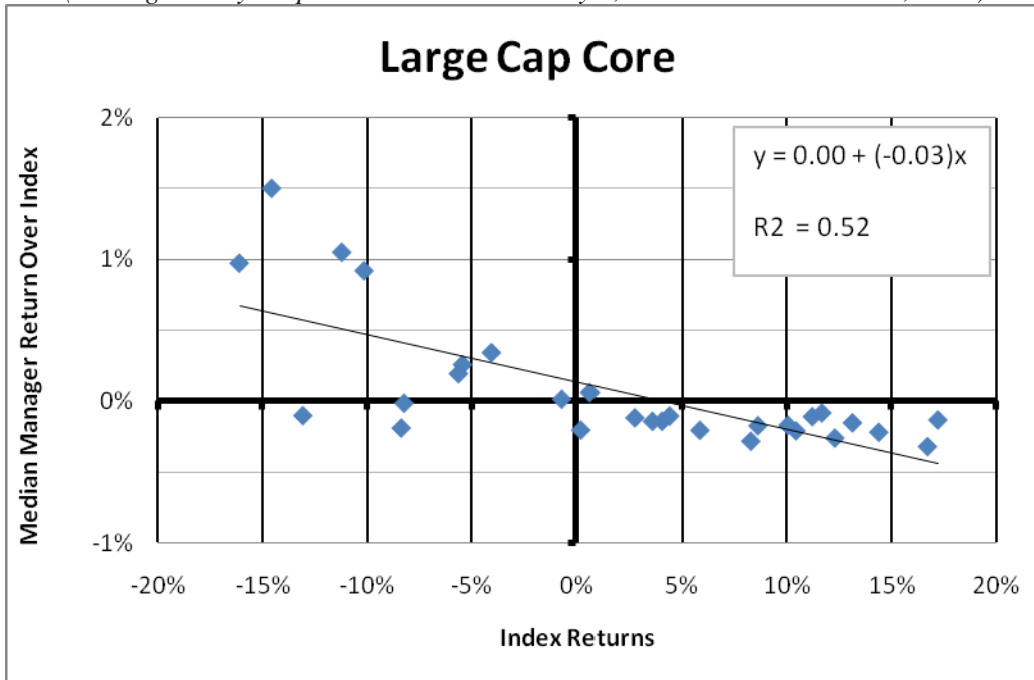
Note: Hedge funds, individual investors, and other investors that are not mutual funds are likely ‘taking’ and ‘giving’ alpha in their endeavors. Their impact is not measured in this analysis.

Bull and bear markets and active manager performance

Another finding in our original research was the high correlation between strong absolute market returns and median manager underperformance. Across virtually all asset classes, the better the index return, the worse the median manager performed relative to its index. For example, Exhibit 7 illustrates the high correlation between the S&P 500 Index's absolute return and median *large cap U.S. core* fund's underperformance over rolling three-year periods. On the horizontal axis, we plot the absolute return of the S&P 500 Index. On the vertical axis, we plot excess return of the median *large cap U.S. core* fund over the S&P 500 Index. Based on this linear relationship ($R^2 = 0.52$), every 10 percent of positive index return leads to expected median manager underperformance of about 0.30 percent.

Exhibit 7

Median *large cap U.S. core* fund outperformance vs. S&P 500 Index
(Rolling three-year periods between January 1, 2000 and December 31, 2009)

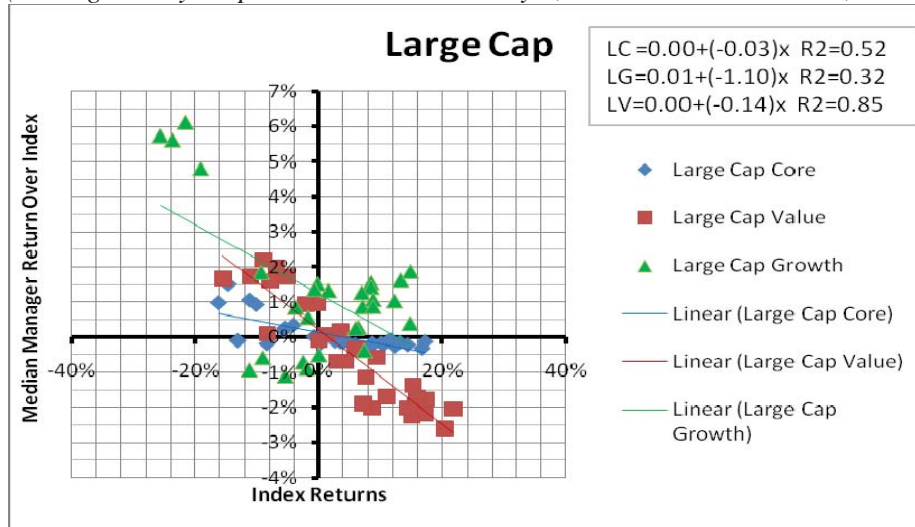


A -10 percent S&P 500 Index return leads the median *large cap core* manager to outperform by 0.30 percent. Heteroskedasticity is present because the distribution of errors does not appear to be random. In other words, when the S&P 500 had its absolute lowest return, the linear model understated the median *large cap core* manager's outperformance. The right side of the graph above shows only one three-year period in which the median *large cap core* manager outperformed a positive S&P 500 Index return. In that one period, the index was only modestly positive. The left side of the graph shows where the median manager added value. The most meaningful outperformance by the median manager was generated when the index posted its most significantly negative returns.

Concluding that an active manager should be terminated because he trailed during a recent bull market run may be unwise. On the other hand, touting the skill of an active manager for losing less during a bear market stretch may also be an exaggeration. The following graphs (Exhibits 8-12) illustrate the same relationships for many of the other asset classes and investment styles.

Exhibit 8

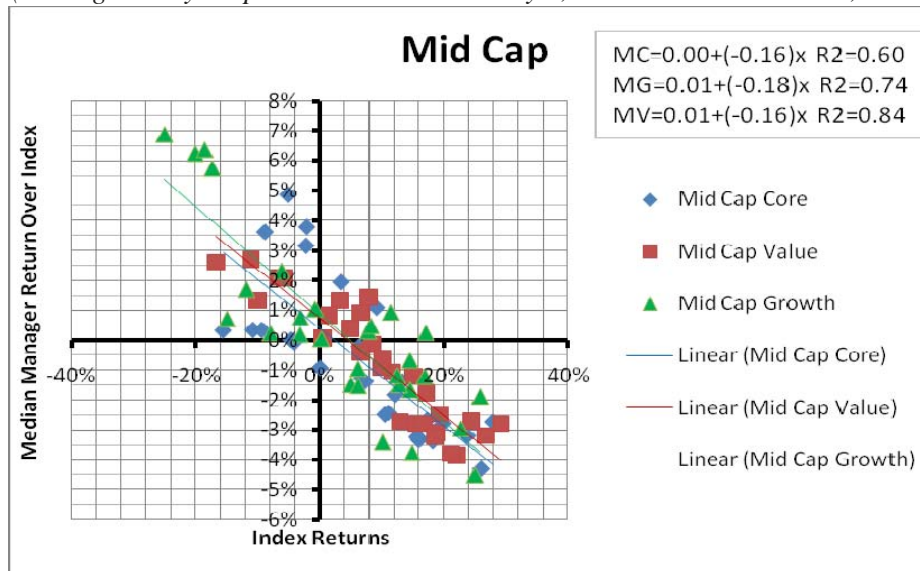
Median large cap value, core and growth fund outperformance vs. index
(Rolling three-year periods between January 1, 2000 and December 31, 2009)



In the large cap space, the *large cap value* relationship is fairly linear. However, *large cap growth* managers showed an ability to outperform when the index is up big and down big. This non-linear (or parabolic) relationship may be attributable to the different sub-styles in *large cap growth* where conservative growth (or G.A.R.P.) managers did well in downturns and high beta (momentum) growth managers did well in up-trending markets.

Exhibit 9

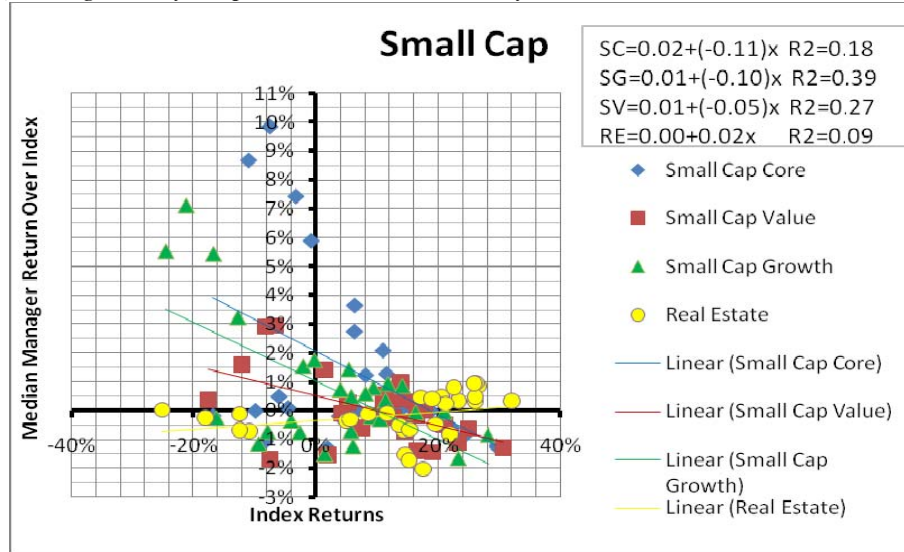
Median mid cap value, core and growth fund outperformance vs. index
(Rolling three-year periods between January 1, 2000 and December 31, 2009)



Mid cap managers had a more linear relationship than large cap managers, where the stronger the index performance, the greater the chance and magnitude of median manager underperformance in that period. However, it was not until mid cap indices were up more than about 10 percent that the median mid cap managers started to (predictably) underperform.

Exhibit 10

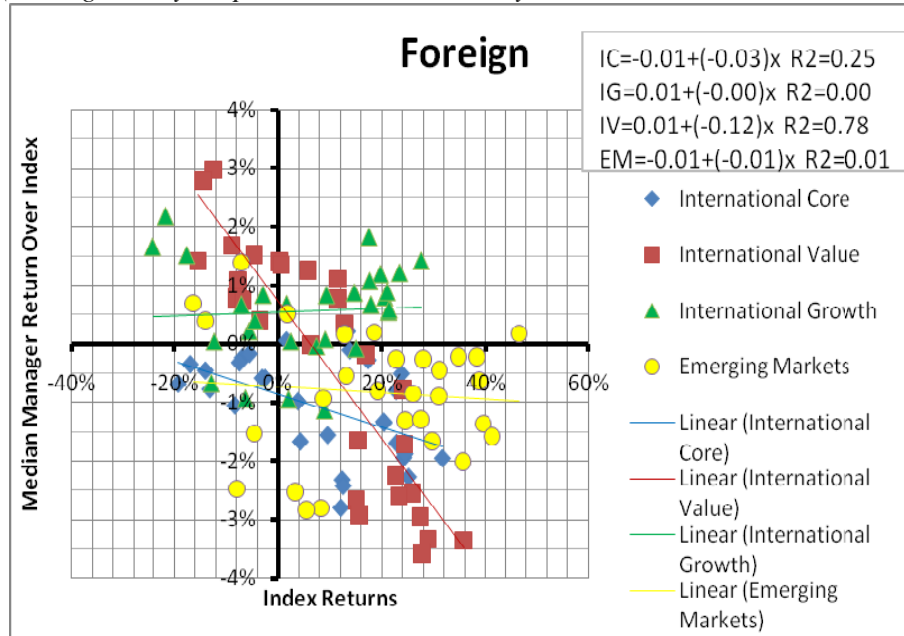
Median *small cap value, core, growth, and real estate* fund outperformance vs. index
(Rolling three-year periods between January 1, 2000 and December 31, 2009)



Small cap core managers have an unusual relationship showing very strong outperformance in both up and down markets. *Small cap value and growth* had more predictive downward-sloping linear relationships (or higher R^2). The above small cap analysis includes *real estate* managers. In extreme up and down markets, the median *real estate* manager tended to outperform. In the more modest sideways markets, the median *real estate* manager tended to underperform.

Exhibit 11

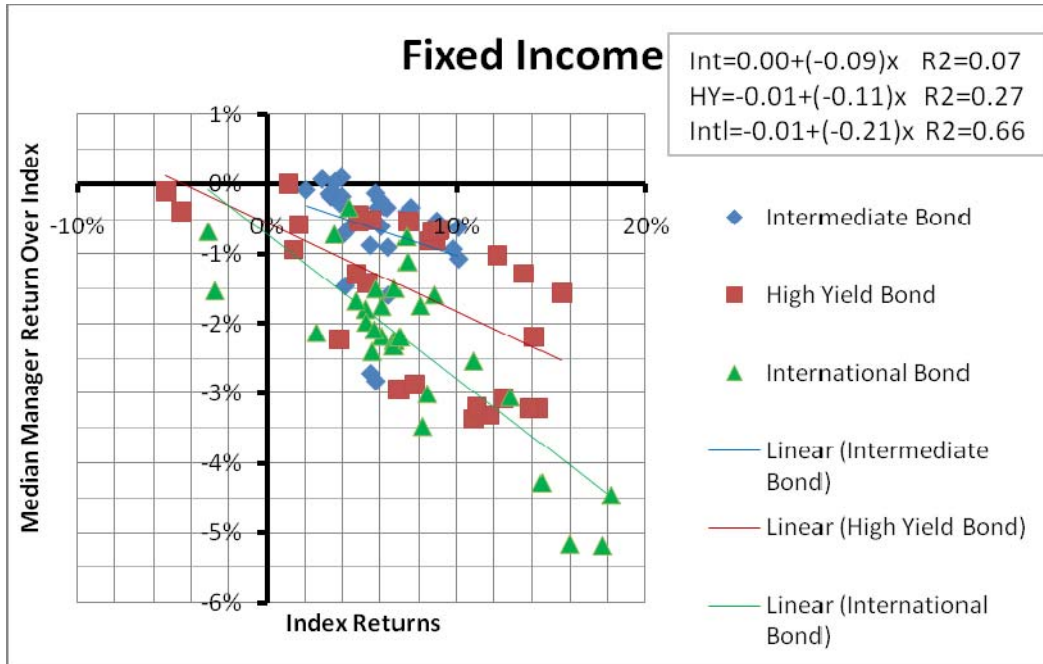
Median *international value, core, growth and emerging markets* fund outperformance vs. index
(Rolling three-year periods between January 1, 2000 and December 31, 2009)



The median growth-focused international manager tended to outperform in both up and down markets with the greater outperformance coming during the more extreme markets. Much like domestic *large cap growth*, this is probably a result of a bifurcated peer group where conservative managers did well in down markets and aggressive, high beta managers did well in up markets. Median *emerging market* manager performance was fairly random with the linear model showing little predictive power of any kind. The median *international core* manager had problems generating outperformance in any rolling three-year period.

Exhibit 12

Median *intermediate bond*, *high yield bond* and *international bond* fund outperformance vs. index
(Rolling three-year periods between January 1, 2000 and December 31, 2009)



Fixed income indices were very difficult to best in any rolling three-year period for median active managers. However, as we will discuss later in the “Owning index funds ≠ owning indices” section, that does not necessarily mean active management in fixed income should be abandoned.

Why do managers tend to underperform in up markets and outperform in down markets?

There are several explanations why indices tend to outperform active managers in up markets and underperform in down markets. When markets are falling, managers’ small cash positions can buttress declines because cash is not a component of indices. However, the cash can act as a headwind in momentum-driven up markets. Another explanation is that indices used to benchmark manager performance are cap-weighted, causing them to be heavily levered to the largest securities in the index. For example, Exxon Mobil made up about 8 percent of the Russell 1000 Value Index in 2008. Many managers would find it imprudent to have an 8 percent position in a single stock. Therefore, when Exxon was one of the best performers, driving the index upward, all managers with less than an 8 percent weight faced a headwind. Furthermore, by definition, stocks with stronger performance will have an increasing weight in the index. As upward momentum in these stocks continues, the index will usually show strong relative performance.

Owning index funds ≠ owning indices

Investors cannot own an index. They can only own an index fund. This distinction is crucial when investors make the active versus passive decision. Index funds seek to mimic indices, but perfect replication is not always possible. This important point is often ignored by many ardent passive investing proponents. 2009 shed some additional light on the topic. In our 2007 paper, we discussed trading costs, management fees, cash flows and replication difficulties as reasons why index funds do not always live up to their promise. Since then, there has been a proliferation of exchange-traded index funds, which has increased the opportunity set for investors to invest passively. The closed-end structure of ETFs has helped with cash management and, to some extent, expenses. However, replication continues to be an issue—and 2009 was no exception. As Exhibits 13–14 show, *emerging markets* and *intermediate bonds*, two asset classes we referenced in our 2007 paper as being difficult and expensive to index, had underperforming ETFs in 2009. These two asset classes were among the most difficult for active managers to best, along with *high yield bonds* and *international core*. Moreover, all happened to be in categories in which ETFs struggled to replicate the indices.

Exhibit 13

Fixed income ETF returns in 2009 versus the indices they are seeking to replicate

Exchange-traded fund (ticker)	2009 NAV return	2009 index return	Difference	ETF fee	Percent of index return gained (lost)
iShares Barclays Int Govt/Credit Bond Fund (GVI)	4.40%	5.24%	-0.84%	0.20%	-16.03%
SPDR Barclays Capital Aggregate Bond (LAG)	5.11%	5.93%	-0.82%	0.18%	-13.83%
iShares Barclays Aggregate Bond Fund (AGG)	5.13%	5.93%	-0.80%	0.24%	-13.49%
iShares Barclays Govt/Credit Bond Fund (GBF)	3.98%	4.53%	-0.55%	0.20%	-12.14%
Vanguard Total Bond Market Index ETF (BND)	6.03%	5.93%	0.10%	0.14%	1.69%
Intermediate Bond Average	4.93%	5.51%	-0.58%	0.19%	-10.76%
SPDR Barclays Capital High Yield Bond ETF (JNK)	50.50%	63.49%	-12.99%	0.40%	-20.46%
iShares iBoxx \$ High Yield Corporate Bond Fund (HYG)	40.68%	44.46%	-3.78%	0.50%	-8.50%
High Yield Bond Average	45.59%	53.98%	-8.39%	0.45%	-14.48%

Fixed income markets were volatile in 2009 as risk appetite returned in full force. 2009 turned out to be a very good year for corporate bonds, and *high yield bonds* had a particularly spectacular year. However, it was not a great year for ETFs seeking to replicate bond indices. The Barclays Capital Aggregate Bond Index includes 8,373 underlying individual bonds, many of which are thinly traded and difficult to purchase. ETFs such as the SPDR Barclays Capital Aggregate Bond (LAG) and iShares Barclays Aggregate Bond Fund (AGG) are not able to purchase all of these securities. LAG has 217 holdings, a little over 2.5 percent of the names in the index. AGG holds 275 securities, which is slightly under 3.3 percent. Even factoring in the drag from fees of 18.5 and 24 basis points, the index funds still lagged their benchmark by 82 and 80 basis points, respectively. LAG investors who were seeking the “index return” in 2009 found themselves giving up over 13.8 percent of the 5.93 percent index return.

High yield bond ETFs were an even bigger disappointment, especially for tactical investors seeking passive exposure to the wide credit spreads in early 2009. The SPDR Barclays Capital High Yield Bond ETF (with the insightful ticker “JNK”) was created to replicate the returns of the Barclays Capital High Yield Very Liquid Index. In 2009, the index was credited with a 63.49 percent return. JNK came up very short with the 157 securities it holds, generating a return of only 50.50 percent. This 13 percent lag meant that investors only participated in 79.5 percent of the benchmark’s total return. Replication is clearly a problem for fixed income ETFs due in large part to structural limitations with the indices they seek to mirror.

Exhibit 14

International equity ETF returns in 2009 versus the index they are seeking to replicate

Exchange-traded fund (ticker)	2009 NAV return	2009 index return	Difference	ETF fee	Percent of index return gained (lost)
SPDR S&P International Small Cap ETF (GWX)	41.47%	45.70%	-4.23%	0.59%	-9.26%
iShares MSCI EAFE Small Cap Index Fund (SCZ)	46.38%	46.78%	-0.40%	0.40%	-0.86%
International Small Cap Average	43.93%	46.24%	-2.32%	0.50%	-5.06%
SPDR S&P Emerging Markets ETF (GMM)	77.02%	84.63%	-7.61%	0.59%	-8.99%
iShares MSCI Emerging Markets Index Fund (EEM)	71.80%	78.51%	-6.71%	0.72%	-8.55%
Vanguard Emerging Markets Stock Index ETF (VWO)	76.28%	78.51%	-2.23%	0.27%	-2.84%
Emerging Markets Average	75.03%	80.55%	-5.52%	0.53%	-6.79%
SPDR S&P World ex-US ETF (GWL)	33.34%	37.37%	-4.03%	0.34%	-10.78%
Vanguard FTSE All-World ex-US Index ETF (VEU)	38.89%	43.00%	-4.11%	0.25%	-9.56%
iShares MSCI ACWI ex US Index Fund (ACWX)	40.85%	41.45%	-0.60%	0.35%	-1.45%
iShares MSCI EAFE Value Index Fund (EFV)	33.80%	34.23%	-0.43%	0.40%	-1.26%
iShares MSCI EAFE Index Fund (EFA)	31.40%	31.78%	-0.38%	0.35%	-1.20%
iShares MSCI EAFE Growth Index Fund (EFG)	29.17%	29.36%	-0.19%	0.40%	-0.65%
SPDR MSCI ACWI ex-US ETF (CWI)	42.07%	42.14%	-0.07%	0.34%	-0.17%
Non-US Equity Average	35.65%	37.05%	-1.40%	0.35%	-3.58%

Higher expenses are often cited as a reason why actively managed international equity funds are likely to underperform their respective indices over time. However, much like fixed income indices, structural issues can prevent international equity index ETFs from fully replicating their indices. International equity indices, especially *emerging markets*, include many illiquid securities. The iShares MSCI Emerging Markets Index Fund (EEM) and Vanguard Emerging Markets Stock Index ETF (VWO) both try to mimic returns of the 761 holdings of the MSCI Emerging Markets Index. However, EEM only holds 439 stocks while VWO holds over 800 securities. Neither approach was successful in 2009. EEM trailed by 6.71 percent and VWO trailed by 2.23 percent, despite fees of only 72 and 27 basis points, respectively.

Conclusion: patient or passive

“Investors should decide before any investment endeavor to be either patient with their active managers or to seek a passively managed approach. As illustrated, the vast majority of long-term top performing managers will endure periods of lousy performance. A combination of short-term greed and impatience is a perilous mix that invariably leads investors to fail.”

- The Next Chapter in the Active vs. Passive Debate (March 2007)

With three additional years of data that included a steep decline and a whiplash-inducing recovery, our original premise still stands. Some asset classes are strong candidates for passive management. In relatively efficient market segments, where index returns are easily replicable on a cost-effective basis and manager persistency is particularly poor, investors should strongly consider passive management. On the other hand, where indexing is costly or replication is difficult, cost-effective active management may be the preferred route.

Investors should decide to be patient before hiring active managers or they should seek a passively managed alternative. Our research continues to show that the vast majority of long-term top performing managers will experience periods of lousy performance. Impatience invariably leads to a self-defeating cycle.

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