Active Vs. Passive

The impact of fees

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In a previous article (see Blanchett and Israelsen [2007]), the authors conducted an analysis of the benefits of active management to correct for a variety of common shortcomings in previous studies and to address the findings of a previously published study by Holmes [2007]. In this article, the authors update their analysis to reflect the impact of mutual fund expense ratios, or fees, by analyzing the returns of active managers on a gross basis (i.e., by adding back the expense ratio).

Determining the net benefit of active management on a gross fee basis is important since different investors pay different levels of management fees, which are typically inversely related to investable assets. Most previous studies, commonly based on mutual funds, use returns for active managers that are reduced by management fees. Since institutional investors tend to pay less than smaller, retail investors, the decision of whether to invest actively or passively involves different considerations at different asset levels. The purpose of this study is to investigate the benefits of active management before fees, in order to determine at what breakpoints active management does in fact lead to greater returns than passive investing.

Previous Research

Similar to past studies, the previous article published by the authors (Blanchett and Israelsen [2007]) found that active management tended to underperform a respective index net of fees. However, the authors are surely not the first, or the last, to weigh in on this great debate. There have been numerous studies completed attempting to determine the benefit of active management (see, for example, Davis [2001]; Arnott, Berkin and Ye [2000]; Sorensen, Miller and Samak [1998]; Carhart, [1997]; Gruber [1996]; Malkiel [1995]; or Brinson, Hood and Beebower [1995], Carosa [2005], Holmes [2007]).

When viewing the markets as a whole (i.e., a zero-sum game), it only makes sense that in the aggregate, all active money managers should under-perform the market by the total fees associated with active investing, both explicit and implicit. However, there has been sound empirical and/or logical evidence in defense of the value of active portfolio management (Pastor and Stambaugh [2002]; Wermers [2000]; Elton, Gruber and Blake [1996]; or Etzioni [1992]). In addition, there is a persuasive "behavioral" argument in favor of actively managed funds (Timbers [1997]).

While the aforementioned articles have each provided insight as to the benefit of active management, the authors have found four common problems in active and passive studies, each affecting prior research in varying degrees.

1. **Potential Survivorship Bias:** A common method to create a sample population for analysis is to look back at all funds as of a current date (e.g., Dec. 31, 2004). This is a "reach-back" technique and is common in active versus passive studies due to its simplicity. While simple, this strategy exposes the data set to survivorship bias since only those funds in existence as of the "look-back date" are included in the analysis.
2. **Head Count vs. Invested Assets:** The majority of active versus passive studies have determined the aggregate benefit of active management as the average performance of the active managers in the study population. Such a strategy ignores the actual assets invested in each fund and consequently the net returns to investors. For example, an analysis based entirely on head count would equally consider a fund with assets of $10 billion and a fund with $1 million, despite the fact one fund has 10,000 times more assets than the other. Measuring active versus passive methodologies using total invested assets, rather than just a raw head count of funds, is a more correct approach, and has been previously employed (see Israelsen [2006]).
3. **Culling The Data Set To Distinct Funds:** Including multiple share classes of a given fund in active versus passive analysis is common since investors actively invest in different share classes. However, the primary difference in expenses related to varying share classes are the costs associated with distribution, which is not directly related to the question of whether or not active management adds value after fees. 12b-1s and other forms of revenue share represent fees for distribution, not active management. Also, a fund with more share classes would have a larger impact on the results in a pure head count analysis. A fund company with 14 share classes of the same fund would have 14 times the weight of a fund with only one share class. This is not a trivial issue. For instance, as of year-end 2007, there were 15,136 U.S. equity mutual funds in the Morningstar Principia database. This total includes all share classes. When employing the "distinct portfolios only" filter in Morningstar's Principia database (which selects only one share class of a multiple share class fund), the number of funds was reduced to 4,576, a reduction of nearly 70 percent.
4. **Index Dependency:** The index selected to represent passive management can have a substantial impact on whether or not active management successfully adds value, since the performance of different indexes can vary considerably. While it is the case that many index funds use an S&P index as their benchmark, using only S&P indexes to represent the performance of "passive management" is inaccurate and misleading. There are many other index providers (MSCI, Russell, etc.) and there is wide variance among the performance of various prominent equity indexes, as demonstrated previously by Carlson [1970] and Israelsen [2005]. As the reader will see from the conclusions, the benchmark index selected for any analysis can have an impact—sometimes considerable—on the results.

In summary, there are a variety of complicating factors that should be considered when attempting to determine the actual benefit realized by those who invest in active management. This paper attempts to address each of these issues.

Our Methodology

The time frame for our analysis was the 10-year period from 1997–2006. The performance data used in this analysis were acquired by means of annual "snapshots" in an attempt to minimize any type of survivorship bias in the data set. In our analysis, year-end performance data

were retrieved from 10 separate year-end Morningstar CDs over the 10-year time period from 1997 to 2006 (i.e., Morningstar Ascent for 1997, Morningstar Principia Pro Plus for the years 1998–2001, and Morningstar Principia for the years 2002–2006). Our methodology of gathering fund performance annually, rather than reaching back over a 10-year period, substantially reduces the potential impact of survivor bias because we minimized the time frame in which a fund could "die" (from 10 years down to one year). In short, our "reach-back" for performance data was 10 one-year periods. As noted in the oft-cited study by Carhart et al. [2002], the impact of survivor bias over a one-year period is a mere 7-basis-point survivor bias, but increases to 66 bps over a 10-year period.

For this analysis, we consider funds within the nine domestic style Morningstar categories. Only those mutual funds that had the same Morningstar fund category and equity style box classification throughout the analysis were included. Additionally, only those domestic equity mutual funds that were not classified by Morningstar as index funds, enhanced index funds or ETFs were included as actively managed funds for the analysis.

This analysis examined both the net return (the return realized by investors after taking into account the expense ratio) and the gross return of each fund in the sample. Gross return is the net return with the annual expense ratio added back in. Our analysis of active versus passive was conducted at three levels: 1) the fund level (i.e., head count of all funds), 2) using only distinct funds (where all the redundant share classes were removed), and 3) the asset level.

The purpose of filtering each fund to a "distinct" share class was to reduce multiple share class funds down to one representative fund. The distinct fund selected was the share class with the lowest expense ratio. The fund with the lowest expense ratio was selected because it would traditionally be the fund with the lowest 12b-1 fee—our rationale being that a 12b-1 fee represents a fee for *distribution*, rather than a fee for *active management*.

Analyzing funds at the asset level was accomplished by weighting the performance of each fund by its share of the total assets in that cohort of funds. This provides the most accurate measure when comparing performance of funds versus passive indexes because, in the end, we need to measure dollars that beat a benchmark or index, not the number of funds that did so.

We selected style-specific indexes from three different index makers to represent an aggregated benchmark against which actively managed funds were measured: MSCI, Russell and S&P. The actual indexes used in our analysis are listed below.

1. **MSCI:** MSCI US Large Cap Value, MSCI US Large Cap 300, MSCI US Large Cap Growth, MSCI US Mid Cap Value, MSCI US Mid Cap 450, MSCI US Mid Cap Growth, MSCI US Small Cap Value, MSCI US Small Cap 1750, MSCI US Small Cap Growth

Figure 1

Test Population Of Actively Managed U.S. Equity Funds

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
HEAD COUNT										
Large Value	302	326	450	532	563	555	801	827	898	978
Large Blend	353	325	173	506	541	700	813	833	729	832
Large Growth	140	317	326	510	547	779	1,092	1,130	1,252	1,245
Mid-Cap Value	94	148	165	140	111	92	163	180	184	211
Mid-Cap Blend	51	96	46	48	76	126	180	155	176	174
Mid-Cap Growth	88	220	257	307	401	463	628	638	689	681
Small Value	163	115	169	116	97	101	147	195	191	221
Small Blend	22	96	76	93	111	167	209	232	234	307
Small Growth	49	176	227	279	313	408	545	560	538	620
DISTINCT										
Large Value	166	170	210	236	240	215	254	273	263	284
Large Blend	215	178	86	245	249	292	293	315	273	301
Large Growth	88	167	165	239	240	325	367	390	397	407
Mid-Cap Value	66	77	84	68	64	43	61	59	58	66
Mid-Cap Blend	36	55	26	28	35	58	65	62	79	76
Mid-Cap Growth	47	118	128	147	165	179	214	221	225	222
Small Value	104	76	101	72	56	49	54	76	71	82
Small Blend	14	53	41	45	49	81	83	88	89	112
Small Growth	27	110	133	145	155	191	202	209	195	219

Source: Morningstar Data

2. **Russell:** Russell 1000 Value, Russell 1000, Russell 1000 Growth, Russell Midcap Value, Russell Midcap, Russell Midcap Growth, Russell 2000 Value, Russell 2000, Russell 2000 Growth
3. **S&P:** S&P 500/Citigroup Value, S&P 500, S&P 500/Citigroup Growth, S&P MidCap 400/Citigroup Value, S&P MidCap 400, S&P MidCap 400/Citigroup Growth, S&P SmallCap 600/Citigroup Value, S&P SmallCap 600, S&P SmallCap 600/Citigroup Growth

The number of actively managed mutual funds included in our analysis each year (both total head count and distinct funds) for each style box are listed in Figure 1. Note, the number of funds used when calculating asset-weighted performance was the same as the head count.

Figure 1 demonstrates the importance of reducing the total fund population to distinct investments. As an example, for the Large Value category, using distinct investments reduced the test population by 71 percent in 2006. A study that does not cull the data for non-distinct funds will find those fund companies (e.g., American Funds) that have many share classes to be disproportionately represented in the test population.

Before discussing the reports, it is important to note that there are some slight differences between the results of this analysis and the original analysis conducted by the authors. First, only mutual funds with known expense ratios were included in this analysis; and second, the number of benchmark indexes was reduced from five to three. This analysis includes only MSCI, Russell and S&P indexes, since these are the most popular index strategies both from an investing (via ETFs or mutual funds) and from a performance comparison perspective.

Group Results

The three different test populations—total head count, distinct funds and asset-weighted performance—had differing average returns for each of the nine domestic asset categories tested. Figure 2 includes geometric average performance for the gross and net test groups over the 10-year test period.

These results represent the results from the entire population of funds available in the real world, not simply a sample of all available actively managed funds. Therefore, any difference in performance is statistically significant.

The gross performance group tended to have higher returns than the net performance group for each category by the approximate average expense ratio.

For the net performance group, the asset-weighted categories tended to outperform the corresponding distinct fund categories, which in turn tended to outperform the simple fund head count categories. The main driver in the performance difference among the different test groups (head count versus distinct versus weighted) was the average or weighted-average underlying expense ratio for the respective category.

Figure 3 includes information on the average expense ratios for the net performance group. Note, for the gross performance group, the expense ratios have been added back to the returns, so the difference between the groups (head count versus distinct versus weighted) is simply a function of the different population sizes and weighted methodologies.

As seen in Figure 3, the asset-weighted group had the lowest expense ratio among the three groups. This suggests investors favor funds with lower expense ratios versus funds with higher expense ratios. The reason that distinct funds have lower expense ratios than the head count funds is because the share class with the lowest expense ratio was selected to represent each investment for the distinct group.

Worth noting, though, is that the asset-weighted performance is based on the performance of all the funds (i.e., head count); therefore, it includes assets invested in B and C shares (which, with their higher 12b-1 fees, places a clear drag on performance).

Interestingly, despite the nearly threefold increase in mutual fund assets over the last 10-year period, the head count, distinct and weighted-average expense ratios for each of the asset categories have remained incredibly constant (not shown by the 10-year average results in Figure 3). One well-known observer has said, "We've imposed soaring

Figure 2

10-Year Gross And Net Geometric Average Annualized Return (1997–2006) For Actively Managed Funds

	GROSS PERFORMANCE			NET PERFORMANCE		
	Head Count	Distinct	Weighted	Head Count	Distinct	Weighted
Large Value	9.74%	9.93%	10.33%	8.36%	8.91%	9.47%
Large Blend	8.75%	8.85%	9.21%	7.36%	7.82%	8.27%
Large Growth	7.57%	8.03%	8.63%	6.04%	6.85%	7.57%
Mid-Cap Value	13.14%	13.20%	13.17%	11.67%	12.02%	12.04%
Mid-Cap Blend	11.09%	11.46%	11.09%	9.58%	10.23%	9.90%
Mid-Cap Growth	9.15%	9.42%	9.12%	7.51%	8.13%	7.86%
Small Value	13.91%	14.03%	13.41%	12.37%	12.77%	12.21%
Small Blend	13.02%	13.43%	13.73%	11.47%	12.13%	12.54%
Small Growth	9.53%	10.06%	9.63%	7.79%	8.61%	8.27%

Source: Morningstar Data

Figure 3

10-Year Average Expense Ratios For The Net Performance Group (1997–2006)

	Head Count	Distinct	Weighted
Large Value	1.37%	1.01%	0.85%
Large Blend	1.37%	1.03%	0.93%
Large Growth	1.49%	1.16%	1.03%
Mid-Cap Value	1.46%	1.17%	1.12%
Mid-Cap Blend	1.49%	1.22%	1.19%
Mid-Cap Growth	1.61%	1.26%	1.23%
Small Value	1.54%	1.25%	1.19%
Small Blend	1.54%	1.29%	1.19%
Small Growth	1.70%	1.42%	1.34%

Source: Morningstar Data

costs on our investors that belie the enormous economies of scale in money management" (Bogle [2005]).

Index Dependency

An article by Holmes [2007], which sparked the authors' original study, notes that "…index funds can periodically be unsuccessful in replicating their respective indices" (i.e., tracking error). The authors agree. However, there is a much larger issue that impinges on the comparison of active management versus index performance. That issue is the dramatic differences in performance that can exist between different indexes within the same style box. This is referred to as index variance.

Figure 4 contains the aggregate performance for the three benchmarks used in this study over the 10-year test period, as well as those for a single calendar year, 1999.

Although the indexes in Figure 4 often have similar aggregate period performance (10-year annualized returns), there are some remarkable differences. For example, the S&P SmallCap 600/Citigroup Growth Index outperformed the Russell 2000 Growth Index by 531 basis points over the 10-year period. This variability is enhanced when looking at one of the test years. For example, in 1999, the S&P Midcap 400/Citigroup Growth Index outperformed the Russell MidCap Growth Index by 3,443 basis points. Such discrepancies can lead to materially different conclusions regarding the potential benefits of active management.

Performance: Head Count Vs. Distinct Vs. Weighted By Assets

The differences between the test sets (head count performance, distinct funds performance and asset-weighted performance) and the two test groups (net return versus gross return) are notable when compared against the three different index families. Figure 5 contains the results for each test group and test set for each of the nine different asset categories tested. The percentages in Figure 5 represent the average amount of out- or under-performance (in percentage terms) of actively managed funds in comparison with the three different indexes using geometrically linked annual returns for each test set for the entire 10-year test period. Highlighted cells indicate where actively managed funds had a higher average return than the respective index over the 10-year period.

The aggregate benefit of active management changes considerably when viewed across the different test groups and test sets and depending on whether it is on a gross or net basis. On a net basis (taking into consideration the underlying fund expense ratios), active management under-performed considerably. However, on a gross basis, active management was able to outperform for a majority of the test scenarios.

For example, on a weighted basis—which is perhaps the most telling test set since it reflects how investors actually invest their money—the active managers under-performed their respective benchmark by an average of 65 basis points using net returns. Contrast this to the results of the gross return test set, where the active managers outperformed their respective benchmark by an average of 47 basis points. This suggests that in the absence of fees (and assuming risk

Figure 4

10-Year Annualized Performance And Performance For 1999 For The Three Different Index Benchmarks

	ENTIRE PERIOD				1999			
	MSCI	Russell	S&P	Range	MSCI	Russell	S&P	Range
Large Value	10.14%	11.00%	9.45%	1.55%	7.35%	4.88%	6.95%	2.47%
Large Blend	7.96%	8.65%	8.42%	0.68%	20.91%	21.04%	22.95%	2.04%
Large Growth	5.60%	5.45%	6.65%	1.20%	33.16%	37.38%	39.79%	6.63%
Mid-Cap Value	14.84%	13.65%	11.52%	3.32%	-0.11%	-2.63%	2.20%	4.83%
Mid-Cap Blend	12.14%	12.14%	13.47%	1.34%	18.23%	14.72%	34.32%	19.60%
Mid-Cap Growth	8.12%	8.61%	15.51%	7.39%	51.29%	36.10%	70.53%	34.43%
Small Value	13.74%	13.27%	12.73%	1.02%	-1.49%	4.91%	-2.17%	7.08%
Small Blend	11.88%	9.44%	11.57%	2.44%	21.26%	12.40%	21.94%	9.54%
Small Growth	8.97%	4.88%	10.19%	5.31%	43.09%	19.72%	49.55%	29.83%

Source: Morningstar Data

Figure 5

10-Year Gross And Net Performance Of Actively Managed Funds Relative To Benchmark Indexes (1997–2006)

	GROSS RETURN				NET RETURN			
	MSCI	Russell	S&P	Average	MSCI	Russell	S&P	Average
	HEAD COUNT							
Large Value	-0.55%	-1.38%	0.08%	-0.62%	-1.91%	-2.75%	-1.29%	-1.98%
Large Blend	0.33%	0.00%	0.17%	0.17%	-1.04%	-1.37%	-1.19%	-1.20%
Large Growth	1.03%	2.09%	0.98%	1.37%	-0.46%	0.60%	-0.51%	-0.13%
Mid-Cap Value	-1.85%	-0.63%	1.58%	-0.30%	-3.31%	-2.08%	0.12%	-1.76%
Mid-Cap Blend	-1.43%	-1.16%	-2.31%	-1.63%	-2.93%	-2.65%	-3.80%	-3.13%
Mid-Cap Growth	0.29%	0.67%	-5.00%	-1.34%	-1.32%	-0.94%	-6.61%	-2.95%
Small Value	0.07%	0.38%	1.21%	0.55%	-1.46%	-1.16%	-0.33%	-0.98%
Small Blend	0.89%	3.14%	1.53%	1.85%	-0.65%	1.60%	-0.01%	0.31%
Small Growth	0.74%	4.58%	1.03%	2.12%	-0.96%	2.88%	-0.66%	0.42%
Average	**-0.05%**	**0.85%**	**-0.08%**	**0.24%**	**-1.56%**	**-0.65%**	**-1.59%**	**-1.27%**
	DISTINCT							
Large Value	-0.37%	-1.20%	0.26%	-0.44%	-1.37%	-2.21%	-0.75%	-1.44%
Large Blend	0.41%	0.08%	0.26%	0.25%	-0.61%	-0.94%	-0.77%	-0.78%
Large Growth	1.59%	2.64%	1.54%	1.92%	0.43%	1.49%	0.38%	0.77%
Mid-Cap Value	-1.87%	-0.64%	1.56%	-0.32%	-3.04%	-1.81%	0.39%	-1.49%
Mid-Cap Blend	-1.12%	-0.85%	-1.99%	-1.32%	-2.34%	-2.07%	-3.22%	-2.54%
Mid-Cap Growth	0.56%	0.94%	-4.72%	-1.07%	-0.69%	-0.32%	-5.98%	-2.33%
Small Value	0.21%	0.51%	1.35%	0.69%	-1.04%	-0.74%	0.09%	-0.56%
Small Blend	1.33%	3.58%	1.97%	2.30%	0.04%	2.29%	0.68%	1.01%
Small Growth	1.35%	5.19%	1.64%	2.73%	-0.07%	3.77%	0.22%	1.30%
Average	**0.23%**	**1.14%**	**0.21%**	**0.53%**	**-0.97%**	**-0.06%**	**-0.99%**	**-0.67%**
	WEIGHTED							
Large Value	-0.01%	-0.84%	0.62%	-0.08%	-0.86%	-1.70%	-0.23%	-0.93%
Large Blend	0.79%	0.46%	0.63%	0.63%	-0.14%	-0.47%	-0.30%	-0.30%
Large Growth	2.43%	3.48%	2.38%	2.76%	1.40%	2.46%	1.35%	1.74%
Mid-Cap Value	-1.86%	-0.64%	1.57%	-0.31%	-2.98%	-1.76%	0.45%	-1.43%
Mid-Cap Blend	-1.31%	-1.03%	-2.18%	-1.51%	-2.49%	-2.22%	-3.36%	-2.69%
Mid-Cap Growth	0.02%	0.40%	-5.27%	-1.62%	-1.22%	-0.84%	-6.51%	-2.85%
Small Value	-0.49%	-0.19%	0.65%	-0.01%	-1.68%	-1.38%	-0.55%	-1.20%
Small Blend	1.48%	3.73%	2.12%	2.45%	0.30%	2.54%	0.94%	1.26%
Small Growth	0.52%	4.36%	0.81%	1.90%	-0.82%	3.02%	-0.52%	0.56%
Average	**0.17%**	**1.08%**	**0.15%**	**0.47%**	**-0.94%**	**-0.04%**	**-0.97%**	**-0.65%**

Source: Morningstar Data

of actively managed funds is comparable to the risk of index-based funds), if active management can be obtained for 47 basis points or less, it may be a worthwhile investment.

A second analysis was conducted to determine the likelihood of a group of active managers outperforming their respective style box indexes. The overall period percentages were calculated by averaging each of the one-year outperformance percentages for the 10-year test period. The results are shown in Figure 6. Highlighted cells indicate where more than 50 percent of the actively managed funds (or assets) beat their respective index.

The relative benefit of active management is dramatically impacted when compared against different indexes, when examining head count or asset-weighted results, and when using gross or net returns. However, unlike Figure 5, where active management tended to result in higher performance on a gross basis, most of the funds (on a gross and net basis) did not tend to outperform their respective indexes. Again, while there were certain categories where active management fared better than others, in the aggregate, most funds did not outperform their respective index. This suggests a positively skewed distribution, where those funds that did outperform did so by a margin greater than those that under-performed,

Figure 6

Percentage Of Actively Managed Funds (Or Assets) That Outperformed A Peer Index (1997–-2006)

	GROSS RETURN				NET RETURN			
	MSCI	Russell	S&P	Average	MSCI	Russell	S&P	Average
	HEAD COUNT							
Large Value	44.07%	34.71%	43.10%	**40.62%**	33.56%	26.56%	34.02%	**31.38%**
Large Blend	52.65%	46.34%	49.10%	**49.36%**	41.93%	33.84%	35.38%	**37.05%**
Large Growth	53.56%	56.68%	51.11%	**53.78%**	45.66%	47.42%	42.61%	**45.23%**
Mid-Cap Value	34.45%	38.48%	56.27%	**43.07%**	26.99%	31.55%	46.52%	**35.02%**
Mid-Cap Blend	43.80%	40.21%	37.27%	**40.42%**	36.75%	33.05%	30.87%	**33.56%**
Mid-Cap Growth	43.76%	45.73%	33.07%	**40.85%**	37.04%	37.31%	27.23%	**33.86%**
Small Value	48.15%	50.79%	54.29%	**51.07%**	38.30%	43.97%	43.85%	**42.04%**
Small Blend	53.99%	60.42%	55.17%	**56.53%**	45.56%	53.48%	46.41%	**48.48%**
Small Growth	41.25%	57.68%	42.02%	**46.98%**	34.22%	50.03%	36.83%	**40.36%**
Average	**46.18%**	**47.89%**	**46.82%**	**46.97%**	**37.78%**	**39.69%**	**38.19%**	**38.55%**
	DISTINCT							
Large Value	45.68%	36.22%	43.91%	**41.94%**	37.98%	29.82%	37.11%	**34.97%**
Large Blend	52.60%	46.82%	49.27%	**49.56%**	45.26%	37.63%	38.89%	**40.59%**
Large Growth	54.33%	57.42%	52.22%	**54.65%**	48.64%	50.89%	45.82%	**48.45%**
Mid-Cap Value	35.81%	37.99%	56.10%	**43.30%**	30.07%	33.85%	47.60%	**37.17%**
Mid-Cap Blend	44.40%	42.11%	40.39%	**42.30%**	38.19%	35.59%	34.96%	**36.25%**
Mid-Cap Growth	45.48%	46.57%	33.93%	**41.99%**	40.47%	40.85%	29.63%	**36.99%**
Small Value	49.04%	50.53%	53.89%	**51.15%**	40.89%	44.88%	46.22%	**44.00%**
Small Blend	54.85%	61.77%	55.65%	**57.43%**	47.36%	56.06%	48.12%	**50.51%**
Small Growth	43.31%	58.97%	44.27%	**48.85%**	38.10%	53.22%	39.71%	**43.68%**
Average	**47.28%**	**48.71%**	**47.74%**	**47.91%**	**40.77%**	**42.53%**	**40.90%**	**41.40%**
	WEIGHTED							
Large Value	47.05%	39.35%	46.06%	**44.15%**	41.79%	32.35%	39.50%	**37.88%**
Large Blend	55.54%	50.19%	54.01%	**53.25%**	47.95%	40.92%	40.74%	**43.20%**
Large Growth	59.19%	62.09%	56.46%	**59.25%**	55.78%	56.59%	49.11%	**53.83%**
Mid-Cap Value	32.66%	40.07%	57.59%	**43.44%**	27.05%	34.62%	51.08%	**37.58%**
Mid-Cap Blend	41.91%	39.97%	38.66%	**40.18%**	35.55%	37.17%	35.30%	**36.01%**
Mid-Cap Growth	48.40%	49.43%	37.07%	**44.96%**	42.49%	41.91%	32.65%	**39.02%**
Small Value	44.43%	45.00%	52.86%	**47.43%**	36.61%	39.85%	44.65%	**40.37%**
Small Blend	54.11%	59.81%	59.26%	**57.73%**	47.58%	55.21%	52.92%	**51.91%**
Small Growth	42.90%	59.35%	47.11%	**49.79%**	35.70%	53.34%	42.09%	**43.71%**
Average	**47.35%**	**49.47%**	**49.90%**	**48.91%**	**41.17%**	**43.55%**	**43.12%**	**42.61%**

Source: Morningstar Data

in order to account for the higher aggregate active management outperformance.

Recall that our methodology consisted of using actual indexes as the benchmark. Had the costs associated with index investing been included in the analysis (e.g., 10 bps), this would have been slightly more favorable toward active management, since the expense ratio would have reduced the index fund's net performance. The important question is then, at what level does the net cost of active management (defined as the cost of active management minus the passive strategy) make it worthwhile?

The short answer is: It depends. Figure 7 contains the necessary "net expense ratios" for active management to equal a respective passive strategy, in magnitude (i.e., raw outperformance) or likelihood (i.e., the probability of beating the index). A negative number indicates that even if active management were "free," it will still underperform a passive strategy. A positive number (highlighted cells) indicates the expense ratio cost (i.e., reduction in performance) that can be subtracted to make it equal to the respective passive strategy. For example, if an actively managed small-cap blend fund has an annual expense ratio of 1.97 percent or less, it will likely outperform a passively managed alternative.

Conclusion

Overall, we have found that active management net of fees does not consistently outperform a similar passive (i.e., index) strategy. However, when fees are added back to returns, we find that active management can in fact add value, although the benefits vary by category and benchmark. Since investors of varying sizes pay different asset management fees, these costs are important to take into consideration when determining whether to seek active or passive investment.

Finally, when conducting active management performance comparisons, there are a number of important assumptions that must be clarified—the most obvious being the benchmark chosen to represent a "passive return." We have attempted to demonstrate that those assumptions can have a material impact on the results of such comparisons.

Figure 7

Cost of Active Management to Equal the Index

Equalize *The Likelihood* of Outperformance				
	MSCI	**Russell**	**S&P**	**Average**
Large Value	-0.53%	-1.35%	0.10%	**-0.59%**
Large Blend	0.13%	-0.18%	-0.01%	**-0.02%**
Large Growth	0.43%	1.50%	0.39%	**0.77%**
Mid-Cap Value	-2.28%	-1.03%	1.19%	**-0.71%**
Mid-Cap Blend	-1.59%	-1.31%	-2.45%	**-1.79%**
Mid-Cap Growth	-0.30%	0.08%	-5.60%	**-1.94%**
Small Value	-0.47%	-0.14%	0.66%	**0.02%**
Small Blend	1.02%	3.24%	1.64%	**1.97%**
Small Growth	-0.85%	3.01%	0.39%	**0.85%**
Average	**-0.49%**	**0.42%**	**-0.41%**	**-0.16%**

Source: Morningstar Data

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