

The Morningstar Box Score Report

Taxes Are an Additional Cost That Takes a Bite

Second Half 2009

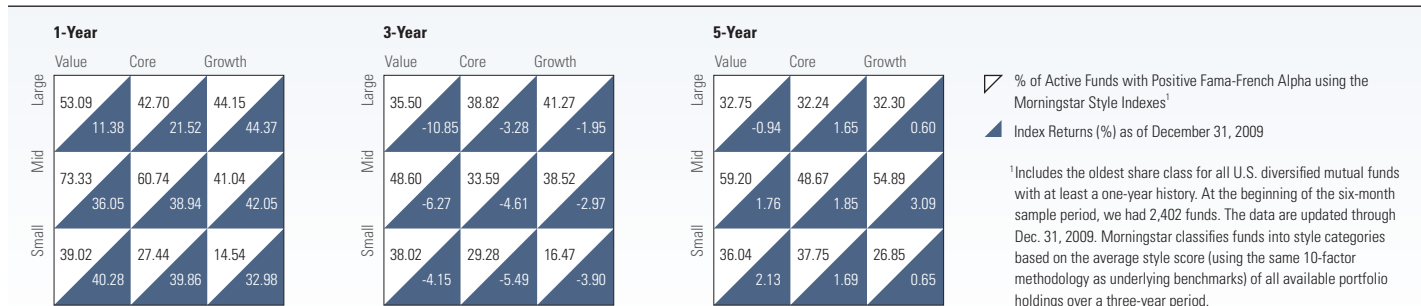
Morningstar Indexes Research

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In this Issue:

- ▶ After accounting for the sensitivity to risk, size and style as well as costs, only about a third of active funds in the study had positive alpha over the past three years
- ▶ We found evidence of the Purity Hypothesis in 2009, as active funds performed better relative to their respective Morningstar Style Index in poor areas of the market, with the opposite true in hot areas of the market based on overall performance
- ▶ While it is true that taking taxes into account makes many outperforming funds underperformers, large cap funds were hit harder than other cap sizes

Figure I: % of Active Funds with Positive Fama-French Alpha by Morningstar Style Box



Style is a useful tool in evaluating the U.S. equity market, and the Morningstar Style Indexes give perspective across the entire capitalization and style spectrum. One interesting application of the indexes is to compare them against the performance of active funds. Most comparisons of active funds emphasize the overall performance results versus a set of indexes. The Box Score Report (BSR) shows these results, but it also compares them with two regression-based measures: Jensen's alpha and the Fama-French alpha. These techniques are quite comprehensive because they adjust for different levels of risk, as measured by sensitivity to the market, style, and size. Some other analyses of active management do account for style by comparing active funds to a style

index, and we show these results as well. While this may work for some funds, the full range of opportunities available to active funds is difficult to capture. A better way to capture the true diversity in style exposure within the active fund universe is by employing these statistical measures. Hence, we can better determine which fund is adding value or not.

Analyzing funds over time shows that the universe is not constant. On average, about 5% of funds have liquidated or merged over any of the past six-month periods on average. As a result, the BSR adjusts for survivorship bias. Funds that merge, liquidate, or close are referred to as obsolete funds and are usually underperformers. Results

would be biased upward in favor of active funds if these obsolete funds were not counted. The BSR adjusts for survivorship bias by using the performance of obsolete funds for the period available, which are considered outperforming if the performance exceeds the respective Morningstar Style Index.

The Morningstar Style Indexes are style-pure. This means the indexes use a comprehensive and nonoverlapping approach based on the methodology for the Morningstar Style Box.

The Morningstar Style Indexes represent each area of the style box and do not combine value stocks with growth stocks in any way.

As a result, active funds tend to outperform most often in the style box category with the weakest results and underperform the most often in the style box category with the strongest results. In addition, blend funds are compared with the core indexes in the Morningstar Style Index Family.

The BSR framework assesses active managers against the Morningstar Style Indexes. In every semiannual issue, the report will compare and contrast results on an overall and risk-adjusted basis to get a clearer picture of where active funds are adding value and where they are not. This report is broken down into an overview, risk adjustment, other factors, and conclusion.

Overview

None of the nine style categories have the majority of active funds beating their respective Morningstar Style Indexes with the Fama-French alpha method, versus two for the overall performance method. In addition, risk in the portfolio again differentiated the top-performing active funds from the bottom-performing ones. As expected, the bull market in equities in 2009 certainly explains the change in the top performing funds. Nonetheless, active funds had a tough time beating their respective Morningstar Style Indexes in 2009.

Another factor that has a big impact on investor return is taxes. On the whole, the downdraft from the tax bite was enough to turn some active funds from outperforming into underperformers. Large-cap active funds were particularly hit hard. Moving from net returns to after-tax returns, outperformance for large-cap funds fell 24 percentage points based on overall returns over the past three years.

Risk Adjustment: All Signs Pointing in the Same Direction

We have chosen two ways to adjust for risk, using Jensen's alpha and the Fama-French alpha. These measures account for the varying sensitivities to the market of funds in order to determine risk-

adjusted performance. Specifically, Jensen's alpha measures excess return of the fund compared with the market normalized to the same sensitivity. The more sensitive the fund is to the overall equity market, the more return the fund would have to generate, all else equal. A positive alpha means that a fund has outperformed the market, and the flip side is true if alpha is negative. To understand how funds are doing by style category, we looked at the Jensen's alpha for each group.

In addition, we calculated the Fama-French alpha, commonly referred to as the three-factor alpha. The Fama-French alpha not only accounts for a fund's sensitivities to the market, but also adjusts for the sensitivities to size and style. Many managers are benchmarked to broad indexes, which can lead to misleading results. The size disparity between the broad indexes' constituents and active funds' constituents is a factor. Some other analyses of active management do account for style. However, it is difficult to capture the true diversity in style exposure within the active fund universe. Morningstar's Style Indexes avoid trying to capture style effects by having style pure indexes, and use the Fama-French alpha to better capture all of these affects. The Fama-French alpha shows whether a manager achieves excess returns over the normalized benchmark with the same sensitivities to market moves, size, and style.

Based solely on overall returns, only 41% of active funds beat their respective Morningstar Style Indexes over three years. This led to only two out of nine style boxes with the majority of active funds exceeding their respective Morningstar Indexes over the same period. Switching to a risk-adjusted basis, when measured by Jensen's alpha, the results are similar. However, the percentage of active funds with positive alpha fell to 35% based on the Fama-French alpha. In addition, none of the style boxes had the majority of active funds outperforming when measured by Fama-French alpha (where the alpha factors are constructed using Morningstar's Broad Index series). Once we adjust for style choices active funds made, the ability to add value diminishes.

Other Factors

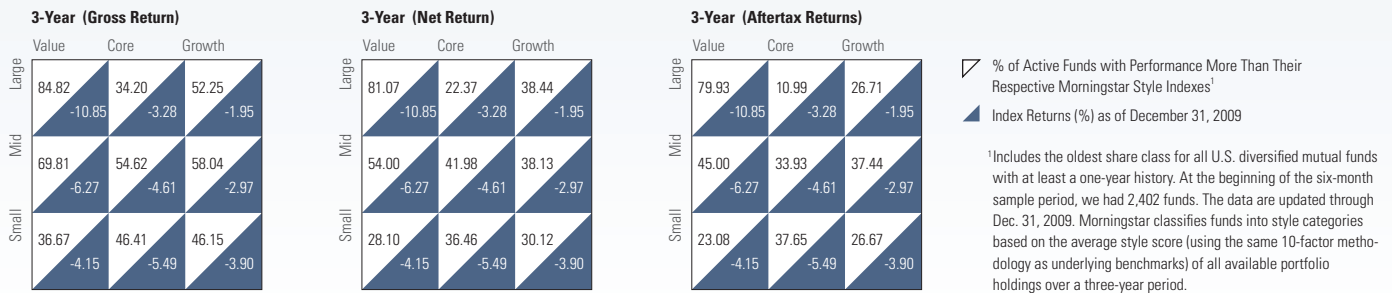
Penny-Pinching Matters

Another simple fact is that expenses can have a big impact on performance, especially over the long haul. Morningstar calculates gross returns for funds as a simulation of the returns investors would have received had they not paid any expenses. Using gross returns will increase the number of funds that exceed their benchmarks. Using gross returns, 54% of active funds beat the Morningstar Style Indexes compared with 41% on a net return basis. Mid-caps showed the biggest increase in funds from underperforming to outperforming. For example, mid-cap growth outperforming active funds increased by 20 percentage points. Figure III shows the percentage of active funds exceeding their index. The number of style boxes with the majority of active funds exceeding the index grows to five out of nine using gross returns.

Of course, expenses are not the only factor that can change the returns investors ultimately get. Uncle Sam takes his share, and for some funds that share is larger than others. Aftertax returns are measures of fund performance that take into account the taxes a hypothetical investor pays on fund distributions and capital gains. While a fund's total return reflects the performance of the underlying securities, the aftertax return reflects the net gains or losses that an investor receives after paying taxes. Unlike gross returns that can be calculated on a monthly basis, aftertax returns can only be calculated with an assumed holding period. Morningstar assumes that an investor holds the fund for the entire performance period.

It is expected that taking into account taxes will reduce the number of funds that outperform, and in future issues we could compare them to investable products based on indexes. Indexes do not have expenses nor taxes taken into account, which would reduce their overall returns. Still, it is worth reviewing these results to identify the areas with the biggest change in outperformance after taking into account taxes.

Figure II: % of Active Funds Exceeding the Morningstar Style Indexes



On the whole, the downdraft from the tax bite is less than the gains from removing expenses. Overall, 36% of active funds exceed the Morningstar Style Indexes. Running the same analysis as before, the percentage of funds beating their respective Morningstar Style Indexes must decrease. The biggest decrease from net to aftertax occurs in large caps, with both large core and large growth categories decreasing by 11 percentage points. The number of style boxes with the majority of active funds exceeding the index falls to one out of nine using aftertax returns.

Applying the Purity Hypothesis

It is also interesting to observe factors that may have provided tail winds or head winds for active funds during the period. One explanation is the purity hypothesis by Hammond Associates. The idea is that active funds perform better relative to their respective Morningstar Style Index in poor areas of the market, with the opposite true in hot areas of the market.

Figure III demonstrates the purity hypothesis for 2009. The figure shows the performance of the Morningstar Style Indexes from least to greatest return for the year. On the vertical axis, the figure shows the percentage of active funds exceeding their respective Morningstar Style Indexes. As the figure shows, the index return easiest to beat had the greatest number of active funds beating their indexes, and in 2009, the index with the smallest return was the Morningstar Large Value Index. The opposite holds true for the category with the best return, which in 2009 was the Morningstar Large Growth Index. The correlation between index

return and the percentage of active funds outperforming is 94% for the one-year period ending December 2009. Part of the reason the hypothesis worked so well in 2009 is the fact that there is such a wide distribution in returns. For example, the Morningstar Large Value Index rose only 11% in 2009 while the Morningstar Large Growth Index gained 44%.

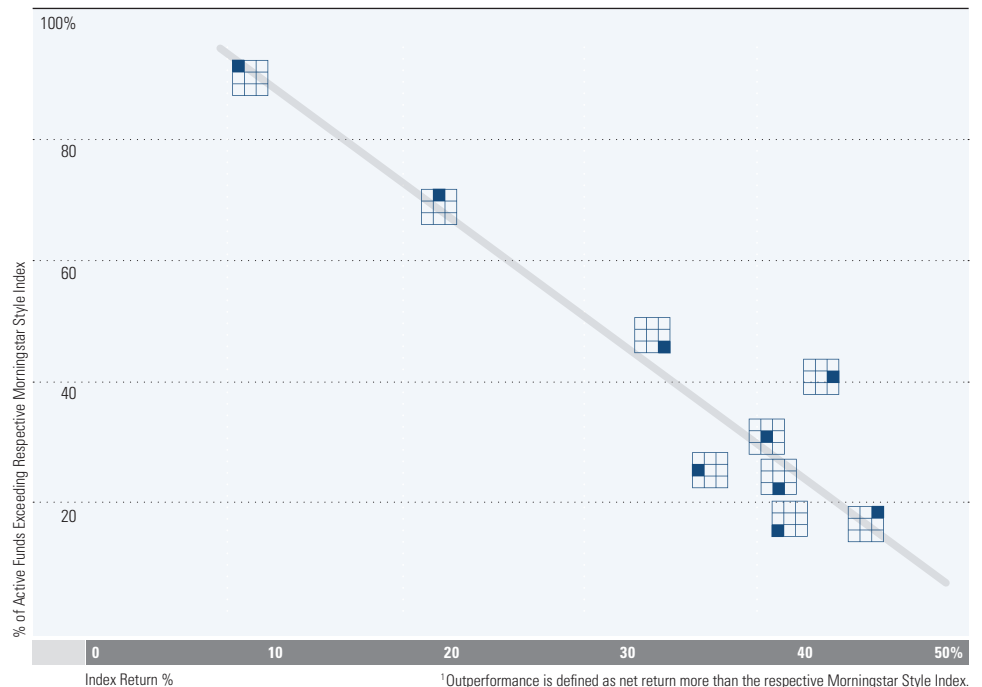
Conclusion

There are many ways to assess performance of active funds, and we have shown three: percentage of active funds exceeding the Morningstar

Style Index based on net returns, Jensen's alpha, and Fama-French alpha. Using these different methods allows a clearer picture of fund outperformance. There was only one style category with positive alpha for the three-year period ending December 2009 based on the Jensen's alpha.

The Fama-French alpha method paints a similar picture in this issue of the BSR. Large value was the only category to have the majority funds classified as outperformers using the Fama-French alpha method.

Figure III: Percentage of Active Funds Exceeding the Morningstar Style Indexes



We also delved into how costs can change the picture of fund analysis. It is expected that gross returns would give active funds a boost, and accounting for taxes would hurt. Surprisingly, mid-caps showed the most improvement when switching to gross returns and large-caps took the biggest tax hit. Clearly, taxes change the results materially, and any analysis of active funds would be improved by taking taxes into account.

In addition, we showed that the purity hypothesis was alive and well in 2009. This hypothesis refers to the fact that we observe active funds outperforming most often in the worst-performing style box category and the opposite in the best-performing category. Correlation was 94% between the percentage of active funds outperforming and the Morningstar Style Indexes returns. This explanation may not hold up in every year, but worked exceptionally well in 2009. Investors need to ask whether their active fund shone because of how it was classified or because of alpha creation. ■■■

For more information on Morningstar Indexes, call 1 312 384-3735 or visit us on the Web at <http://indexes.morningstar.com>

Data As of 12/31/2009

Indexes	Historical Returns %				Historical Risk % (Std Dev)			Jensen's Alpha	3 Factor Alpha	Current Portfolio Statistics ¹				Fund Flows (\$ Millions)			
	6 Mo	1 Yr	3 Yr	5 Yr	1 Yr	3 Yr	5 Yr	3 Yr	3 Yr	Cash Position (%) [*]	P/E	P/B	Avg Mrkt Cap	Erngs Grth ²	No. of Hold.	3 Mo	1 Yr
US Market	23.16	28.45	-5.02	1.09	22.32	20.39	16.50	-	-	-	18.35	2.13	23,429	13.18	1,640	-	-
U.S. Value	22.33	17.95	-9.44	-0.12	26.05	20.76	16.92	-	-	-	14.59	1.46	27,341	3.15	518	-	-
U.S. Core	23.09	25.96	-3.55	1.79	24.43	20.82	16.73	-	-	-	18.18	2.40	23,702	12.05	582	-	-
U.S. Growth	24.12	43.00	-2.26	1.20	16.79	21.45	17.74	-	-	-	24.05	3.25	19,719	25.06	540	-	-
Large Value Indexes	18.24	11.38	-10.85	-0.94	23.94	19.21	15.86	-	-	-	14.75	1.54	62,091	3.91	68	-	-
Cat Avg (Asset Wgt)	20.12	23.05	-0.19	0.01	23.53	20.08	15.96	0.41	-0.04	3.19	15.39	1.86	29,758	9.66	130	-76,446,871	-217,358,718
Cat Avg (Equal Wgt)	22.09	24.13	-7.32	0.02	24.04	20.78	16.77	-0.04	-0.16	3.72	15.33	1.73	36,533	6.37	97	-	-
1st Quartile Funds	26%	37%	-6%	16%	26.27	18.79	15.33	0.49	0.22	3.62	15.11	1.75	22,744	8.78	81	-54,397,258	-153,912,169
2nd Quartile Funds	23%	26%	-16%	5%	23.36	20.41	16.58	0.12	-0.04	2.59	15.41	1.76	27,185	8.58	136	-28,735,710	-45,964,497
3rd Quartile Funds	21%	21%	-21%	-1%	23.22	20.86	16.83	-0.17	-0.22	3.11	15.36	1.81	29,801	9.26	99	-6,904,455	-68,577,407
4th Quartile Funds	18%	13%	-29%	-11%	21.70	22.65	18.00	-0.59	-0.58	5.59	15.01	1.94	29,790	10.66	74	13,590,552	51,095,355
Mid Value Indexes	32.53	36.05	-6.27	1.76	33.44	26.27	21.02	-	-	-	13.99	1.30	3,866	0.00	188	-	-
Cat Avg (Asset Wgt)	23%	31%	-14%	3%	25.50	23.12	18.07	0.11	0.10	3.87	15.50	1.59	4,936	10.06	142	8,674,854	-46,631,918
Cat Avg (Equal Wgt)	27.12	35.41	-5.35	1.36	25.97	24.21	19.84	-0.06	-0.16	4.74	17.15	1.42	5,094	11.10	101	-	-
1st Quartile Funds	32%	49%	0%	31%	29.48	21.34	17.73	0.47	0.3	3.08	13.90	1.51	4,354	9.70	121	-18,681,679	-134,684,385
2nd Quartile Funds	27%	35%	-11%	12%	24.61	21.43	18.62	0.06	-0.04	4.69	15.64	1.67	4,528	11.20	89	1,061,547	-10,181,483
3rd Quartile Funds	25%	29%	-16%	3%	23.31	23.88	19.07	-0.16	-0.25	3.37	14.51	1.60	4,662	13.27	104	3,527,298	40,734,716
4th Quartile Funds	21%	11%	-24%	-14%	24.18	26.50	20.20	-0.62	-0.64	7.83	14.66	1.77	5,707	11.22	95	22,767,688	57,499,235
Small Value Indexes	38.12	40.28	-4.15	2.13	37.75	28.76	23.42	-	-	-	14.33	1.23	983	-1.38	262	-	-
Cat Avg (Asset Wgt)	17%	20%	-9%	11%	22.67	20.36	16.80	-0.06	0.07	13.79	13.78	1.47	5,428	7.58	218	-13,976,770	96,464,129
Cat Avg (Equal Wgt)	26.44	31.32	-6.13	0.67	30.76	25.48	21.41	-0.09	-0.16	5.92	12.87	1.18	1,185	8.52	181	-	-
1st Quartile Funds	34%	54%	2%	27%	31.72	21.54	18.70	0.41	0.25	6.18	12.54	1.19	786	10.05	133	-1,716,622	2,482,197
2nd Quartile Funds	28%	32%	-11%	9%	29.64	25.38	20.99	0.07	-0.06	4.21	13.93	1.30	823	8.34	269	-12,406,279	-11,758,849
3rd Quartile Funds	24%	26%	-19%	-2%	26.91	25.50	21.80	-0.21	-0.24	4.36	14.45	1.39	1,033	9.39	188	-5,446,114	76,898,011
4th Quartile Funds	18%	15%	-28%	-14%	26.33	25.99	21.42	-0.62	-0.61	9.11	14.75	1.37	793	10.83	126	5,592,244	28,842,771

¹ Current portfolio holding statistics are quartiled based on 6-month performance, unless otherwise noted.

² Earnings Growth Rate = The long-term projected earnings growth rate for the portfolio based on available third-party analysis estimates for EPS growth.

*Cash position quartiles are based on the active-funds three-year return.

Data As of 12/31/2009

Indexes	Historical Returns %				Historical Risk % (Std Dev)			Jens- en's Alpha	3 Factor Alpha	Current Portfolio Statistics ¹						Fund Flows (\$ Millions)	
	6 Mo	1 Yr	3 Yr	5 Yr	1 Yr	3 Yr	5 Yr	3 Yr	3 Yr	Cash Position (%)*	P/E	P/B	Avg Mrkt Cap	Erngs Grth ²	No. of Hold.	3 Mo	1 Yr
Large Core Indexes	21.15	21.52	-3.28	1.65	24.01	19.71	15.74	-	-	-	18.26	2.67	51,473	11.05	80	-	-
Cat Avg (Asset Wgt)	18%	24%	-13%	1%	22.06	19.96	15.62	-0.04	0.05	4.04	16.37	2.15	26,286	10.33	190	-46,265,915	-127,770,032
Cat Avg (Equal Wgt)	22.06	28.17	-5.53	0.46	21.98	20.47	16.62	-0.08	-0.17	3.71	16.90	2.25	45,806	11.18	146	-	-
1st Quartile Funds	26%	39%	-3%	18%	24.20	19.54	16.66	0.40	0.21	4.06	17.07	1.99	23,490	12.77	122	-19,360,083	-39,994,396
2nd Quartile Funds	22%	29%	-12%	6%	22.20	20.25	15.90	0.05	-0.04	2.68	16.82	2.12	26,622	13.36	221	-2,972,684	-37,232,676
3rd Quartile Funds	21%	24%	-17%	0%	21.14	20.79	16.82	-0.21	-0.23	2.79	16.86	2.20	30,246	13.16	151	-31,191,102	-92,241,222
4th Quartile Funds	17%	11%	-24%	-10%	20.42	22.02	17.66	-0.56	-0.62	5.37	16.44	2.21	30,137	14.21	93	7,257,953	41,698,262
Mid Core Indexes	28.52	38.94	-4.61	1.85	25.42	24.97	20.56	-	-	-	18.11	2.07	3,911	15.70	209	-	-
Cat Avg (Asset Wgt)	20%	29%	-10%	5%	24.47	24.08	19.33	0.14	0.10	6.78	14.47	1.63	2,348	6.82	85	-15,816,167	31,918,145
Cat Avg (Equal Wgt)	25.02	37.39	-4.62	1.43	24.02	24.13	19.95	-0.06	-0.13	5.81	16.00	1.77	4,138	14.20	105	-	-
1st Quartile Funds	32%	52%	1%	25%	26.82	21.26	18.69	0.44	0.31	3.91	15.86	1.81	4,178	13.97	156	-26,331,836	-51,597,045
2nd Quartile Funds	25%	36%	-10%	10%	24.24	22.20	17.64	0.07	-0.03	3.46	16.16	1.79	4,620	14.40	142	2,360,045	15,382,504
3rd Quartile Funds	22%	29%	-17%	-1%	20.58	24.08	18.30	-0.21	-0.25	5.87	16.35	1.86	4,949	15.74	72	5,627,876	42,574,237
4th Quartile Funds	18%	3%	-27%	-17%	24.03	25.34	21.29	-0.54	-0.54	10.31	17.09	2.09	4,572	14.27	71	2,527,748	25,558,450
Small Core Indexes	27.94	39.86	-5.49	1.69	30.93	26.87	22.45	-	-	-	17.38	1.51	1,016	13.45	293	-	-
Cat Avg (Asset Wgt)	23%	32%	-12%	9%	27.49	24.43	19.97	0.11	-0.01	4.01	15.58	1.68	891	10.18	264	-17,904,376	-22,496,579
Cat Avg (Equal Wgt)	24.48	31.80	-6.11	0.47	28.56	25.19	20.87	-0.06	-0.17	4.21	15.41	1.68	1,332	16.44	261	-	-
1st Quartile Funds	30%	53%	0%	30%	29.44	24.99	21.23	0.49	0.31	4.99	15.77	1.54	969	12.87	179	-3,352,462	-15,762,528
2nd Quartile Funds	25%	35%	-12%	11%	28.46	24.68	20.04	0.09	-0.03	3.96	15.45	1.59	1,151	14.29	300	-4,421,368	6,532,867
3rd Quartile Funds	22%	28%	-19%	0%	26.81	25.43	21.05	-0.19	-0.27	3.88	15.19	1.56	1,031	14.09	300	-10,611,103	-24,639,789
4th Quartile Funds	17%	19%	-31%	-17%	27.96	25.59	21.27	-0.63	-0.69	3.99	15.08	1.65	749	14.97	142	480,557	11,372,871

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	6 Mo	1 Yr	3 Yr	5 Yr	1 Yr	3 Yr	5 Yr	3 Yr	3 Yr	Cash Position (%) [*]	P/E	P/B	Avg Mrkt Cap	Erngs Grth ²	No. of Hold.	3 Mo	1 Yr
Large Growth Indexes	24.42	44.37	-1.95	0.60	15.39	20.56	16.94	-	-	-	24.00	3.35	41,753	26.60	85	-	-
Cat Avg (Asset Wgt)	21%	33%	-7%	12%	19.22	20.89	16.98	-0.03	0.02	3.71	20.37	2.73	26,968	18.15	243	-82,935,121	-201,326,272
Cat Avg (Equal Wgt)	22.46	35.68	-2.89	1.21	18.98	21.15	17.48	-0.08	-0.17	2.67	20.78	2.91	34,237	24.08	93	-	-
1st Quartile Funds	27%	49%	3%	21%	20.38	21.20	17.49	0.4	0.21	2.36	22.26	2.96	22,753	19.95	93	-28,934,322	-83,423,398
2nd Quartile Funds	23%	37%	-6%	8%	18.73	20.73	17.30	0.05	-0.04	1.95	20.78	2.88	26,934	19.85	132	-14,636,778	-43,819,174
3rd Quartile Funds	21%	31%	-11%	1%	18.71	20.53	17.11	-0.21	-0.23	2.31	19.43	2.83	27,805	19.52	87	-33,714,314	-71,235,512
4th Quartile Funds	18%	17%	-19%	-10%	18.43	21.93	17.81	-0.56	-0.62	4.06	19.95	2.80	27,332	20.92	60	-5,649,707	-2,848,188
Mid Growth Indexes	25.37	42.05	-2.97	3.09	20.09	24.33	20.32	-	-	-	23.88	3.09	4,221	21.47	186	-	-
Cat Avg (Asset Wgt)	22%	35%	-8%	13%	22.04	23.90	19.53	0.05	0.03	3.06	21.37	2.52	4,768	16.44	142	-21,423,285	-21,636,185
Cat Avg (Equal Wgt)	23.77	39.11	-3.09	1.76	21.27	23.67	19.99	-0.08	-0.16	3.30	19.98	2.52	4,733	19.73	91	-	-
1st Quartile Funds	28%	53%	3%	28%	24.19	22.99	20.01	0.39	0.25	3.29	22.09	2.70	4,488	19.58	94	-6,387,149	-12,395,927
2nd Quartile Funds	25%	42%	-6%	14%	20.82	23.03	19.27	0.07	-0.04	2.25	20.84	2.59	4,438	19.26	106	8,750,728	33,757,148
3rd Quartile Funds	22%	34%	-11%	5%	21.54	24.03	20.24	-0.19	-0.24	2.89	20.90	2.63	4,294	18.27	90	-9,440,331	-18,742,260
4th Quartile Funds	17%	19%	-23%	-9%	19.84	24.55	20.51	-0.58	-0.62	4.82	20.25	2.62	4,572	20.34	78	-14,346,532	-24,255,146
Small Growth Indexes	18.09	32.98	-3.90	0.65	25.16	25.06	21.67	-	-	-	25.27	2.74	1,094	17.23	269	-	-
Cat Avg (Asset Wgt)	16%	23%	-11%	4%	23.70	24.12	20.16	-0.04	-0.16	4.98	19.27	2.26	1,170	12.89	281	-12,176,502	37,436,025
Cat Avg (Equal Wgt)	22.01	35.46	-4.89	0.37	24.70	24.76	21.24	-0.16	-0.21	3.69	20.48	2.39	1,405	19.15	128	-	-
1st Quartile Funds	28%	50%	0%	22%	25.90	23.78	20.16	0.4	0.27	3.49	19.44	2.19	1,022	19.43	107	-1,193,839	-1,882,059
2nd Quartile Funds	23%	37%	-10%	8%	24.27	24.73	20.62	0.07	-0.05	3.45	20.46	2.32	1,036	17.60	156	-2,606,767	8,592,134
3rd Quartile Funds	21%	31%	-16%	-2%	24.08	24.56	21.38	-0.20	-0.25	3.78	20.14	2.24	1,068	18.30	141	-6,651,379	7,737,685
4th Quartile Funds	17%	20%	-26%	-16%	24.67	26.05	22.65	-0.90	-0.82	4.05	19.21	2.20	1,167	20.49	102	-1,724,517	22,988,264

¹ Current portfolio holding statistics are quartiled based on 6-month performance, unless otherwise noted.

² Earnings Growth Rate = The long-term projected earnings growth rate for the portfolio based on available third-party analysis estimates for EPS growth.

^{*}Cash position quartiles are based on the active-funds three-year return.

Methodology

Morningstar Style Categories

The Morningstar Indexes Box Score Report covers all U.S. stock mutual funds, including funds that have merged, liquidated, or otherwise become obsolete during the reporting period as represented by the Morningstar US Open End Mutual Funds Database. Morningstar currently tracks more than 22,000 individual share classes of mutual funds in the U.S. market, all of which have been aggregated up to the fund level pro rata by total net assets for the purposes of this analysis.

The Morningstar Indexes Box Score Report applies several screens to our database in order to best define the set of actively managed investments.

For the purposes of this report we remove funds with the following characteristics:

- Exchange Traded
- Enhanced Index
- Fund of Funds
- Lifecycle Funds
- Master-Feeder Funds
- Term Trust Funds
- Hedge Funds
- Private Funds
- Covered Call Funds
- Offshore Vehicles
- UCITS
- Insurance Related Products

In addition to removing Sector Focused, Long/Short, and Bear Market funds as defined by the Morningstar categorization methodology, we have also removed funds that implement a passive-type investment strategy. These excluded funds include DFA funds, Vanguard Tax-Managed funds, and Direxion leveraged funds.

Methodology Links

Portfolio Classification

http://corporate.morningstar.com/US/documents/MethodologyDocuments/MethodologyPapers/Morningstar-Category_Classifications.pdf

US Market Index Definitions

http://corporate.morningstar.com/US/documents/MethodologyDocuments/MethodologyPapers/MorningstarIndex_Methodology.pdf

Gross Return Methodology

http://corporate.morningstar.com/US/documents/MethodologyDocuments/MethodologyPapers/GrossReturns_Methodology.pdf

After-Tax Methodology

http://corporate.morningstar.com/US/documents/MethodologyDocuments/MethodologyPapers/MorningstarAfterTaxReturn_Methodology.pdf
Data Point Definitions

Morningstar Indexes Box Score Report

Morningstar Category:

For purposes of this report, we hold the Morningstar category assignment constant for the period of analysis. For each six-month and one-, three-, and five-year period, the category assigned at the beginning of the period is used for analysis.

Beginning Funds Count:

For each time period, the full set of mutual funds available for investment at that time is selected for consideration. Each is categorized according to the Morningstar Indexes Box Score Report category methodology, rendering a survivorship-bias-free data set for manager analysis.

Obsolete Funds Count:

Over the analysis period, all funds rendered obsolete by either merging their assets to a new fund or liquidating to shareholders are considered obsolete. These are the non-surviving funds for that period.

Survivorship %:

Survivorship rates are calculated as percentage of beginning funds not rendered obsolete during the given observation window.

Outperformance Count:

Outperformance is determined as the number of all surviving funds that outperformed their respective Morningstar Style Index returns during the test period. Obsolete funds that exceed their respective Morningstar Style Indexes for the period available increase the outperformance count.

Outperformance Percentage:

This is defined as the outperformance count divided by the beginning funds count.

Outperformance Average Return:

The average return of outperforming funds represents an equal weighted average of all funds found in the outperformance count.

Equal-Weighted Category Return:

The equal-weighted category return is calculated using Morningstar category methodology. Morningstar category averages measure how a category performed over a period.

Asset-Weighted Category Return:

The asset-weighted category return leverages the same methodology discussed in the equal-weighted return, except returns are weighted by assets of each share class at the beginning of the calculation period.

Fund Performance Calculations:

All fund performance is calculated for the oldest share class, in order to offer the longest-dated data set for analysis. Fund performance is reflected net of expense ratio; however, it is not adjusted for sales charges.

Morningstar Index Performance Calculations:

All index performance calculations are gross of fees.

N-tile Breakpoints:

All calculated breakpoints for the nth percentile represent the value, which is explicitly less than n percent of the data.

Cash Position:

This score is the percentage of the fund's assets in cash. This figure is calculated on only the long positions of the portfolio.

Batting Average:

The batting average measures the manager's ability to meet or beat the market consistently. It is calculated by dividing the number of quarters in which the manager beats or matches the index by the total number of quarters in the period.

References:

Thatcher, William. "When Indexing Works and When It Doesn't in U.S. Equities: The Purity Hypothesis." *The Journal of Investing*, Vol. 18, No. 3 (Fall 2009)