SIZE MATTERS

Particularly for Small Cap Funds

Key takeaways

- Small funds **outperform** large funds investing in small-capitalization stocks
- Small funds exhibit **greater agility** in trading than large funds
- Small funds display **style persistency** relative to large funds, which tend to style drift

The mutual fund industry has experienced massive growth over the past few decades. At the end of the 1990s, the total amount invested in mutual funds in the United States was less than $7.0 trillion. Today, this figure amounts to more than $19 trillion. During the same period, the number of funds increased by only 17%, which implies that on average, mutual funds are getting larger.[1]

Given the impressive recent growth in average mutual fund size, a practical question is whether large funds have a competitive advantage over small funds. The answer to this question is not obvious. On the one hand, large funds exhibit economies of scale, which can result in lower managing costs, which in turn can translate into lower expense ratios, thus improving fund performance net of fees. On the other hand, a large asset base potentially decreases fund performance because of limited investment opportunities available and significant price impact when trading.

In this paper, we document a negative relationship between fund size and fund performance. We find that large mutual funds underperform small mutual funds by an average of 75 basis points (bps) per year when investing in U.S. small-capitalization stocks. Also, relative to small funds, large funds trade less and drift more towards mid- and large-capitalization stocks, suggesting that they may not have the flexibility to optimally allocate capital.

These results are not particularly surprising given that small-capitalization stocks is an asset class where capacity constraints are likely to be especially important.

Overall, our results suggest that small funds, relative to large funds, are better suited to provide exposure to small-capitalization stocks.

Motivation

The mutual fund industry looks very different today than it did a few decades ago. Regulatory changes following one of the worst financial crises in modern history, evolving investor preferences, and technological advances, among others, have changed the way in which asset managers structure their businesses. In fact, many mutual fund families allegedly seeking profitability have opted to pursue economies of scale rather than capped, niche investment strategies. In other words, some managers are choosing to build infrastructure to *grow assets* rather than build investment solutions to *outperform benchmarks*.

Academic financial research shows that fund performance decreases with fund size.

Interestingly, academic research on this topic shows that, overall, as funds grow in size their expected performance suffers, most likely due to large funds hitting capacity constraints.

Capacity constraints is an interesting and intuitive subject. In certain asset classes –such as small-capitalization stocks– where there are limited investment opportunities, the negative relationship between fund size and fund performance is stronger. This may be because large amounts of capital could not be exclusively deployed to a manager's best ideas and thus, a manager may be forced to invest in subpar ideas that otherwise would not have been considered. Also, deploying relatively larger amounts of capital in less liquid segments of the market may produce significant price impact thus reducing the profitability of such trades.

Fund Size and Performance

To show the relationship between fund size and fund performance we undertake a portfolio approach, which is commonly used in academic research.[2] We consider all U.S. mutual funds in the Morningstar Small Cap category between January 1994 and December 2018.[3] Each month, we divide the funds in the sample into three equally sized groups based on fund size (i.e., assets under management). Throughout this paper, the smallest group is labeled *small*, the middle group *mid*, and the largest group *large*.

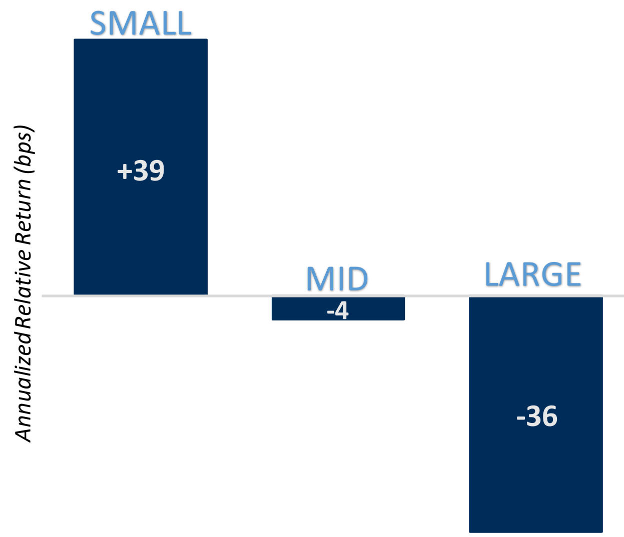

Figure 1 - Average annualized benchmark-adjusted return per fund size group. SOURCE: Innealta Capital.

Figure 1 plots the average annualized benchmark-adjusted return for each of the three groups.[4] The figure shows that the smallest tercile –which is comprised of funds with a maximum size of $102 million in AUM as of December 2018– is the best performer, with an annualized benchmark-adjusted net return of 39 bps. The medium tercile –funds with a maximum size of $538 million– exhibit an annualized benchmark-adjusted net return of -4 bps. The largest tercile –with an average fund size of $2.2 billion– shows an average annual benchmark-adjusted net return of -36 bps. The return differential between the largest and smallest terciles is 75 bps. In other words, small funds outperform large funds by 0.75% per year when investing in small-capitalization stocks.

While the annual performance differential of 0.75% is sizeable, its true economic magnitude and implications can be appreciated even more over a long-term context.

Small funds, on average, outperform large funds by 0.75% per year when investing in small-capitalization stocks.

Figure 2 shows that $1 million consistently invested in the average small fund from 1994 to 2018 would generate an additional $1.5 million in gains relative to the amount gained by investing $1 million in the average large fund.

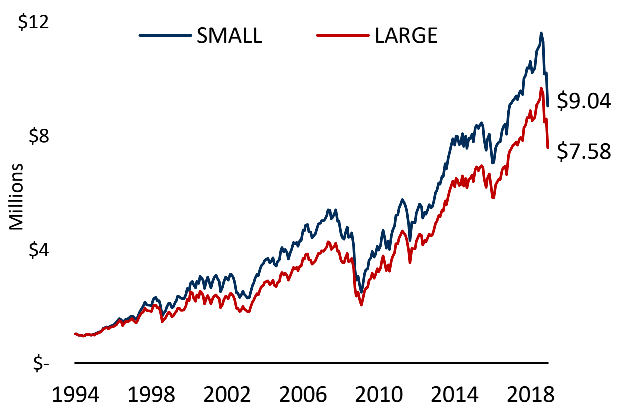

Figure 2 – Growth of a million dollars from January 1994 to December 2018. SOURCE: Innealta Capital.

Fund Size and Flexibility

Next, we explore whether there is a relationship between fund size and fund agility in trading, proxied by fund turnover. Figure 3 plots the average annual turnover ratio for the three groups previously analyzed. The figure shows a stark negative relationship between fund size and turnover. The small funds show a turnover of 103.5%, on average. In contrast, the mid and large funds exhibit much lower average turnover: 88.6% and 67.9%, respectively.

This observation is consistent with the idea that a large asset base limits trading due to capacity constraints. If this is the case, it is possible that a large asset base may force funds to remain invested, or increase the investment, in suboptimal positions for lack of feasible investment alternatives.

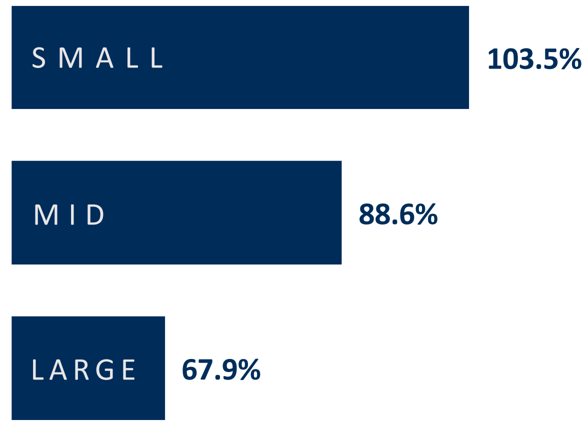

Figure 3 – Average annual turnover ratio per fund size group. SOURCE: Innealta Capital.

Fund Size and Style Drift

If overgrown funds are negatively affected by capacity constraints, it is possible that their tendency to invest in small-capitalization stocks will be compromised. Consequently, investors buying the largest U.S. small-capitalization funds may not be getting the small-capitalization premium exposure that they are expecting. To assess this, we investigate the relationship between mutual fund size and the likelihood that a fund alters its style to accommodate a larger asset base.

Large funds may be forced to dilute their pure small-capitalization equity exposure to accommodate for a larger asset base.

We find that large funds are twice as likely than small funds to be recategorized by Morningstar from small-capitalization to mid- or large-capitalization as a result of increasing the market capitalization of the underlying holdings.

Said differently, Morningstar captures the tendency of larger funds to style drift.

One might speculate that large mutual funds may be forced to dilute their pure small-capitalization exposure to accommodate their now larger asset base.

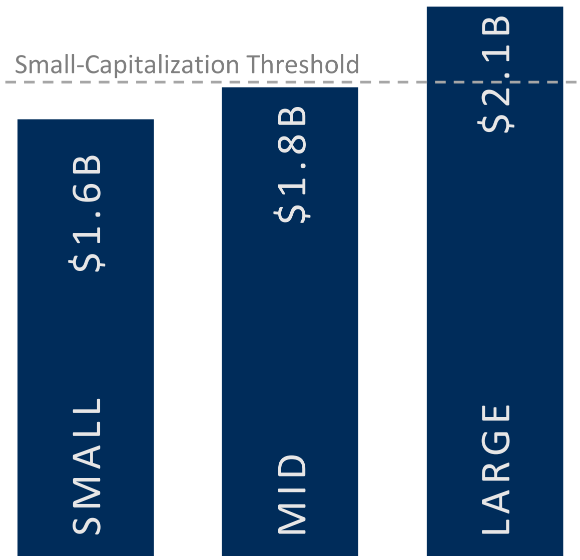

Figure 4 – Average value-weighted market capitalization per fund size group. SOURCE: Innealta Capital.[5]

Consistent with this intuition, Figure 4 plots the average value-weighted market capitalization of all funds as of December 2018, by fund size group. Large funds tend to invest in stocks with a market capitalization $422 million higher than small funds. Moreover, large funds exhibit approximately $200 million higher average value-weighted market capitalization than the Russell 2000 Index, a common gauge for small-capitalization exposure.

Conclusion

In this piece, we show that the negative relationship between mutual fund size and mutual fund performance in the U.S. small-capitalization fund space. The evidence is consistent with the explanation that the largest funds are often forced to invest in larger stocks, a fact that not only has implications for performance, but also asset allocation. Investors buying the largest U.S. small cap funds may often not be getting the small-capitalization premium exposure they expect, even though they are paying for it.

About Acclivity Investment Research

Acclivity Investment Research (AIR) is the factor-based investing division of Innealta Capital, a quantitative asset management firm based out of Austin, Texas. Innealta Capital's investment solutions range from dynamic multi-asset allocation portfolios to factor-based solutions.

AIR provides investors with academically rooted, empirically proven investment solutions within U.S. equities. These strategies aim to provide higher expected returns by focusing on less crowded segments within the market. Our unique infrastructure allows us to be agile and cost-effective in capturing factor premiums.

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[1] Investment Company Fact Book 2018. A Review of Trends and Activities in the Investment Company Industry. 58th edition.
[2] See, for example, Chen, J., Hong, H., Huang, M. and Kubik, J.D., 2004. Does fund size erode mutual fund performance? The role of liquidity and organization. *American Economic Review*, 94(5), pp.1276-1302.
[3] To be included in the analysis, mutual funds need to have more than $1m in assets and at least 12 monthly observations.
[4] The average monthly return of the funds in the US Fund Small Blend, US Fund Small Growth, and US Fund Small Value Morningstar categories are used as performance benchmarks for the funds in each category.
[5] Small-Capitalization Threshold represents the value-weighted market capitalization of the Russell 2000 Index.

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The Russell 2000 Index measures the performance of Russell 2000 companies. Frank Russell Company is the source and owner of the trademarks, service marks and copyrights related to the Russell Indexes. Indices do not reflect any fees, expenses or sales charges and are not available for direct investment. Morningstar U.S. open-end fund data for US Small Cap funds from 01/01/1994 to 12/31/2018. The sample used excludes index funds, funds smaller than $1 million, funds with less than 12 months of return data, and highly concentrated funds with more than 50% weight in top 10 holdings. The sample is free of survivorship bias. The analysis is robust to alternative specifications and thresholds. Full research details are available upon request.

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