



Average funds versus average dollars: Implications for mutual fund research [☆]



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ABSTRACT

The top 5% of actively managed U.S. equity mutual funds in 2012 had greater aggregate TNA than the remaining 95% of funds combined. This skewness in size has implications for mutual fund research: What is true of the average fund is not necessarily true of the average dollar. We explore several key findings in the literature with an eye on this distinction. Our results indicate that if the goal of mutual fund research is to understand the importance of the industry to investors, then researchers should consider the experience of the average dollar, rather than the average fund.

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1. Introduction

U.S. equity mutual funds vary tremendously in size. As of the end of 2012, in our sample of 1685 actively managed funds alive at that time, the total net assets (TNA) of the 70 largest funds exceeded the combined TNA of all the remaining 1615 funds.¹ The top two funds, the American Funds *Growth Fund of America* and the Fidelity *Contrafund*, had a combined TNA of \$197 billion, which was greater than the combined TNA of all 1011 funds at or below the 60th percentile (in terms of size).

The variation and skewness in fund size have important implications for mutual fund research. Crucially, what is true for the average fund may not be true for the average fund investor. For example, over the period 1991 to 2012, the average equity fund in our sample is 9.5 years old, charges a total expense ratio of 1.4%, and has a turnover ratio of 106%. However, over this same period, the average invested dollar owns a fund that is 28.2 years old, charges an expense ratio of 1.0%, and has a turnover ratio of only 64%. Thus, looking at the typical fund's attributes paints a potentially misleading picture of what investors actually experience.

Clearly, there are interesting questions that pertain to the average fund, rather than the average fund-dollar. The answers to these questions, however, are often difficult to extrapolate to fund-dollars. For example, a line of studies beginning with Jensen's (1968) seminal contribution shows that the average fund manager does not have the ability to consistently generate positive abnormal returns, or "alpha". The conclusion frequently drawn is that investors would be better off in low-cost, passively managed index funds, but this conclusion does not necessarily follow. Recent work by Berk and van Binsbergen (2013) documents that managerial

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¹ Our sample is the universe of actively managed equity funds (as defined by us) in the CRSP Survivor-Bias-Free U.S. Mutual Fund Database. We collapse multiple share classes to form each fund-month observation. A detailed description of the sample follows in the next section.

skill should be measured as the product of the managers' gross alpha and the size of the fund they manage. If a small percentage of fund managers have skill, and they are concentrated at large funds (as one might guess they would be), then investors, on average, could benefit from active management even though the average fund manager lacks skill.

With this in mind, our broad goal is to explore several key results in the mutual fund literature that are not directly related to managerial skill.² We focus on the role of fund size and the difference between the average fund and the average fund-dollar. In particular, we consider two questions, both of which have figured prominently in the mutual fund literature:

1. Is the mutual fund flow/performance relation convex?
2. Is there a “smart money” effect in fund flows?

Beginning with the convexity issue, we first verify that funds, on average, appear to face a convex flow/performance relation, even after controlling for the funds' size (Chevalier and Ellison, 1997; Ippolito, 1992; Sirri and Tufano, 1998). The conventional interpretation of this relation is that investors reward successful funds, but don't punish unsuccessful ones (at least not to the same degree). Further, it is argued that this behavior by investors leads to call option-like payoffs for fund managers and may induce “tournament” behavior among fund managers (e.g., Brown et al., 1996).

However, in contemporaneous research, Spiegel and Zhang (2013) show that the apparent convex flow/performance relation is due solely to misspecification in the standard empirical model. Likewise, when we examine the convexity issue from the standpoint of the average fund-dollar, we provide clear evidence that the majority of flows are not convex. We find that the convex relation is primarily due to a large number of funds that collectively manage less than 30% of the total assets in our sample. For the remaining 70% of the assets, we find that investors reward and punish top and bottom performing funds with about equal regard. Thus, consistent with the previous literature, we find that the average mutual fund manager does appear to face incentives to increase risk and take advantage of the convex flow relation under the standard model, but we show that this result cannot be extrapolated to the average investor, or fund-dollar. Investors do not, in general, asymmetrically reward fund managers. Rather, they appear to both reward and punish top and bottom performers with equal vigor.

One natural critique of our work is that researchers have long been aware of the effect of fund size and have made several attempts at controlling the issue. For example, the literature often includes fund size or some transformation of fund size, e.g., log size, as a control in empirical specifications or alternatively removes the smallest funds from samples for robustness. With regard to controlling for size in a linear regression format, such approaches assume that fund size is linear in effect on the dependent variable. We demonstrate that this is not necessarily the case.

As for removing the smallest funds from the sample, we find that procedure makes a non-meaningful change in the distribution of fund size. For example, the median TNA in our sample is \$214MM. When we remove the smallest 10% of funds each month, the median TNA only raises to \$275MM. In other words, eliminating the smallest funds from the sample still leaves a large number of relatively small funds remaining. In an effort to provide a tractable alternative, we provide a method to enable researchers to instead re-specify their models to focus on the largest funds, rather than eliminating the smallest.

We then follow previous studies and document a “smart money” effect (e.g., Gruber, 1996; Keswani and Stolin, 2008; Zheng, 1999). Following the previous literature, we find that funds with above median net flows (as a percentage of TNA) subsequently outperform funds with below median net flows by an economically and statistically significant 5.5 basis points per month. However, as with our convexity result, the smart money effect is driven by smaller funds. Thus, the typical dollar in net flow (or, equivalently, the typical investor's net flow) is not “smart.”

Taken together, once we focus on fund-dollars rather than funds, we see that the stylized facts from mutual fund research are often based on an economically small portion of the industry. We show that flows respond linearly to past performance and do not exhibit the ability to successfully anticipate future performance among over 70% of industry's assets. And in general, we find that the choice to focus on funds or fund-dollars can lead to very different conclusions.

The remainder of this paper proceeds as follows. Section 2 discusses our sample and issues that arise in the mutual fund literature. Section 3 characterizes the average fund against the average fund-dollar. We consider flow/performance convexity and smart money in Sections 4 and 5, respectively. Sections 6 and 7 contain suggestions for future research and conclusions.

2. Sample selection

Our sample contains actively managed U.S. equity mutual funds from the CRSP Survivor-Bias-Free U.S. Mutual Fund Database over the 1991–2012 period. We start in 1991 because that is when TNA data (which we must have) become available at a monthly frequency.³ Extracting only actively managed equity funds from the CRSP universe requires us to make a number of decisions regarding such things as how to deal with blended funds, sector funds, and newly launched funds. We also must decide whether to examine funds at the share-class level or aggregate portfolio level. How researchers handle these choices leads to very large differences in sample size (and composition) in the literature. Thus, our goal in this section is to carefully describe how we arrive at our final sample and to highlight some issues that arise.

² Numerous studies that directly address managerial skill, e.g., Fama and French (2010), typically test both equal and TNA-weighted portfolios to control for the effect of size.

³ Though our final sample begins in 1991, the earliest our tests can begin is 1992 because of the need to lag certain variables.

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