



Style drift: Evidence from small-cap mutual funds[☆]

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ABSTRACT

This paper documents that small-cap mutual funds allocate on average 27% of their portfolio to mid- and large-cap stocks. We find that larger and older small-cap funds are more likely to hold mid- and large-cap stocks, consistent with funds straying from their objective over time. Funds that invest heavily in mid- and large-cap stocks expose their investors to unanticipated risks but investors do not experience higher abnormal returns or performance persistence overall. These funds did outperform their peers by 3% annually in the most recent period between January 2003 and March 2010.

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1. Introduction

Apple Inc.'s surging shares have prompted hundreds of mutual funds to buy the stock—including many that are not expected to invest in a giant, U.S.-based technology company that pays no dividends. At least 50 small-cap and midcap mutual funds—which focus on small and midsize companies—own Apple, the world's largest company by market value, according to analyses for *The Wall Street Journal* by market-data firms Morningstar Inc. and Ipreo Holdings LLC.

– *The Wall Street Journal*, March 14, 2012

Investors choose mutual funds based on their investment objectives. They can choose among the broader asset classes (equity, fixed income, and money market funds) with further choices available within each class. For example, for equity-oriented funds,

the selection can be narrowed down to capitalization-based strategies, sector-specific funds, or style-driven funds, among others. This granularity is helpful to investors when setting their optimal asset allocation mix, since it allows them to set their exposure to specific type of risk (e.g., risk associated with small-cap or large-cap stocks). However, while funds specify their investment objectives in their prospectuses, it is not guaranteed that they follow self-stated investment strategies. Indeed, as quoted above, *The Wall Street Journal* reported on March 14, 2012, that “at least 50 small-cap and midcap mutual funds—which focus on small and midsize companies—own Apple, the world's largest company by market value.”

When investors decide on their optimal allocation across all asset classes, they are likely to pick small-cap funds assuming that the risk exposures will correspond to a typical set of small companies. In other words, the investor's reason for investing in a small-cap fund is primarily to gain exposure to a diversified portfolio of small stocks that completes their overall asset allocation. Small-cap fund managers are expected to use their expertise and industry connections to pick the right stocks within the small-cap stock universe, and potentially perform better than the universe of small stocks in aggregate.

In response to this demand from investors, managers generally categorize themselves as specialists in particular styles. These styles provide information about the investment set, and thereby the risk exposures for the investors. Consequently, if managers deviate from their stated style, they will expose the investors to unanticipated risks, and will reduce the investors' ex-ante welfare. Such behavior can benefit the managers because they might be

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able to economize on management fees or use their talent in analyzing company fundamentals over a larger set of stocks (like mid- and large-cap stocks in the case of small-cap focused fund). Additionally, managers are subject to labor market pressures and might be tempted to deviate from their investment objective if this gives them short-term gains. Therefore, style drift presents a clear conflict of interest between managers and investors.

Small-cap focused funds provide an ideal setting to assess the prevalence and consequences of style drift behavior. Small-cap fund objectives are clearly defined compared to other fund objectives and therefore providing a benchmark for small-cap funds is not ambiguous. In contrast, funds focusing on growth or value stocks have strategies based on vague terms, open to interpretation by the manager. Furthermore, style drift across market capitalizations is likely to be a conscious managerial choice, while managers can unintentionally drift across other style dimensions, such as growth or value, which cannot be clearly defined. Therefore, our study provides an important contribution to the literature that studies the consequences of mutual funds' style drift for investors.

Using the CRSP Survivor-Bias-Free U.S. Mutual Fund Database, we document that it is not uncommon for small-cap funds to invest outside of their objective. On average, small-cap funds allocated 27% of their net asset value to mid- and large-cap stocks (defined as Russell 1000 constituents and equivalent, see [Section 2.1](#)) during our sample period of 1995 to 2010. The allocation to mid- and large-cap stocks was highest in 2002 and 2009, with a value close to 35%, and this allocation has exceeded 20% in all years after 2000. The tendency to hold mid- and large-cap stocks is also persistent over time at the fund level, suggesting that certain types of funds employ this strategy. We find that the top decile of funds hold in excess of 60% of their portfolio in mid- and large-cap companies. These funds potentially mislead investors who are under the impression that they invest in a properly behaving small-cap fund. Furthermore, we find that, among all small-cap funds, larger and older mutual funds are more likely to hold large stocks.

In some respect, funds that deviate from their investment objective can be thought to deliver value to their investors if they can achieve superior out-of-sample risk-adjusted returns. Our empirical evidence suggests that small-cap funds investing in mid- and large-cap stocks do not deliver superior out-of-sample performance relative to small-cap funds that do not invest in large-cap stocks over either the entire sample period of 1995 to 2010 or the full sample excluding the technology bubble period. Interestingly, we document an economically significant underperformance (−6.1% per year) by the small-cap funds that invest extensively in large-cap stocks during the first half of our sample period (1995–2002) and an economically and statistically significant out-performance (3.0% per year) during the second half of our sample (2003–2010), in comparison to small-cap funds that do not invest in large-cap stocks. This result suggests that consequences to investors vary greatly depending on the time when they invest in the funds that drift away from their target allocations.

What is more, small-cap funds investing in large-cap stocks have significantly less exposure to (small) size-related risks than funds that do not hold large-cap stocks during our full sample period excluding the months surrounding the technology bubble, and have larger exposure to growth and momentum factors. Small-cap funds that have higher allocations to larger stocks do not exhibit performance persistence over time, nor do they exhibit more performance persistence relative to small-cap funds that have lower allocations to larger stocks. Finally, we find that investors pay high management fees that they could have avoided if they were invested in passive mid-cap or large-cap funds that do not focus on small-cap equity.

Our study contributes to the literature on mutual fund style drift and the importance and relevance of funds' investment ob-

jectives. First, we document a puzzling empirical regularity. The range in small-cap funds' large-cap allocation across ten deciles is 63 percentage points. Second, we document that such large deviations from fund objectives do not lead to superior out-of-sample performance over our entire sample period. However, we document that deviations from fund objectives lead to superior performance in the period following the technology bubble. Finally, we relate the dispersion in large-cap allocation across small-cap funds to significantly different and unexpected risk exposure. This study underscores the importance of careful research when choosing a fund and the need for better financial regulation that aligns the incentives of investors and fund managers.

Related research on fund style drift is concerned with the change in a portfolio's exposure to style factors over time ([Wermers, 2012](#); [Brown et al., 2009](#); [Chan et al., 2002](#); [Huang et al., 2011](#)). [Wermers \(2012\)](#) develops a holdings-based measure of style drift that allows for decomposition of the drift into an active and a passive component for the size, book-to-market (B/M), and momentum style dimensions and finds that funds that experience more style drift deliver better performance. In contrast, [Brown et al. \(2009\)](#) develop both a returns-based and a holdings-based measure of style drift and find that style-consistent funds generate better performance. Our findings suggest that even in the starkest example of style drift, managers do not consistently generate alpha. However, their abnormal performance improved over the second half of our sample period, suggesting that investors should at least deliberately consider the risk-and-return trade-offs when considering style drift.

While the style drift literature is able to incorporate drift in multiple style factors at once, this study focuses on the investment behavior of small-cap fund managers. This focus results in a cleaner test of style drift, since growth and value are vague terms that are open to fund manager interpretation.¹ Our paper focuses on the most extreme and tractable case, funds with a small-cap objective that invest in mid- and large-cap stocks, and finds evidence that deviation from fund objectives is unrelated to abnormal fund performance overall. However, deviating from the small-cap objective alters the fund's risk profile, causing investors to be exposed to unexpected risks. Furthermore, there is a sizeable fraction of small-cap funds in our sample that have significant allocations to mid- and large-cap stocks even when the size of the companies they hold is measured as of the initial purchase date.

The paper proceeds as follows. [Section 2](#) defines small- and large-cap stocks, describes how we determine a small-cap fund's exposure to large-cap stocks, and details our performance benchmarks. [Section 3](#) describes the data selection procedure to derive the sample of small-cap funds. Empirical results on how the characteristics of small-cap funds differ by investment in large-cap stocks are shown in [Section 4](#). [Section 5](#) examines how performance differs between small-cap funds that allocate more or less to large stocks. [Section 6](#) discusses the performance persistence of small-cap mutual funds with varying degrees of large-cap allocations. Robustness analyses are performed in [Section 7](#). Finally, [Section 8](#) concludes the paper.

2. Methodology

In this section we detail our measure of small-cap fund deviation from the universe of small-cap equity. We also discuss our empirical strategy.

¹ For example, a fund manager has significant flexibility in what metrics are used to determine whether a stock is undervalued or how to measure the level of growth a firm experiences. Managers do not need to rely on one ratio or characteristic in order to classify a company as either value or growth.

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