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# Performance evaluation and self-designated benchmark indexes in the mutual fund industry<sup>☆</sup>

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## ABSTRACT

Almost one-third of actively managed, diversified U.S. equity mutual funds specify a size and value/growth benchmark index in the fund prospectus that does not match the fund's actual style. Nevertheless, these "mismatched" benchmarks matter to fund investors. Performance relative to the specified benchmark is a significant determinant of a fund's subsequent cash inflows, even controlling for performance measures that better capture the fund's style. These incremental flows appear unlikely to be rational responses to abnormal returns. The evidence is consistent with the notion that mismatched self-designated benchmarks result from strategic fund behavior driven by the incentive to improve flows.

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## 1. Introduction

Performance evaluation theory stresses the importance of using good benchmarks (Holmstrom, 1979). For example, when determining an airline CEO's bonus, comparing the firm's performance to that of other airlines can improve efficiency by helping to filter out common

shocks that are beyond the CEO's control. It would be less efficient to use railroads as the benchmark instead because shocks to the two industries are not perfectly correlated, yet the CEO has an incentive to encourage the use of a railroad benchmark if he believes that airlines are likely to outperform railroads. Of course, the attempt is unlikely to succeed in this setting because a knowledgeable corporate board of directors will realize that railroads are not the best benchmark.

In other settings, however, performance evaluation is undertaken by less sophisticated principals than corporate boards. These principals may have limited ability to distinguish useful benchmarks from less useful ones, which may in turn create incentives for agents to try to strategically influence which benchmark is used. There is little systematic evidence on these issues because it is difficult to observe agents' preferred benchmarks and whether principals pay attention to them.

This paper provides such evidence from the mutual fund industry, in which fund investors take the role of unsophisticated principal. Funds' preferred benchmarks

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are available as a result of the SEC requirement that each fund's prospectus tabulate the fund's historical returns alongside those of a passive benchmark index. The SEC does not regulate which index is used as the benchmark, instead leaving the choice to the fund.

This institutional setting maps naturally into the general issues mentioned above. Some funds' self-designated benchmarks may not do a very good job capturing their exposures to common factors in returns, and so may not be very helpful in evaluating funds' skill at generating abnormal returns. Moreover, at least some mutual fund investors may not be sophisticated enough to see through this when making decisions about purchases and sales of mutual funds, and thereby may not behave in a manner consistent with theories of optimal performance evaluation such as Holmstrom (1979). If so, such "mismatched" benchmarks might make sense to funds from a strategic perspective (Gibbons and Murphy, 1990).

I use a new database of these self-designated mutual fund benchmark indexes to present evidence consistent with all of these possibilities. While this paper is about performance evaluation in the mutual fund industry, which is important in its own right because of the industry's size and importance to the economy, the evidence contributes more generally to the literature on the efficiency and incentive consequences of performance evaluation schemes (e.g., Ehrenberg and Bognanno, 1990).

The evidence also contributes to three major branches of the mutual fund literature: that on how mutual fund managers are and should be evaluated (e.g., Kothari and Warner, 2001; Cohen, Coval, and Pastor, 2005; Warner and Wu, 2005); that on the determinants of mutual fund flows (e.g., Chevalier and Ellison, 1997; Sirri and Tufano, 1998); and that on strategic behavior by mutual funds (e.g., Brown, Harlow, and Starks, 1996; Chevalier and Ellison, 1997, 1999). Especially relevant is the literature that, like this paper, shows that mutual fund flows appear at times to respond (or fail to respond) in irrational ways. Such papers include Musto (1999), Elton, Gruber, and Busse (2004), Cooper, Gulen, and Rau (2005), and Cronqvist (2006).

I begin by showing that the vast majority of actively managed, diversified U.S. equity funds use a S&P or Russell benchmark index that is defined on size and value/growth dimensions. Because Fama and French (1992) and many others find that size and value/growth are associated with average returns and return covariances, for such a benchmark to be maximally useful in netting out priced common factors in returns, it should match the fund's exposure to size and value/growth factors. Yet this is frequently not the case.

In fact, 31.2% of these funds specify a benchmark index that is "mismatched": alternative S&P or Russell size and value/growth-based benchmarks both better match these funds' size and value/growth characteristics and, more importantly, are more correlated with their returns. I refer to these as funds' "corrected" benchmarks. Among these funds, the average excess return  $R^2$  with the actual benchmark is 70.6%, versus 82.6% with the corrected benchmark.

I then ask whether mismatched self-designated benchmarks influence fund flows. Do fund investors respond to performance relative to a mismatched benchmark when making decisions about purchases and sales of mutual funds? For this to happen, at least some investors must pay attention to the information in fund prospectuses. According to a recent survey by the Investment Company Institute, the national association of investment companies, 34% of fund investors consult the fund prospectus before purchasing a mutual fund.<sup>1</sup> This figure seems large enough to plausibly have an effect on flows, especially considering that the performance table is prominently displayed in the first few pages of the prospectus. Fund advertising also frequently features a comparison of the fund's performance with that of a benchmark (when the comparison is favorable).

In fact, fund investors do pay attention to mismatched benchmarks when directing flows. A fund's performance relative to its self-designated but mismatched benchmark is a significant determinant of its subsequent cash inflows, even controlling for performance measures that better capture the fund's exposure to size and value/growth factors in returns. This is especially true for funds that beat those mismatched benchmarks. This result is robust to a variety of controls and specifications of functional form intended to capture nonlinearities in the relation between flows and performance (Chevalier and Ellison, 1997; Sirri and Tufano, 1998). In particular, the effect is not due to investors simply comparing performance to the S&P 500 regardless of the actual self-designated benchmark.

How should we interpret these results on flows? Is the response of flows to performance relative to a mismatched self-designated benchmark more likely to reflect rational or irrational behavior on the part of fund investors? From a performance evaluation/contracting perspective, because mutual funds generally receive a fixed percentage of assets under management as a fee, cash inflows and outflows are the mechanism by which fund investors (principals) influence fund companies' (agents) compensation. As such, agency theory (e.g., Holmstrom, 1979) predicts that investors ought to direct flows in response to risk-adjusted return. Doing so aligns fund companies' desire for increased compensation, which gives them the incentive to take actions to increase flows, with fund investors' interest, maximizing risk-adjusted return.

Thus, the acid test for the interpretation of these flows is whether mismatched benchmarks have incremental power to explain the cross-section of expected returns, and thereby help measure risk-adjusted returns. While one cannot completely rule out this possibility because the pricing kernel is unobservable to the econometrician, I conduct pricing tests that suggest that it is unlikely. As such, it appears unlikely that the incremental response of flows to performance relative to a mismatched benchmark

<sup>1</sup> "Understanding Investor Preferences for Mutual Fund Information", August 2006, available at [http://ici.org/statements/res/1rpt\\_06\\_inv\\_prefs\\_full.pdf](http://ici.org/statements/res/1rpt_06_inv_prefs_full.pdf).

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