Short-term persistence in hybrid mutual fund performance: The role of style-shifting abilities

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ABSTRACT

Our study analyzes the performance of hybrid mutual funds. Based on two extended Carhart models we determine total fund performance by comparing fund returns to investable fund-specific style benchmarks. Using daily returns and a quarterly measurement interval, we present an innovative return-based approach to decompose total performance into in-quarter abnormal performance and style-shifting performance. In addition, we split total style-shifting performance into active and passive components. In this context, we confirm possible benefits of these performance measures by analyzing several simulated investment strategies. Our empirical study covers 520 hybrid mutual funds from 10/1998 to 12/2009 and shows that hybrid mutual funds (i) do not outperform their benchmarks on average, (ii) partially show positive in-quarter abnormal performance and style-shifting abilities, and (iii) exhibit short-term persistence in in-quarter abnormal performance but not in style-shifting abilities.

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1. Introduction and literature

Active fund management is often justified by assuming that mutual funds are able to create value for investors. If this ability persists, investors can predict future performance of funds based on their current performance. In this area of research, two strands of literature stand in contrast to each other. On the one hand, many studies employ return-based approaches to measure fund performance. Then again, there is a growing body of literature using holding-based approaches to analyze whether active management adds value. Regardless of the approach, the majority of research focuses on measuring stock selection skills. Examples include the return-based approaches of Jensen (1969), Sharpe (1992), Elton et al. (1993), and Gruber (1996) and the holding-based approaches of Grinblatt and Titman (1993), Grinblatt et al. (1995), Daniel et al. (1997), and Zheng (1999). These studies either assume that mutual fund managers do not time the market or, if they do so, that this will not distort their results.

Other articles concentrate on assessing the market timing abilities of fund managers. Here, the two most popular return-based approaches examining market timing abilities are Treynor and Mazuy (1966; hereafter referred to as TM) and Henriksson and Merton (1981; HM). Both approaches suppose that market timing decisions depend on a fund manager's opinion on the future size of the market's excess return. TM assumes that fund managers increase (decrease) the market exposure of their portfolio according to the extent of positively (negatively) forecasted excess market returns. As a result, fund returns exhibit a convex relationship to market returns. The underlying assumption of the HM approach is that fund managers either invest their portfolio in the market or in risk-free assets. Their decision depends on whether they expect a positive or negative market excess return. Among others, Bollen and Busse (2001, 2005) apply the TM and HM approaches to test for market timing abilities of equity funds. Instead of the commonly employed monthly returns and measurement periods of several years, they use daily fund returns and quarterly measurement periods. Doing so, they observe that superior market timing performance is a short-lived phenomenon. However, as the TM and HM approaches assume a specific form of market timing, using either of them possibly leads to biased performance estimates if fund managers time the market in a different way (see, e.g., Coles et al., 2006; Krimm et al., 2011). Moreover, the nonlinear relation between fund and market returns implied by both approaches could be induced by factors other than active market timing. Such potential sources of empirically measured timing abilities − other than possessing superior information − are discussed, for example, by Jagannathan and Korajczyk (1986), Edelen (1999), and Goetzmann et al. (2007).

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To overcome these problems, recent studies apply holding-based approaches. Among others, Jiang et al. (2007), Elton et al. (2012), and Wermers (2012) use mutual fund holdings to assess market timing abilities. Nevertheless, implementing holding-based approaches involves potential challenges. First, funds are allowed to make their quarterly disclosures of portfolio holdings with a considerable lag of 60 days according to legal regulations (U.S. Securities and Exchange Commission, 2004). As so-called copycat funds can earn a substantial portion of the return of a copied fund (see, e.g., Frank et al., 2004), fund management usually delays the reporting of their holdings to the latest possible date. This makes a timely determination of fund performance difficult when using portfolio holdings. Second, window dressing is a substantial problem in the context of holding-based approaches. It implies that ex-post reported holdings of funds may not reflect the actual portfolio characteristics over a respective time period (see, e.g., Musto, 1999; Carhart et al., 2002; He et al., 2004; Morey and O'Neal, 2006; Sias, 2007; Elton et al., 2010; Ortiz et al., 2012). Finally, irregular and infrequent portfolio holding reports result in incomplete time-series and hence in considerably reduced data samples.[1] In contrast, return-based approaches using daily returns are able to avoid these issues and determine up-to-date fund performance estimates not subject to possible biases such as window dressing.

In our paper, we introduce an innovative approach to determine quarterly total fund performance by comparing fund returns to ex-ante investable fund-specific benchmarks. Additionally, we separate total performance into in-quarter abnormal performance, or (in-quarter) alpha, and style-shifting performance. Doing so, we are able to measure separately both sources of total fund performance. Next, we split total style-shifting performance into active and passive components. In this context, passive style-shifting performance can be realized by a buy-and-hold investment in the fund-specific benchmark. In contrast to approaches measuring the value of daily market timing activities (e.g., Bollen and Busse, 2001, 2005), we examine quarterly the value of style-shifting activities based on daily fund returns. In addition, we confirm possible benefits of the performance measures introduced here by analyzing several simulated investment strategies. Thus, our approach examining the value of quarterly style-shifting activities possibly reveals new insights.

In our empirical analysis, we employ two extended Carhart models including bond factors to analyze the performance of hybrid mutual funds. These funds are allowed to hold combinations of stocks, bonds, and cash in their portfolios. As our focus lies on examining style-shifting performance, we choose hybrid funds which are likely to engage considerably in style-shifting activities between these investment opportunities. Moreover, hybrid funds experienced a sharp growth during the last decade and became a popular investment vehicle. According to the Investment Company Institute, total net assets more than doubled from $362 billion in 2001 to $839 billion at the end of 2011 (Investment Company Institute, 2012).[2] In the second part of our empirical study we test for persistence in fund performance using two approaches. First, we conduct cross-sectional regressions of fund performance on its lagged value to analyze if current performance predicts future performance. Second, we rank funds quarterly into decile portfolios based on several criteria and determine the respective performance measures of these decile portfolios during the succeeding quarter. In this context, previous studies (e.g., Hendricks et al., 1993;

Goetzmann and Ibbotson, 1994; Brown and Goetzmann, 1995; Grinblatt et al., 1995; Gruber, 1996; Carhart, 1997; Deaves, 2004; Polwitoon and Tawatnuntachai, 2006; Huij and Verbeek, 2007) typically employ monthly fund returns and evaluation periods of several years to test for performance persistence. Following, among others, Bollen and Busse (2005) and Comer et al. (2009a) we use daily returns and quarterly evaluation periods to test for performance persistence. This allows us to get more reliable results if superior performance caused by fund managers' informational advantage is short-lived as suggested in Berk and Green (2004). The possibility of persistent performance is quite important from an economic perspective. If current performance could be used to predict future performance, this would be a serious challenge for market efficiency.

Similar to earlier research on hybrid mutual funds (e.g., Comer, 2007; Comer et al., 2009a, 2009b), our empirical results show that these funds do not outperform their benchmarks on average. A portfolio of all hybrid funds exhibits negative and significant total performance and alpha. Additionally, the average performance contribution due to quarterly measured style-shifts is negligibly small and not significant. This stands in contrast to Comer (2006) who finds in parts positive and significant timing abilities for hybrid funds based on a multifactor TM model. At an individual fund level, a considerable number of funds show negative and significant total performance and alpha. However, we find an increase in fund performance after the Lehman Brothers collapse in September 2008. Here, the clear improvement of style-shifting performance in the time period after the bank's collapse is most noticeable.

Based on the total evaluation period, our cross-sectional regressions indicate short-term performance persistence for total performance and alpha, but not for style-shifting abilities. Sorting funds into decile portfolios, we further show the economic relevance of performance persistence with regard to these two performance measures. Spreads between the average performance of funds in the best and the worst decile during the post-ranking quarter are positive and in parts significant for both total performance and alpha.

The remainder of this paper is organized as follows. Section 2 describes the methodology and performance measures used. Empirical data and descriptive statistics of our fund sample are presented in Section 3. Section 4 provides a simulation analysis in order to test the robustness of the performance measures introduced in Section 2. Section 5 presents the results of an empirical study focusing on style-shifting abilities and on short-term performance persistence of hybrid funds. Section 6 concludes.

2. Methodology and performance measures

In our empirical analysis on hybrid mutual funds we employ performance measures based on the following multifactor model

$$r_{i,t,q} = \alpha_{i,q} + \sum_{k=1}^{N} b_{i,k,q} s_{k,t,q} + e_{i,t,q}, \tag{1}$$

where $r_{i,t,q}$ represents the excess return of fund i on day t in quarter q. Daily (excess) returns of style factor k are symbolized by $s_{k,t,q}$. Thus, $b_{i,k,q}$ represents the exposure of fund i to style factor k in the respective quarter. The daily error term of fund i is $e_{i,t,q}$. N is the total number of style factors employed. The alpha $\alpha_{i,q}$ of the model is usually interpreted as the abnormal performance earned by a fund manager in quarter q.

Our approach to analyzing fund performance is based on the idea that investors may mimic a fund by investing in a portfolio of N style factors which exhibits similar risk characteristics. We call this portfolio the ex-ante investable fund-specific benchmark.

[1] For example, applying monthly holdings data, Elton et al. (2012) are able to use only 318 funds of their original sample of 2582 due to data issues.

[2] During the same time period, total net assets of U.S. equity (bond) mutual funds increased about 53% (210%) from $3396 ($931) billion in 2001 to $5205 ($2886) billion in 2011 (Investment Company Institute, 2012).