Available online at www.sciencedirect.com
ScienceDirect
Journal of Banking & Finance 32 (2008) 559–572
Journal of BANKING & FINANCE
www.elsevier.com/locate/jbf

"Hot Hands" in bond funds

Joop Huij [a,*], Jeroen Derwall [a,b]

[a] RSM Erasmus University, The Netherlands
[b] Maastricht University, The Netherlands

Received 23 October 2006; accepted 16 April 2007
Available online 14 July 2007

Abstract

We investigate persistence in the relative performance of 3549 bond mutual funds from 1990 to 2003. We show that bond funds that display strong (weak) performance over a past period continue to do so in future periods. The out-of-sample difference in risk-adjusted return between the top and bottom decile of funds ranked on past alpha exceeds 3.5 percent per year. We demonstrate that a strategy based on past fund returns earns an economically and statistically significant abnormal return, suggesting that bond fund investors can exploit the observed persistence. Our results are robust to a wide range of model specifications and bootstrapped test statistics.

JEL classification: G11; G14; G19

Keywords: Bond mutual funds; Performance persistence; Active management

1. Introduction

Despite the enormous size of the market for actively managed bond funds, surprisingly little is known about whether active portfolio management contributes to bond investment returns. A priori, we might expect that the value added by active bond management would be only marginal. The returns of a fixed-income portfolio are almost fully driven by nondiversifiable processes that we know are very hard to predict (see, e.g., Litterman and Scheinkman, 1991; Knez et al., 1994; Gultekin and Rogalski, 1995). These studies suggest that only a few factors account for bond returns.

There are also very few studies that provide empirical evidence to support the existence of skilled bond fund managers. For example, Blake et al. (1993) suggest that return spreads between actively managed bond portfolios can be explained either by differences in the maturity range or by differences in the risk premiums of the securities that are held. The absence of any predictability of risk-adjusted bond performance supports the oft-cited claim that none of the cross-sectional differences in bond fund returns are attributable to fund management skills.

If there is one variable that researchers can use to predict future bond fund performance, it is the fund's expenses. Bond funds with relatively high expenses generally underperform funds with lower expenses (see, e.g., Blake et al., 1993; Detzler, 1999). Skeptism on managerial skill in the bond market combined with these empirical findings makes a strong case against active bond fund management. The investment implications seem clear: buy shares of bond index funds.

We demonstrate that this argument is not necessarily true. In this study, we show that we can predict future bond fund performance by using historical excess returns. By applying dynamic fund sorts in the tradition of Hendricks et al. (1993) on a large and survivorship-bias free bond fund sample, we show strong evidence of relative out-of-sample predictability. We find that after we control for multiple benchmark return sensitivities, deciles of bond funds with high historical alphas outperform deciles of funds with lowest alphas out-of-sample by more than 3.5 percent per year.

* Corresponding author.
E-mail addresses: jhuij@rsm.nl (J. Huij), jderwall@rsm.nl (J. Derwall).

0378-4266/$ - see front matter © 2007 Elsevier B.V. All rights reserved.
doi:10.1016/j.jbankfin.2007.04.023

To investigate whether investors can exploit the observed persistence pattern to earn abnormal returns, we simulate an investment strategy by applying modern portfolio theory on past returns. Even after taking the sales load into account, we find that our simulated portfolio of funds strongly outperforms a strategy that invests in passive indexes by more than 1.79 percent per year. Our evidence that bond funds can deliver positive abnormal returns tells an important story: active bonds funds can have incremental economic value.

Since research on bond funds is scarce and not well developed, this paper fills several gaps in the literature. First, to our knowledge, our study is the first to analyze the full universe of more than 3500 bond funds in the CRSP survivorship-bias free mutual fund database over the period 1990–2003. This large sample helps us to overcome the small-sample problems that plague earlier studies on bond fund performance. Second, earlier bond fund studies use only a subset of all common approaches that were originally developed in research on equity funds to test for persistence. We show that these and other methods produce a consistent story in this study on performance persistence. Examples of persistence tests are the cross-sectional regression of current fund alphas on prior-period alphas, where the focus is on the significance of the regression's slope coefficient (see Blake et al., 1993), and the allocation of funds to one of four cells in a (two-by-two) current-past performance contingency matrix, where persistence is proven when the frequency by which past winners (losers) repeat their performance exceeds a threshold probability (see, e.g., Kahn and Rudd, 1995). We complement prior studies by introducing variants of the methods used by Hendricks et al. (1993), Elton et al. (1996), and Carhart (1997), which enable us to investigate the economic significance of strategies based on short-run persistence in bond fund performance. In doing so, we provide new insights into long-running debates on the benefits of actively managed funds vis-à-vis passive portfolios. Although Hendricks et al. (1993) find that equity fund managers with "hot hands" in the past continue to outperform managers with "icy hands" in the near future, their top-performing fund portfolio does not outperform standard benchmark indexes. Equivalently, previous studies in the bond area suggest that bond index funds are a superior alternative compared to actively managed funds, once we take expenses into account. In contrast to earlier studies, we offer strong evidence of a "hot hands" phenomenon in the bond fund market that translates into strategies that yield both economically and statistically significant excess returns.

We also perform a bootstrap analysis to cover the possibility that our results are driven by distributional features of the data that could make tests of performance persistence prone to a Type I error. We find that this is not the case. We simulate persistence tests based on artificially generated data, in which we preserve non-normality features and intentionally impose zero alpha. By doing so, we can determine the distributions of the tests statistics when persistence is predetermined to be a chance result. Even the most extreme values for the simulated test statistics are not in the order of the ones we obtain from the actual bond fund data.

The paper is organized as follows. Section 2 discusses our methods in the empirical analysis. Section 3 describes the bond fund sample. Section 4 presents the empirical results. Sections 5 and 6 compare the robustness of our results to a wide range of model specifications and bootstrapped test statistics. Section 7 concludes.

2. Methodology

2.1. Performance measurement

Consistent with most studies that hunt for new performance evaluation models for bonds, we measure bond fund performance relative to the return predicted by a multi-index model:

$$R_{i,t} - R_{f,t} = \alpha_i + \sum_{j=1}^{K} \beta_{j,i}(I_{j,t} - R_{f,t}) + \epsilon_{i,t}, \tag{1}$$

where $R_{i,t}$ is the total return of fund i, $R_{f,t}$ is the risk-free rate at time t, α_i is the average risk-adjusted performance of fund i, $I_{j,t}$ is the return on index j at time t, $\beta_{j,i}$ is the sensitivity of the excess return of fund i to index j, K is the number of indexes we use, and $\epsilon_{i,t}$ is the residual return of fund i at time t.

We can interpret models that include a mixture of indexes along several lines. One interpretation is that these models are similar to multi-factor models for stocks. Theoretically, these models can be justified by various alternatives to the CAPM of Sharpe (1964) and Lintner (1965), such as the ICAPM of Merton (1973) and the APT of Ross (1976). In this setup, the factors are proxies for the underlying term and default risks in the economy that are of hedging concern to investors. The models' betas measure the funds' systematic risk, and their residual returns reflect risk-adjusted performance.[1] An alternative interpretation is that the indexes are control variables in a performance attribution model, as in Kahn (1991) and Carhart (1997), where the passive indexes multiplied by their estimated weights (betas) most closely reproduce a fund's return variation. In that case, we are using a set of bond indexes to describe bond portfolio returns but make no claim about their role in the return-generating process. Either way, one can think of the model's intercept (alpha) as the portion of return that is not explained by factors that involve passive management. In both scenarios, we can assume that alpha conveys information about the skill of a bond fund manager.

Our base model is from Blake et al. (1993), who indicate that only a few factors are necessary to describe the return on a bond portfolio:

[1] Consistent with this interpretation, Gebhardt et al. (2005) suggest that proxies for term and default risk are successful in explaining the cross-section of corporate bond returns. However, their focus is only on investment-grade bonds.