"Hot Hands" in Bond Funds

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The authors search for evidence of skill in the management of bond funds. They ask whether managers with above-average risk-adjusted returns in past periods are likely to have above-average returns in future periods. The authors use data from more than 3,500 funds from 1990 to 2003 to examine whether risk-adjusted performance persistence exists. They use a variety of statistical tests and model specifications and find that although risk-adjusted returns are often negative, strong evidence exists of performance persistence. After funds are sorted by their alphas, the authors find that the top decile of funds outperforms the bottom decile by 3.5 percent per year. In addition, an "optimally" constructed portfolio of the top decile of funds produces an average risk-adjusted excess return of 1.8 percent per year.

The goal in asset management is to find skillful managers who can persistently produce positive risk-adjusted excess returns. Although many studies have been done on performance persistence in the equity market, in this study, the authors investigate whether relative performance persistence is present in bond mutual funds. In other words, do managers that outperformed in previous periods tend to outperform in future periods? If so, the finding would support the claim that some bond fund managers have "hot hands"—an ability to produce persistent risk-adjusted excess returns.

The authors study bond mutual fund performance during the 1990–2003 period by using a large universe of more than 3,500 bond funds (including defunct funds but excluding money market and municipal funds) in the CRSP database. The first step is to calculate risk-adjusted returns for each fund. To do so, the authors use a multifactor model of bond returns and regress a fund's 12 monthly

returns in a given calendar year on three risk factors: overall bond market returns, high-yield returns, and mortgage market returns. The regression intercept is that year's estimate of the fund's risk-adjusted return, or alpha.

With an annual time series of alphas for each fund, the authors then test whether a fund's alpha shows persistence. The authors use four approaches to test for persistence. In one approach, a fund's estimated alpha in the current year is regressed on its alpha in the previous year and the regression coefficient is checked for whether it is significantly positive. If so, the result would signify persistence. For this regression method, the authors find that the average regression coefficient across all funds is significantly positive (0.17), which indicates that a positive (negative) prior alpha is likely to be followed, to some degree, by a positive (negative) subsequent alpha.

The authors also use contingency tables as another test of persistence. For this test, funds are sorted each year into one of two groups: those with alphas below the median (losers) and those with alphas above (winners). They then see how the funds are sorted the following year. In other words, do funds tend to go from the winner category in the past year to the winner category in the current year or to the loser category? This sorting procedure produces a 2×2 transition matrix. If performance is random, then the probability of a fund being in one of the four matrix cells should equal 0.25. The results, however, show that the probability of a fund being a winner in the current year if it was a winner in the past year is 0.30. The probability of a loser/loser combination is also 0.30. In other words, both winners and losers have a tendency to persist.

After examining the persistence of alpha, the authors turn next to examining the magnitude of the alphas. They construct portfolios of funds sorted into deciles according to their estimated alphas. Each month, the funds' alphas are re-estimated and the funds, re-sorted. The results show that most deciles produce negative alphas that are statistically significant. The alphas decrease monotonically, however, with the highest decile outperforming the lowest by 3.5 percent per year. This result supports the argument that fund performance persists, because funds with higher estimated alphas tend to outperform in the future period. Most of this relative outperformance, however,

is the result of a relatively large negative alpha for the lowest decile and an only slightly positive alpha for the highest decile. The authors also rule out relative differences in fees as the source of this result.

Finally, the authors take the funds in the highest decile for each month and form portfolios by "optimally" weighting the funds according to their Sharpe ratios. The authors find that this portfolio produces an enhanced risk-adjusted return of 1.8 percent per year.

In addition to analyzing all bond funds together, the authors show results for funds according to their asset category (e.g., high-yield and mortgage funds). They also test the robustness of their results by considering several alternative specifications (e.g., incorporating market timing and exposures to macroeconomic variables) and using different estimation techniques (e.g., bootstrap analysis). Overall, the results continue to hold. The authors conclude that evidence of performance persistence exists in bond mutual funds.

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