Team Formation and Mutual Funds Management[1]

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January 16, 2025

Abstract

This paper investigates how the small proportion of non-white fund managers is used in teams. Specifically, I follow how teams are constructed after the supposed removal hitherto barriers to entry for non-white fund managers. Do African background managers get 'equal' opportunity to work as sole portfolio managers compared to other races? When they are put in teams, is it more likely that they are mixed with other managers and how do this compare with the mixing with male managers? I also consider experienced managers. Is there evidence that their experience is valued for mentorship purposes (i.e. are new managers assigned to teams with experienced non-white managers with the same propensity as male managers)? When they get experienced, how are likely are they to be lead managers working solo or with more junior colleagues compared to others? For robustness checks, I select different modelling choices and control for gender (non-white fund managers), educational background, age and race of fund managers and test the performance implications of these patterns.

1. Research Questions

Given the popularity of team-managed mutual funds and the diversity in team formation, I follow how teams are constructed after the supposed removal of hitherto barriers to entry for non-white fund managers. The paper raises several questions. Do African background managers get 'equal' opportunity to work as sole portfolio managers compared to other races? When they are put in teams, is it more likely that they are mixed with other managers and how do this compare with the mixing with male managers? I also consider experienced managers. Is there evidence that their experience is valued for mentorship purposes (i.e. are new managers assigned to teams with experienced non-white managers with the same propensity as male managers)? When they get experienced, how are likely are they to be lead managers working solo or with more junior colleagues compared to others? While this paper can hardly answer all these questions, it seeks to provide new perspectives on team formation and mentorship in South Africa's mutual funds industry.

2. Methodology

I first compute fund performance measures by using each fund's monthly fund returns with data from Morningstar Fund Database (or simply Morningstar). Following Patel and Sarkissian (2017), I measure performance by employing 3 measures: (i) Unconditional 4-factor alpha, α (4U), (ii) Conditional 4-factor, α (4C) and (iii) 5-factor model which includes the 4 factors from Carhart and an additional liquidity factor from Pástor and Stambaugh (2003).

I then estimate each fund's alpha using the following 3 evaluation models. To compute fund performance measures, I use each fund's monthly gross fund returns from Morningstar. I use 3 performance metrics. Two of them are based on the Carhart (1997) model: unconditional 4-factor

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alpha, α(4U), and conditional 4-factor alpha, α(4C), following Ferson and Schadt (1996). The third one is the 5-factor model that includes the 4 factors from Carhart and the liquidity factor from Pastor and Stambaugh (2003).7 Thus, I estimate each fund's alpha using the following 3 evaluation models:

$$r_{i,t} = \alpha(4U)_i + \beta_i r_{m,t} + s_i SMB_t + h_i HML_t + m_i MOM_t + \varepsilon_{i,t} \quad (1)$$

$$r_{i,t} = \alpha(4C)_i + \beta_i r_{m,t} + s_i SMB_t + h_i HML_t + m_i MOM_t + b_i^{TBILL} + Z_{t-1}^{TBILL} + b_i^{TERM} r_{m,t} Z_{t-1}^{TERM} + \varepsilon_{i,t} \quad (2)$$

and

$$r_{i,t} = \alpha(5F)_i + \beta_i r_{m,t} + s_i SMB_t + h_i HML_t + m_i MOM_t + l_i LIQ_t + \varepsilon_{i,t} \quad (3)$$

with $r_{i,t}$ being the gross of monthly fund return less the risk-free rate (1-month ZAR Treasury bill (T-bill) rate) and $r_{m,t}$ is the monthly return on the Morningstar value-weighted composite index. SMB_t, HML_t, MOM_t and LIQ_t are returns on the size, book-to-market, momentum, and liquidity portfolios respectively. Z_{t-1}^{TBILL} and Z_{t-1}^{TERM} in equation (2) denote the lagged information variables: the 1-month T-bill rate (TBILL) and the term-structure spread (TERM), measured as the difference in yields on the 10-year South African government bond and 3-month T-bill.

I choose the standard Carhart (1997) model for the main performance evaluation benchmark for two reasons. First, Fama and French (2010) and Patel and Sarkissian (2017) choose the Carhart alphas over capital asset pricing model (CAPM) alphas and Fama-French 3-factor alphas to test fund manager skills. Second, Linnainmaa (2013) observes that alphas generated from the CAPM are higher and more volatile than those obtained from the 4-factor model. For this reason, the Carhart model is popular in studies on team formation in mutual funds (Bär, Kempf and Ruenzi, 2011; 2005). As such, I employ $\alpha(4U)$ in all our tests involving fund returns as explained and explanatory variables and I use 3 alternative fund alphas only in our main regressions.

3. Data

The data used is drawn from all South African based mutual funds invested in the South African equities, provided by Mornignstar Direct (MD). I extract fund returns and fund characteristics on a monthly basis for a period from 1990 to 2024. Fund manager characteristics, historical management structures and team formation are collected from Morningstar Direct. The annual frequency of the data is then treated as per Patel and Sarkissian (2014). The nature of the data allows for the estimation of nested sorting and panel regressions with fund and year fixed effects.

The reason for using the Morningstar Direct database is that Patel and Sarkissian (2014) and other studies document that it has higher accuracy rates on fund manager characteristics data than CRSP, which has been used in majority of previous studies on team-management funds and team formation in mutual funds.

4. Implications

This research paper will provide empirical evidence that can be linked to relevant theories and will convincingly explain observed trends in the funds management industry. Using accurate data and

robust methods, the findings will indicate whether non-white managers get equal opportunities to work as sole managers and whether their experience is valued for mentorship purposes. This benefits fund companies in their appointment of single vs team managers and in their team formation strategies as well as mentorship of newly minted managers as well as investors in their investment decisions.

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