Journal of Banking and Finance 78 (2017) 108–116

Contents lists available at ScienceDirect

Journal of Banking and Finance

journal homepage: www.elsevier.com/locate/jbf

Why do fund managers increase risk?☆

Yeonjeong Ha[a], Kwangsoo Ko[b,*]

[a] NRF Research Professor in the Research Institute for Management, Pusan National University, 2, Busandaehak-ro 63beon-gil, Geumjeong-gu, 46241, Busan, Republic of Korea

[b] Department of Business Administration, College of Business, Pusan National University, 2, Busandaehak-ro 63beon-gil, Geumjeong-gu, 46241, Busan, Republic of Korea

ARTICLE INFO

Article history:
Received 31 August 2015
Accepted 20 January 2017
Available online 23 January 2017

JEL classification:
G10
G11

Keywords:
Risk increase
Net flows
Inflows
Outflows
Agency problem

ABSTRACT

This paper examines the relationship between the increase in fund risk and subsequent cash flows. We attempt to test the hypothesis that an increase in fund risk actually increases the net flows of equity funds, which is a basic assumption of risk shifting. We find that a change in fund risk has a positive and convex relationship with the fund's net flows. The effect of risk changes on net flows is a natural consequence of its effects on inflows and outflows. This paper's empirical results are robust to return frequency, fund age, and fund size. Our findings create incentives for managers to shift risk as documented in the mutual fund literature.

1. Introduction

A number of studies investigate agency problems between mutual fund managers (or advisory companies) and investors (e.g., Carhart et al., 2002; Gaspar et al., 2006). Because fund managers' compensation is directly connected with total net assets (TNAs) of mutual funds, they do their best to maximize inflows and minimize outflows. Numerous studies discuss the increase in fund risk as a means to increase return; for example, Brown et al. (1996) were the first to examine the phenomenon of an increase in the risk of underperforming funds, known as the tournament behavior of fund managers. Many studies find the presence of such an increase in fund risk to achieve high performance.[1] However, Cullen et al. (2012) and Schwarz (2012) provide evidence that contradicts the tournament behavior of fund managers.

Chevalier and Ellison (1997), Sirri and Tufano (1998), Lynch and Musto (2003), and Huang et al. (2007) clarify the convex flow–performance relationship in which mutual fund investors tend to invest excessively in outperforming funds and do not symmetrically penalize underperforming funds. This convexity motivates mutual fund managers to increase risk as a means to enhance fund performance, thereby attracting more fund flows. More recently, the literature has provided new evidence of the flow–performance relationship. According to Ferreira et al. (2012), the convex relationship is weaker in more developed countries and greater country-level convexity is positively associated with fund managers increasing risk to a certain extent.

Although many studies discuss the risk increase of mutual funds, few of them note its impact on cash flows. Huang et al. (2011) examine the performance of equity funds after risk shift, and show that when managers increase fund risk, their performance gets worse than funds that maintain stable levels of risk over time. However, no study analyzes net flows after an increase in fund risk despite the fact that fund managers' ultimate goal is to increase net flows of mutual funds. To the best of our knowledge, Spiegel and Zhang (2013, section 6.3, p. 521) are the only authors to mention this concept. We fill this gap in the literature by examining the effect of risk increase on cash flows of equity funds.

Huang et al. (2011) suggest that an increase in risk either is an indication of inferior ability or is motivated by an agency issue. If fund investors reduce net flows of underperforming funds that experience a risk increase, it will harm the fund managers because their compensation is closely tied to fund TNAs. However, if fund

☆ This work was initiated when the first author was visiting as a post-doctoral fellow at the Korea Advanced Institute of Science and Technology. The authors thank an anonymous referee for invaluable comments that greatly enhanced the quality of this paper, and Prof. Geert Bekaert (managing editor) for his encouragement.

* Corresponding author.
E-mail addresses: yjee33@pnu.edu (Y. Ha), kks1201@pnu.edu, iloveksri@hanmail.net (K. Ko).

[1] See Chevalier and Ellison (1997), Busse (2001), Qiu (2003), Kempf and Ruenzi (2008), Chen and Pennacchi (2009), and Kempf, Ruenzi, and Thiele (2009).

http://dx.doi.org/10.1016/j.jbankfin.2017.01.018
0378-4266/

investors increase or do not reduce net flows of underperforming funds that experience a risk increase, it may cause a serious agency problem.[2] We focus on the effect of risk increase on net flows. We build a testable hypothesis that an increase in fund risk actually increases the net flows of equity funds. This is a basic assumption of the risk shifting literature. Furthermore, we investigate investors' buying and redemption behavior via an inflow and outflow analysis.

Many studies use estimated net flows calculated from fund returns and TNAs because the Center for Research in Security Prices (CRSP) database does not provide cash flows of mutual funds. In contrast, we collect cash inflows (new sales amount) and outflows (redeemed cash amount) for individual funds from Form N-SAR filings on the Securities Exchange Commission's (SEC's) Electronic Data Gathering, Analysis, and Retrieval (EDGAR) database. Net flows are easily calculated by subtracting outflows from inflows. Using real cash-flow data separated by inflows and outflows enables us to show how investors' buying and redemption behavior respond to risk changes of equity funds.

On the other hand, Busse (2001) emphasizes the frequency of data selected for studying the tournament behavior of mutual funds. To reflect his point of view in this study, we use daily returns as well as monthly returns to measure fund risk. Furthermore, we use adjusted-risk changes as well as raw-risk changes to control for the effect of risk change in the market. For the robustness of our evidence, we test the persistence of the effect of risk increase on cash flows as well as the effects of fund size, age, and recent performance on our findings.

This paper's findings are summarized as follows. First, a change in fund risk has a positive and convex relationship with its net flows. Even unsuccessful funds with worse performance do not lose net flows although successful funds with better performance induce high net flows after risk increase. This convex relationship is very similar to the flow–performance relationship reported by Chevalier and Ellison (1997) and Sirri and Tufano (1998). Second, the effect of risk changes on net flows is a natural consequence of its effects on inflows and outflows. Third, this paper's empirical results are robust to return frequency, fund age, and fund size. Finally, the effect of risk changes on net flows persists for 6 months at least. Our findings create incentives for managers to shift risk as documented in the mutual fund literature.

This study contributes to the extant literature in two ways. First, we provide clear evidence that an increase in fund risk actually increases the net flows of equity funds. Second, using fund net flows, inflows, and outflows from Form N-SAR filings, we show the effects of risk changes on inflows and outflows, suggesting that the net flows commonly used by prior studies cannot wholly explain the behavior of fund investors.

This paper proceeds as follows. Section 2 describes the data and summary statistics. Section 3 examines the cash flows for portfolios based on risk changes. The main empirical evidence is provided in Section 4. Section 5 provides further empirical evidence. The final section concludes the paper.

2. Data

2.1. Data sources

We obtain data from the CRSP mutual fund database and the SEC's EDGAR database. From the CRSP mutual fund database, we obtain monthly and daily returns and TNAs for individual funds. With respect to monthly cash flows, most prior studies estimate net flows of individual funds using fund returns and TNAs because the CRSP database does not provide cash flows of mutual funds. However, we do not use estimated cash flows from the CRSP database; instead, we collect cash inflows and outflows for individual funds from Form N-SAR filings on the SEC's EDGAR database and calculate net flows by subtracting outflows from inflows.[3] This paper focuses on actively managed domestic equity mutual funds in the U.S. using data from January 1994 to June 2011.[4] For the daily returns analysis, our data are from January 1999 to June 2011 because the CRSP database provides daily returns of equity funds for this period only. Following Edelen et al. (2011), we define a fund at the portfolio level to include all share classes in the fund. Because the CRSP database contains various fund data at the share class level, we aggregate all share-class TNAs to compute the TNAs of a fund and compute the TNA-weighted monthly and daily average returns for the fund. We manually merge CRSP fund data with EDGAR data by matching fund names because CRSP fund codes are not directly related to the N-SAR fund codes of the central index key (CIK).

To determine the style of a fund based on the CRSP standard, we use the Strategic Insights classification from January 1994 to June 1998 and the Lipper classification from July 1998 to June 2011. We classify domestic equity funds into three styles: growth, growth and income, and mid- and small-cap.[5] When we exclude exchange-traded funds (ETFs) and index funds, we obtain a total of 16,205 domestic equity share classes or funds that have maintained their styles during the sample period (January 1994 through June 2011) in the CRSP database. These 16,205 share classes or funds belong to 5,620 individual funds because an individual fund may have several share classes. Among the 5,620 funds, 5,160 exactly match the EDGAR data. Following Elton et al. (2001), we eliminate funds with all TNAs less than $15 million and funds whose duration does not exceed two years. We also exclude net flows less than –90%, inflows greater than 1,000%, and outflows greater than 200%. As a result of this screening process, we obtain 3,122 domestic equity funds. We collect market returns and risk-free rates (one-month T-bill rates) from the library of Kenneth French's website.

2.2. Definitions of cash flows and risk changes

We define the monthly inflows, outflows, and net flows of individual funds as:

$$\text{inflows}_{i,t} = \text{new sales}_{i,t}/\text{TNA}_{i,t-1}, \quad (1)$$

$$\text{outflows}_{i,t} = \text{redeemed cash}_{i,t}/\text{TNA}_{i,t-1}, \quad (2)$$

$$\text{net flows}_{i,t} = \text{inflows}_{i,t} - \text{outflows}_{i,t}, \quad (3)$$

where $\text{newsales}_{i,t}$ is the amount of fund i shares sold in month t, $\text{redeemedcash}_{i,t}$ is the amount of fund i shares redeemed and

[2] A fund manager can increase a fund risk excessively to enhance its performance and, as a result, maximize inflows and minimize outflows. However, such an excessive increase may result in a bad or terrible performance, which is an unnecessary loss to fund investors if it is not executed. In this sense, a risk increase could be an agency problem between fund managers and investors.

[3] Several recent studies use N-SAR filings to analyze fund characteristics. See Deli (2002), Deli and Varma (2002), Almazan, Brown, Carlson, and Chapman (2004), Bris, Gulen, Kadiyala, and Rau (2007), Dass, Massa, and Patgiri (2008), Cashman and Deli (2009), Massa and Patgiri (2009), Edelen, Evans, and Kadlec (2011), and Warner and Wu (2011).

[4] The EDGAR system has provided detailed mutual fund information since 1994. According to the SEC, mutual funds were phased into EDGAR filing over a three-year period, ending May 6, 1996.

[5] Using the Strategic Insights classification from January 1994 to June 1998, AGG and GRO are selected for growth funds, GRI and ING for growth and income funds, and GMC and SCG for mid- and small-cap funds. Based on the Lipper classification from July 1998 to June 2011, CA and G are selected for growth funds; GI and EI for growth and income funds; and MC, SG, and MR for mid- and small-cap funds.