Journal of Banking & Finance 37 (2013) 3318–3333

Contents lists available at SciVerse ScienceDirect

Journal of Banking & Finance

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

The wisdom of crowds: Mutual fund investors' aggregate asset allocation decisions

John Chalmers [a], Aditya Kaul [b], Blake Phillips [c,*]

[a] Lundquist College of Business, University of Oregon, Eugene, OR 97403, USA
[b] School of Business, University of Alberta, Edmonton, AB, Canada T6G 2R6
[c] School of Accounting and Finance, University of Waterloo, Waterloo, ON, Canada N2L 3G1

ARTICLE INFO

Article history:
Received 19 July 2012
Accepted 4 May 2013
Available online 16 May 2013

JEL classification:
G11
G14
G23
G32

Keywords:
Mutual fund
Mutual fund flow
Asset allocation

ABSTRACT

We find that the aggregate asset allocation decisions of US mutual fund investors depend on economic conditions. Both anticipated economic downturns and periods of turmoil lead investors to direct flow away from risky equity funds and towards lower-risk money market funds. These patterns are markedly stronger for investors in low cost and low turnover funds relative to investors in high cost and high turnover funds, consistent with sophisticated investors being more sensitive to changing conditions. Benchmarked against a buy-and-hold strategy, these asset allocation strategies reduce risk without degrading the risk-return trade-off. Our evidence suggests that individual investors, often dismissed as noise traders, collectively react to economic signals in a sensible manner when determining asset allocations.

1. Introduction

Commanding worldwide assets of 23 trillion USD at year-end 2009, mutual fund investors collectively are major players in capital markets.[1] Academic research at the individual fund level questions the rationality of these investors. For example, fund investors chase returns and react to non-informative name changes and advertising campaigns.[2] In this paper, we study the aggregate asset allocation decisions of US mutual fund investors. Our goal is to understand the behavior of the amalgam of mostly small, retail investors.[3] Much as diversification minimizes the effects of idiosyncratic factors on portfolio returns, aggregate allocation decisions may differ substantially from fund-level flows.

Our contribution is to provide evidence on the relation between economic conditions and the aggregate flows to mutual fund classes with differing risks. More specifically, using monthly data between February 1991 and March 2008, we address the following three questions. First, when making asset allocation decisions, do mutual fund investors react to changing economic conditions? We compute aggregate monthly allocations to four major asset classes: domestic equities, money market, bonds, and foreign equities. We then relate these allocations to proxies for economic conditions: the Chicago Fed National Activity Index (CFNAI), the term spread (TERM), the default spread (DEF), the change in the short-term interest rate (ΔTB), the Treasury-Eurodollar spread (TED), and volatility in the stock and bond markets (SPV and TBV). We find that fund investors alter the riskiness of their portfolios in response to shifting economic conditions, increasing risk as the economy is expected to improve and reducing risk in anticipation of economic downturns. Thus, when the economy is expected to perform favorably (i.e. TERM is high, DEF is low, ΔTB is low, or TED is low), investors direct flow away from money market funds and towards equity funds. This flow reaction is rapid and appears permanent, as we find no evidence either of a sluggish response or of over-reaction to the explanatory variables. Consistent with rational

* Corresponding author. Tel.: +1 519 888 4567; fax: +1 519 888 7562.
E-mail addresses: jchalmer@uoregon.edu (J. Chalmers), akaul@business.ualberta.ca (A. Kaul), brphilli@uwaterloo.ca (B. Phillips).

[1] From the Investment Company Institute (ICI) Fact Book, 2010.

[2] See Sirri and Tufano (1998) and Lynch and Musto (2003) for evidence of return chasing. Jain and Wu (2000) and Cooper et al. (2005) find that investors direct flow towards funds that advertise more and that undergo name changes to reflect current market trends. Bailey et al. (2011) provide evidence that behavioral factors play a part in suboptimal mutual fund selection.

[3] Individuals, rather than institutions, are the main holders of mutual funds. For example, using table 56 of the 2010 ICI Mutual Fund Fact Book, we calculate that in 2008, 92% of equity fund assets and 67% of money market fund assets were held in individual accounts.

0378-4266/$ - see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.jbankfin.2013.05.004

forecasting or, perhaps more plausibly, with fund investors responding to media commentary which incorporates the information in these variables, forward-looking financial market variables dominate the predictive power of contemporaneous signals from the real economy.

Second, we consider whether mutual fund investors flee risky investments during periods of crisis. The term "flight-to-safety" is ubiquitous during turbulent times, the belief being that investors gravitate to safer investments during such periods. Beber et al. (2009) study flight-to-quality and flight-to-liquidity in the Euro-area government bond market; otherwise, there is little evidence of the pervasiveness or implications of flight-to-safety reactions by investors. Consistent with pervasive safe-haven flows, there are significant incremental shifts from higher-risk equity funds to lower-risk money market funds during crisis periods. The forward-looking market variables retain their explanatory power when crisis effects are included, suggesting that the relation between flow and economic conditions is not due to such episodes.

Third, we study whether the strength of the relation between asset allocation and economic conditions varies across mutual fund investor profiles. We separate high and low cost equity index funds, high and low cost equity funds and high and low portfolio turnover funds to distinguish unsophisticated from sophisticated investors. We find that the allocations to funds which we would expect to be held by more sophisticated investors are more sensitive to the economic forecasting variables and drive the relation between economy-wide allocations and changing economic conditions. In contrast, the allocations to funds likely held by more unsophisticated investors show minimal sensitivity to these variables. This is broadly consistent with evidence in Bailey et al. (2011), who find that more sophisticated investors choose mutual funds with lower fees and realize better performance.

These results have significant implications. Understanding and predicting investor allocations is critical to the efficient management of mutual fund portfolios. Managers caught off guard by shifts in investor preferences can face asset-eroding trading costs. Perhaps more importantly, our results showing that the aggregate asset allocation decisions of fund investors are influenced by business cycle factors that appear to have rational underpinnings, stand in contrast to the weight of the fund-level evidence. Finally, the relation between expected returns and forecasting variables such as TERM and DEF is academically well established (e.g. Fama and French, 1989; Chen et al., 1986), but less is known about the mechanism by which this relation comes to hold. Our analysis suggests that, as fund investors collectively rebalance their portfolios in response to these variables, the resulting price effects contribute to the documented relation between expected returns and the forecasting variables.

While not the focus of our analysis, we briefly examine the performance implications of such time-varying asset allocation decisions. An extensive literature shows that expected returns and volatility are high when business conditions are poor and low in good economic times (e.g. Breeden, 1979; Fama and French, 1989; Schwert, 1989). Thus, the business cycle-based allocation strategies we document are likely to lower equity exposure when the premium for holding equities and return volatility are both high, and increase exposure when expected returns and volatility are low. We confirm that this is the case with aggregate mutual fund allocations. That is, inflows to equity funds precede periods of low volatility and expected returns, and outflows foreshadow high volatility and expected returns. As a result, business-cycle based allocation strategies lower both returns and volatility, and the net benefit hinges on the risk-return tradeoff investors are able to achieve.

To gain a sense of this potential tradeoff, we implement eight dynamic asset allocation strategies with trading triggers that are based on the economic forecasting variables and realized equity flow. We find that returns are lower for each strategy relative to a buy-and-hold equity benchmark. Accounting for risk, the dynamic portfolios have, on average, 16% higher Sharpe ratios and 48% lower systematic risk. Following Ferson and Mo (2012), we also estimate aggregate market and volatility timing ability and find positive alphas that are in several cases marginally significant. This analysis suggests that investors are no worse off in a risk-adjusted performance sense. In fact, for a risk-averse investor, such a risk-reducing strategy is potentially utility enhancing.

Our results contribute to research that examines investor fund-picking ability which yields mixed conclusions. Gruber (1996) and Zheng (1999) provide the first evidence of the 'smart money' effect, reporting that funds experiencing money inflows have higher subsequent short-term performance than funds experiencing outflows. However, Sapp and Tiwari (2004) argue that this effect is explained by momentum in stock returns, and that investors have no fund picking ability. Using dollar weighted returns, Friesen and Sapp (2007) examine the market timing ability of investors in individual funds and find that timing decisions reduce performance by 1.56% annually. This underperformance is greater for funds with high loads and large risk-adjusted returns. Keswani and Stolin (2008) separately examine UK fund-level inflows and outflows and find that the smart money effect exists for both institutional and individual investors. Huang et al. (2012) show that more sophisticated investors (identified using loads, or by separating institutional and retail funds and funds with star managers versus no star managers) learn from past fund performance and become less performance-sensitive.

Our results also relate to a small literature examining aggregate flow. Edwards and Zhang (1998) and Santini and Aber (1998) report that US equity fund flows are positively related to stock market returns and contemporaneous personal disposable income and negatively related to the lagged long-term interest rate. Cohen (1999) examines quarterly Federal Reserve flow-of-funds data and finds associations between individual and institutional flows and TERM, the dividend yield and TB. Goetzmann et al. (1999) find that US equity flow is negatively correlated with flow to money market and precious metals funds. Ben-Rephael et al. (2012) aggregate within-fund family bond to equity transfers in the US, and find a negative association between transfers and future market returns. Also using flow-of-funds data, Edelen et al. (2010) find that the ratio of individual investor equity allocation to market-wide equity allocation is positively associated with contemporaneous market returns and negatively predicts future market returns. Ben-Rephael et al. and Edelen et al. interpret their variable as a sentiment indicator. We contribute to this literature by relating aggregate mutual fund allocations to business conditions and examining the performance implications of such decisions. Our results indicate that aggregate allocations have rational drivers.

Finally, Dichev (2007) shows that aggregate dollar-weighted returns, which more heavily weight performance when greater capital is invested, are lower than buy-and-hold returns for the US and 19 international equity markets suggesting that investors are poor market timers. The dollar-weighted return method does not incorporate other asset classes or risk considerations. We extend Dichev's analysis by modeling aggregate mutual fund investor capital allocations across asset classes and the business cycle and by studying investor sophistication. We show that investors move capital across asset classes and that portfolio risk consequently varies over time. Two implications of our results are that single asset class based dollar-weighted returns provide an incomplete picture of portfolio performance, and it is more meaningful to compare risk-adjusted returns. Consistent with Dichev's results we find that, on a *raw* return basis, asset re-allocations by fund investors are performance reducing. However, on a risk-adjusted