Journal of Financial Economics 114 (2014) 341–365

Contents lists available at ScienceDirect

Journal of Financial Economics

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

Dispersion in beliefs among active mutual funds and the cross-section of stock returns ☆

Hao Jiang [a,b,c], Zheng Sun [d,*]

[a] Erasmus University, the Netherlands
[b] Michigan State University, USA
[c] University of Texas, Austin, USA
[d] Paul Merage School of Business, University of California, Irvine, USA

ARTICLE INFO

Article history:
Received 28 August 2012
Received in revised form
14 June 2013
Accepted 15 July 2013
Available online 10 June 2014

JEL classification:
G10
G11
G12
G14

Keywords:
Mutual funds
Private information
Dispersion in beliefs
Short-sale constraints
Asymmetric information

ABSTRACT

We propose a measure of dispersion in fund managers' beliefs about future stock returns based on their active holdings, i.e., deviations from benchmarks. We find that both the level of and the change in dispersion positively predict subsequent stock returns on a risk-adjusted basis. This effect is particularly pronounced among stocks with high information asymmetry and binding short-sale constraints. These results suggest that a subgroup of informed managers drives up the dispersion in active holdings when they place large bets after receiving positive private information. Binding short-sale constraints, however, prevent them from fully using their negative private information, leading to low dispersion in active holdings.

1. Introduction

The enormous expansion of institutional investors has led to a profound change in the capital market: an institutional investor is more likely to interact with another institution rather than individual investors (French, 2008; Stein, 2009). But not all institutions are the same and thus studying the heterogeneity among institutional investors is important. Although a large literature analyzes how institutional investors as a group affect asset prices (e.g., Gompers and Metrick, 2001), relatively little empirical work has focused on how the heterogeneity among institutional investors influences capital market outcomes.

In this paper, we empirically examine how heterogeneous beliefs among actively managed mutual funds relate

☆ The authors thank Bill Schwert (the editor), Marcin Kacperczyk (the referee), Joe Chen, Nai-fu Chen, Yong Chen, Will Goetzmann, Larry Harris, David Hirshleifer, Harrison Hong, Philippe Jorion, Jun Liu, Christ Malloy, Buhui Qiu, Chris Schwarz, David Solomon, Avanidhar Subrahmanyam, Ivo Welch, Wei Xiong, Moto Yogo, Jialin Yu, Lu Zheng, and participants at UC-Irvine, AFA 2013 Meeting, 7th Early Career Women in Finance Conference, J.P. Morgan Quant Conference, Napa Conference, and USC-UCLA-UCI Southern Cal Finance Day for their invaluable comments and suggestions. We thank Kenneth French and Lubos Pastor for making data on factor returns available through their Web sites, and are grateful to the Frank Russell Company for their data support. All remaining errors are ours.

* Corresponding author. Tel.: +1 949 824 6907.
E-mail address: zsun@merage.uci.edu (Z. Sun).

http://dx.doi.org/10.1016/j.jfineco.2014.06.003
0304-405X/

to stock prices and future returns. We focus on active mutual funds for several reasons. First, the dramatic expansion of the mutual fund industry in the stock market has led to its increasing importance as a group of U.S. corporate shareholders.[1] Second, the majority of mutual fund assets are actively managed, which makes the industry an essential information processor. A growing number of studies have shown that informed trading by active fund managers can play an important role in determining stock prices.[2] Finally, actively managed mutual funds have well-specified performance benchmarks, which allow us to use the insights of portfolio theory to infer their beliefs about future stock returns.

To capture the beliefs held by active fund managers, we use a new instrument, namely, mutual funds' active holdings or the deviations in their holdings from benchmarks. An active manager, according to her prospectus, attempts to maximize the benchmark-adjusted return while minimizing the tracking error variance. In this context, she would overweight a stock when she believes the stock will outperform and underweight it otherwise.[3] Motivated by these observations, we create a new measure of dispersion in beliefs using the standard deviation of active holdings across all active fund managers whose investment universe includes the stock. We find intuitively that stocks for young, small, and growth firms tend to have a higher level of dispersion.

Our results establish a strong and robust relation between dispersion in beliefs among active mutual funds and future stock returns. We find that the equal-weighted portfolio of stocks in the highest dispersion decile outperforms that in the lowest dispersion decile by 0.98% per month. The effect is even larger when we look at changes in dispersion: The equal-weighted portfolio of stocks in the decile with the largest increase in dispersion outperforms that in the decile with the largest decrease by 1.38% per month. Even after adjusting for the differences in their exposures to the market, size, value, momentum, and liquidity factors, the return spread between stocks in the top and bottom deciles remains more than 1% per month. The return forecasting power of dispersion in active fund holdings is pervasive across small and large stocks, persistent up to one year, and robust to controlling for a variety of stock characteristics.[4]

The notion that stocks with higher dispersion in beliefs among active mutual funds earn higher average returns may seem puzzling at first, given that several studies have documented a negative association between proxies for dispersion in beliefs and future stock returns.[5] These studies typically invoke the idea put forth by Miller (1977) that in situations with heterogeneous beliefs, binding short-sale constraints can eliminate the negative opinions of pessimistic investors from the market, thereby leading to overpricing and lower future returns. We argue that our results are in fact consistent with a model of asset markets populated by investors holding divergent beliefs in the presence of short-sale constraints. The key new ingredient that leads to a different result is the source of divergent beliefs: differential information.[6]

To understand the mechanism, assume that active fund managers are differentially informed about individual stocks. For a given stock, some managers have an information advantage and receive accurate information signals, whereas others receive noisy information signals or appear to be uninformed investors.[7] When informed managers receive positive signals about the stock unobserved by other managers, they tend to place large bets relative to their peers, which drive up the observed dispersion in beliefs among fund managers. When they obtain negative information signals, however, binding short-sale constraints prevent them from fully using their negative private information, leading to low dispersion in beliefs among managers.[8] In other words, when bad news occurs, market frictions of shorting force active mutual fund managers to appear more homogeneous. Therefore, observed dispersion in beliefs can vary with the private signals informed managers receive. In line with the arguments by Grossman and Stiglitz (1980), as long as the cost of information acquisition is nonzero, the equilibrium stock prices do not fully reveal agents' private information, which generates the return forecasting power of the dispersion in beliefs. We refer to this mechanism as the "differentially informed managers" hypothesis.

Results from several tests lend further support to this hypothesis. First, we study the price reactions to earnings announcements for stocks with large increases

[1] According to the U.S. Census Bureau, the fraction of corporate equities owned by mutual funds grew from 2.84% in 1980 to 20.61% in 2010.

[2] See, e.g., Kacperczyk, Van Nieuwerburgh, and Veldkamp (2012a), Kaniel and Kondor (2013), and Vayanos and Woolley (2013).

[3] A mean-variance analysis of tracking errors in the spirit of Roll (1992) indicates that the deviation in portfolio weights of a stock in the fund portfolio from its benchmark index, under certain assumptions, is linearly related to the expected return to that stock, conditional on the fund manager's information set. Recent empirical work supports the notion that active holdings help to reveal fund managers' expectation of future returns. Kacperczyk, Sialm, and Zheng (2005) show that mutual funds with higher industry concentration achieve better performance. Kacperczyk and Seru (2007) argue that mutual fund managers whose trades correlate less with analyst recommendations tend to perform better. Jiang, Verbeek, and Wang (2014) show that a stock-level measure of deviations from benchmarks aggregated across active managers predicts returns on individual stocks.

[4] The high returns on stocks with high dispersion do not necessarily imply large mutual fund alphas. Berk and Green (2004) present an equilibrium model to explain the coexistence of substantial mutual fund skill in stock picking and zero abnormal returns to mutual fund investors.

[5] See, e.g., Diether, Malloy, and Scherbina (2002), Goetzmann and Massa (2005), and Chen, Hong, and Stein (2002).

[6] Our notion of differential information could also relate to managers' superior ability to interpret the public information. For example, if the market mis-reacts to public information, a skilled manager could make profitable positions because he interprets the information better than the crowd.

[7] The information advantage of certain fund managers could arise from (1) their special connection through a shared educational network with firm managers (Cohen, Frazzini, and Malloy, 2008) or proximity to the location of the firms in which fund managers invest (Coval and Moskowitz, 2001); or (2) their specialized expertise about a particular industry (Kacperczyk, Sialm, and Zheng, 2005).

[8] A majority of mutual funds are prohibited from shorting by their charter. For example, Almazan, Brown, Carlson, and Chapman (2004) report that only approximately 30% of mutual funds are allowed by their charters to sell short, and only 3% of funds do sell short.