



# The role of institutional investors and individual investors in financial markets: Evidence from closed-end funds



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## ABSTRACT

I use closed-end funds as a unique research tool to explore whether institutional investors are a stabilizing or a destabilizing force in financial markets. If institutional investors stabilize the market by trading against mispricing, then they should purchase closed-end funds selling at a wide discount and sell funds selling at a large premium. Consistent with the market-stabilizer hypothesis, I document that wide-discount funds experience a higher subsequent institutional demand than premium funds do. Moreover, my findings that an increase in institutional ownership forecasts a decrease in the volatility of discount returns support the proposition that institutional trading reduces noise trader risk. In sum, the results suggest that institutional investors play a price-stabilizing role in financial markets.

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## 1. Introduction

In spite of the growing importance of institutional investors,<sup>1</sup> there is still an ongoing debate on the role of institutional investors in financial markets. One strand of research considers institutional investors functioning as price stabilizers whose presence reduces mispricing, and who promptly detect mispricing and exploit arbitrage profit by trading against mispricing (see, for example, Badrinath, Kale, and Noe (1995), Sias and Starks (1997), Bushee (1998), Bartov, Radhakrishnan, and Krinsky (2000), Cohen, Gompers, and Vuolteenaho (2002), Collins, Gong, and Hribar (2003), Sias, Starks, and Titman (2006), Boehmer and Kelley (2009)). In contrast, a growing body of literature argues that institutional investors may cause price deviation and increase volatility (e.g., Scharfstein and Stein (1990), Lakonishok, Shleifer, Thaler, and Vishny (1991), Shleifer and Vishny (1997), Jackson (2003), Pirinsky and Wang (2004), Brunnermeier and Nagel (2004), Kim and Nofsinger (2005), Han and Wang (2006)).

In contrast to the evidence showing that net institutional demand drives individual stock prices, a large literature suggests that retail

investors, who are less sophisticated and less experienced than professionals, may move prices away from fundamental values. For example, evidence shows that individual trading leads to asset mispricing because individuals realize their gains too soon but are reluctant to realize their losses (Odean, 1998), hold under-diversified portfolios (Kumar, 2007), and trade based on noise or sentiment (Shiller, 1984; De Long, Shleifer, Summers and Waldmann, 1990a, 1990b; Lee, Shleifer, and Thaler, 1991). One important question that remains unanswered is: which investor class, institutions or individuals, are more likely to destabilize security prices and generate excess volatility.

This paper contributes to the debate by employing closed-end funds as a research vehicle to explore whether institutional investors or individual investors are a destabilizing force in the market. Closed-end funds serve as a unique research tool for testing asset pricing theories because the intrinsic value of a closed-end fund's underlying asset is relatively easy to gauge. A fund's net asset value (hereafter NAV) closely represents the intrinsic value of this fund. Many empirical studies use discount/premium, the relative difference between a fund's market price and its NAV, as a proxy of mispricing.<sup>2</sup> Specifically, this paper addresses the following three research questions to investigate the

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<sup>1</sup> NYSE Fact Book (2006) shows the institutional ownership increases from 28.2% in 1970 to 49.8% in 2002. According to Schwartz and Shapiro (1992), the trading of institutions and member firms is accounted for more than 70% of the total trading volume on the New York Stock Exchange.

<sup>2</sup> A mounting empirical literature has utilized closed-end funds as a tool to test financial theories, such as noise trader risk theory (De Long et al., 1990b; Pontiff, 1996; Sias et al., 2001; Gemmill and Thomas, 2002), investor sentiment theory (Lee et al., 1991; Bodurtha, Kim and Lee, 1995; Swaminathan, 1996), arbitrage pricing theory (Ross, 2002), and agency-based theory (Grullon and Wang, 2001; Berk and Stanton, 2007).

impacts of institutional investors and individual investors on closed-end funds' risk and return.

The first research question asks whether institutional investors trade to reduce mispricing or to push prices away from the fundamental values. A growing literature provides empirical evidence that aggregated institutional trading has impacts on contemporaneous stock returns and subsequent returns (e.g., Kraus and Stoll (1972), Chan and Lakonishok (1995), Chiyachantana, Jain, Jiang, and Wood (2004), Sias et al. (2006), Campbell, Ramadorai, and Schwartz (2009)). Nonetheless, previous research has provided mixed evidence on the direction to which institutional trading has driven prices. Several studies show that institutions push prices away from the true values (e.g., Cohen (1999), Sias and Starks (1997), Sias et al. (2006), Gutierrez, Roberto and Kelley (2009)). In contrast, other research supports that institutions trade to reduce price deviations from the intrinsic values (see, for instance, Dennis and Strickland (2002), Brunnermeier and Nagel (2004), Hughen and McDonald (2005), Kim and Nofsinger (2005), Boehmer and Kelley (2009)).

To contribute to the debate on the role of institutional investors in financial markets, I investigate the relationship between the beginning-of-period discount levels and subsequent changes in institutional ownership. I hypothesize that institutional investors are price stabilizers so they should be more likely to buy funds selling at a discount than to buy funds selling at a premium, and they should also be more likely to sell funds selling at a premium than to sell funds selling at a discount. Therefore, I expect to observe a negative relationship between the beginning-of-period discount levels and net institutional demand, i.e., funds priced at a wider discount should experience a greater subsequent increase in institutional ownership than funds traded at a narrower discount or a premium do. Consistent with the price-stabilizer hypothesis, I find that the average net institutional demand in the wide-discount group is significantly greater than that in the premium group. By regressing net institutional demand on the beginning-of-period discount levels, I also find that net institutional demand is negatively related to discount level.

If institutional investors trade against mispricing, does institutional trading reduce mispricing in closed-end funds?<sup>3</sup> To investigate the impact of institutional trading on changes in discount,<sup>4</sup> I examine the relationship between net institutional demand and contemporaneous quarterly changes in discount/premium. If institutional trading pushes prices towards fundamental values, then we should observe a positive relationship between net institutional demand and discount/premium. For example, if institutional investors increase ownership in a fund sold at 90% of its NAV and the trade pushes the price up to 95% of the funds' NAV, then changes in the discount equal 5%, which is the difference between  $-5\%$  and  $-10\%$ . Alternatively, institutional trading may improve price efficiency by providing liquidity to individual investors (Boehmer and Kelley, 2009). Net institutional demand should be negatively associated with changes in discount if institutional investors act as liquidity providers in closed-end funds. Consistent with the liquidity-provider hypothesis, I find a negative relationship between changes in institutional ownership and changes in closed-end fund discount.

The second research question is: Are closed-end fund discounts a good measure of individual investor sentiment? I define investor sentiment as an investor's opinion of the expected returns on a security, while the personal opinion is independent of this security's fundamental value. Several theoretical models explain why investor sentiment may persistently affect stock returns (see, among others, De Long et al. (1990b), Shleifer and Vishny (1997), Barberis, Shleifer, and Vishny (1998)). For example, assuming noise trader sentiments stochastically vary and are systematically correlated across noise traders, De Long et al. (1990b) propose that the uncertainty of noise trader sentiments

may prevent rational investors from fully arbitraging against mispricing so noise trader risk should be priced. A large literature suggests that retail investors, who are less sophisticated and less experienced than professionals, are noise traders (for instance, Shiller (1984), De Long et al. (1990a, 1990b), Lee et al. (1991), Odean (1998), Gemmill and Thomas (2002), Kumar (2007)).

A necessary condition for testing a noise-trader-risk model is to quantitatively measure noise trader sentiment. One popular view holds that closed-end fund discount can be used to measure individual investor sentiment (De Long et al., 1990b; Lee et al., 1991). Lee et al. (1991) state that changes in investor sentiments, which are unrelated with changes in a fund's fundamental value, may only affect fund price but not NAV. Therefore, Lee, Shleifer, and Thaler argue that changes in closed-end fund discount, which measures the divergence between market price and NAV, should capture changes in investor sentiment. Several previous studies have chosen closed-end fund discount as a measure of individual investor sentiment because individual holding dominates in closed-end funds but not in the underlying assets of closed-end funds (see, for instance, Lee et al. (1991), Sias (1997)). However, no study has yet tested whether closed-end fund discount is a good measure of individual investor sentiment. To my knowledge, this paper is the first study that actually tests whether we should use closed-end fund discount to measure individual investor sentiment.

To test the individual-investor-sentiment hypothesis that closed-end fund discount is a proxy of individual sentiment, I investigate the relationship between net institutional demand, measured as the opposite of net individual demand, and the closed-end fund discount return. I assume that net institutional demand, aggregated together, matches net individual supply, and vice versa. Thus, this paper sheds light on the roles of both institutional investors and individual investors in security markets. Bullish individual investor sentiment should result in an increase in net individual demand and a decrease in net institutional demand. A negative correlation between net institutional demand and contemporaneous discount returns would indicate that closed-end fund discount is a proxy of individual investor sentiment.

Consistent with the individual-investor-sentiment hypothesis, I document a negative relation between discount return and net institutional demand by using simple correlation, sorts and regressions. The regression coefficients are significant in the sample of international equity funds, while only a handful of coefficients are significant in the sample of domestic funds. I argue that this relation is stronger in international funds than in domestic funds because it is more costly to collect information on foreign stocks than to obtain information on U.S. stocks. Thus, individual investors who hold international funds are more likely to trade on noise and individual sentiment may have stronger influence on net individual demand in international funds than in domestic funds.

The third research question is: Are individual investors noise traders as suggested by earlier literature? Do institutional investors increase or decrease noise trader risk? Noise traders are uninformed traders who treat noise as true information and trade based on noise (Black, 1986). A number of theories suggest that noise trading only has temporary effect on stock price and noise traders would not survive in the long run (see, among others, Friedman (1953), Fama (1965)). For instance, Gemmill and Thomas (2002) use individual investors' investment flows to open-end funds as a proxy of noise-trader sentiment and find that the variations in closed-end fund discounts are associated with individual investors' investment. However, they also provide evidence that arbitrage cost, instead of retail-investor investment flows, causes closed-end fund discount in the long-run. A competing body of literature declares that noise trader risk is a persistent risk factor, which should be priced (e.g., De Long et al. (1990b), Campbell and Kyle (1993), Pontiff (1997)). For example, the De Long et al. (1990b) model proposes that the uncertainty of noise trader sentiment put limits on arbitrage. De Long, et al. argue that risk-averse arbitrageurs with short-horizon worry about the possibility of being forced to close

<sup>3</sup> I thank an anonymous referee for bringing this research question to my attention.

<sup>4</sup> For convenience, this paper uses discount to represent both discount and premium unless otherwise specified. Premium is considered as a negative discount.

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