

Mutual Funds and Mispriced Stocks*

By Doron Avramov, Si Cheng, and Allaudeen Hameed

November 21, 2016

Abstract

We find strong and persistent cross-sectional differences in the propensity of active mutual funds to hold mispriced stocks. Funds with high propensity to hold overpriced stocks display poor stock-picking skills as they further purchase overpriced stocks during episodes of fund inflows and significantly underperform in subsequent periods. Intriguingly, overpriced funds attract considerable capital inflows when investor sentiment is high. The positive overpricing-flow relation is concentrated in funds with high marketing expenses and skewed returns. The evidence is consistent with an innocuous matching in the preference for stock characteristics by sentiment-driven managers and optimistic investors rather than active catering to investor preferences.

* Doron Avramov (email: doron.avramov@huji.ac.il) is from The Hebrew University of Jerusalem; Si Cheng (email: sicheng@cuhk.edu.hk) is from Chinese University of Hong Kong, and Allaudeen Hameed (email: allaudeen@nus.edu.sg) is from National University of Singapore. We thank Yakov Amihud, Scott Cederburg, Alexander Chincio, Martin Cremers, Joni Kokkonen, Lin Peng, Jianfeng Shen, Ashley Wang, Hong Zhang, and seminar participants at INSEAD, Queen's University Belfast, Shanghai Advanced Institute of Finance (SAIF), Tel Aviv University, The Chinese University of Hong Kong, Tsinghua University, University College Dublin, University of New South Wales, University of Sydney, University of Technology Sydney, 2015 Luxembourg Asset Management Summit, 2015 Tel Aviv Finance Conference, 2016 China International Conference on Finance, and 2016 FMA European Conference for helpful comments.

Mutual Funds and Mispriced Stocks

Abstract

We find strong and persistent cross-sectional differences in the propensity of active mutual funds to hold mispriced stocks. Funds with high propensity to hold overpriced stocks display poor stock-picking skills as they further purchase overpriced stocks during episodes of fund inflows and significantly underperform in subsequent periods. Intriguingly, overpriced funds attract considerable capital inflows when investor sentiment is high. The positive overpricing-flow relation is concentrated in funds with high marketing expenses and skewed returns. The evidence is consistent with an innocuous matching in the preference for stock characteristics by sentiment-driven managers and optimistic investors rather than active catering to investor preferences.

I. Introduction

Recent statistics from the Investment Company Institute show that the total net assets managed by 3,269 U.S. active equity funds exceed 5.6 trillion dollar as of February 2016. Funds aim to create value for their investors through their skills in stock picking and market timing (e.g., Fama (1972), and Daniel, Grinblatt, Titman, and Wermers (DGTW) (1997)). As mutual funds typically undertake long-only positions, stock picking skills essentially amount to detecting undervalued investments.

However, rational and behavioral asset pricing theories typically argue that asset prices are more likely to exceed their discounted value of expected future dividends rather than being underpriced. Notably, Miller (1977) asserts that stock prices reflect the views of the more optimistic investors in the presence of heterogeneous beliefs about fundamental values and impediments to short selling. Subsequent models refine the intuition in Miller's conjecture and obtain overvaluation by linking short sale constraints to low breadth of ownership (Chen, Hong, and Stein (2002)) and high search costs (Duffie, Gârleanu, and Pedersen (2002)).¹ The empirical evidence in support of overpricing is provided by Stambaugh, Yu, and Yuan (2012, 2015) and Avramov, Chordia, Jostova, and Philipov (2013). These studies show that market anomalies extract their profitability from selling short overpriced stocks.

In the context of mutual funds, perhaps surprisingly, recent work (e.g., Edelen, Ince, and Kadlec (2015) and Akbas, Armstrong, Sorescu, and Subrahmanyam (2015)) shows that funds do not exploit predictability in the cross section of equity returns. In particular, mutual funds tend to buy stocks belonging to the short-leg of anomalies and also they appear to exacerbate cross-sectional mispricing,²

¹ Harrison and Kreps (1978), Scheinkman and Xiong (2003), and Hong, Scheinkman, and Xiong (2006) show that when agents agree to disagree and short selling is infeasible, asset prices may exceed their fundamental value as investors are willing to pay more for the right to sell the asset in the future. In Abreu and Brunnermeier (2002) and Brunnermeier and Nagel (2004), the dispersion of opinion among arbitrageurs causes a synchronization problem and they choose to ride the bubble leading to delayed corrections of overvalued stocks. Likewise, the positive feedback economy of De Long, Shleifer, Summers, and Waldmann (1990) recognizes the possibility of overpricing — arbitrageurs do not sell or short an overvalued asset, rather they buy it, in anticipation of future price increases due to further buying by trend chasing investors. Moreover, Hong and Sraer (2016) argue that heterogeneous beliefs about the aggregate market and short-sale constraints faced by investment funds lead to overpriced high beta stocks.

² In contrast, there is some, albeit limited, evidence that mutual funds profit from anomalies. For example, the top ten percent of mutual funds that actively follow the accrual strategy earn positive alphas (Ali, Chen, Yao, and Yu (2008)). Furthermore, others show that anomalies such as momentum survive reasonable transaction costs incurred by institutions (Korajczyk and Sadka (2004)).

In this paper, we investigate the cross-sectional variation among active mutual funds in their propensity to hold overpriced stocks and its implications for the delegated portfolio management. In addition to the effects of mispriced stocks on future fund performance, we assess the managerial trading activities in response to new capital, as well as investors' reactions to funds with different levels of overpricing. In one experiment of interest, we examine whether funds holding overpriced stocks lose capital as investors infer low managerial skills or instead they gain new capital driven by investor sentiment.

To pursue this task, we originate a fund overpricing measure — the investment value-weighted average of overpricing of stocks held by the fund. Stock overpricing is computed following Stambaugh, Yu, and Yuan (2015) based on eleven anomalies that survive the exposures to the Fama and French (1993) three factors. The overpricing measure is based on the notion that anomalies reflect mispricing and averaging across anomalies identifies mispriced stocks. Consequently, aggregating the mispricing of stocks held by a fund reveals the extent to which an active fund is disposed to holding mispriced stocks. In the context of the eleven anomalies, funds overweighting stocks that are financially distressed, with higher equity issuance, higher accruals, higher operating assets, lower past returns, lower gross profitability, higher asset growth, lower return on assets, and higher abnormal capital investment, *ceteris paribus*, exhibit higher overpricing. In what follows, funds that heavily weight overpriced stocks are labelled as overpriced funds.

We first describe several properties of fund overpricing. The empirical evidence indicates that the cross-sectional difference in the exposure of active mutual funds to mispriced stocks is highly persistent: the propensity of a fund to hold overpriced stocks in a quarter continues into subsequent quarters. For example, 53% (47%) of the most (least) overpriced funds remain in the top (bottom) overpricing decile after one year. Moreover, managers of overpriced funds are more likely to purchase overpriced stocks and less likely to purchase underpriced stocks in the subsequent quarters. Overpriced funds respond to fund inflows by continuing to purchase overpriced stocks. During high sentiment periods, overpriced funds reduce (increase) their existing positions in underpriced (overpriced) stocks and are less likely to take new positions in underpriced stocks in response to inflows. Our findings here are not subsumed by the documented tendency of funds to respond to

inflows by expanding their positions in existing holdings (Coval and Stafford (2007), Pollet and Wilson (2008), and Khan, Kogan, and Serafeim (2012)). Indeed, while mutual funds as a group appear to trade on the wrong side of market anomalies (e.g., Edelen, Ince, and Kadlec (2015)), in our innovations, we document significant and persistent cross-sectional differences in fund propensity to hold overpriced stocks.

Next, we investigate the cross-sectional variation in the risk-adjusted future performance of active mutual funds based on their exposure to overpriced stocks. We hypothesize that fund overpricing reveals an aspect of managerial skill. Specifically, we examine if higher fund overpricing is associated with low stock picking ability of managers and poor subsequent performance. On the other hand, less overpriced fund managers may attempt to beat their benchmarks by tilting their portfolios away from overpriced stocks.

The empirical evidence is supportive of these hypotheses. The top decile of the most overpriced funds performs poorly, earning a benchmark-adjusted (DGTW-adjusted) return of -2.28% (-1.15%) per year and the corresponding figures for the least overpriced funds is positive at 0.78% (1.1%). The difference in benchmark-adjusted (DGTW-adjusted) return between the least and most overpriced funds is economically significant at 3.07% (2.27%) per year. The performance gap widens considerably during episodes of high market sentiment: the most overpriced funds underperform the least overpriced funds by 7.39% in benchmark-adjusted return and by 3.9% in DGTW-adjusted return per year. In fact, significant positive benchmark-adjusted annual (net of fee) return of 2.09% is recorded for the least overpriced funds during high sentiment periods. In contrast, fund overpricing reveals no predictive power during low sentiment periods, with benchmark- and risk-adjusted returns being indistinguishable from zero across most fund overpricing deciles.³ Finally, we reach identical conclusions when fund returns are adjusted for differences in fund investment styles.

³ In our entire sample of mutual funds, the average alpha is -0.58% per year with respect to the CAPM and -0.7% with respect to the FFC model, both of which are statistically significant. Indeed, a large body of work shows that the average mutual fund alpha (net of fees) is negative after adjusting for equity styles or risk benchmarks (e.g., Malkiel (1995), Gruber (1996), Carhart (1997), Wermers (2000), Christoffersen and Musto (2002), Gil-Bazo and Ruiz-Verdú (2009)). We find that the average alpha becomes indistinguishable from zero when twenty percent of the most overpriced funds are excluded. Ultimately, the average negative alpha associated with active funds emerges from such, ex ante identifiable, funds holding the most overpriced stocks.

In investigating the overpricing-performance relation, we note upfront that stock return predictability based on known anomalies does not mechanically translate into fund return predictability. Indeed, in the presence of managerial skills, active mutual funds are not a mere collection of individual stocks. For one, fund alpha could emerge even when a pricing model perfectly prices all investable assets, or when the stock level alpha is uniformly equal to zero. Second, in our sample, the cross-fund difference in the degree of fund overpricing is smaller than the observed overpricing in the entire universe of individual stocks. Third, mutual fund managers could use their informational advantage to respond to stock overpricing by adjusting their holdings (not reflected in the quarter-end reported holdings) away from overpriced stocks, mitigating the predictability of returns based on the fund level overpricing. For example, Kacperczyk, Sialm, and Zheng (2008) show that the unobserved actions of mutual funds predict performance.

Fourth, if fund overpricing is unrelated to managerial stock selection skills, funds with the same benchmark or investment style would perform similarly even when their overpricing measures differ. Our findings hold when the analysis is based on benchmark-adjusted and style-adjusted returns as well as benchmark-adjusted and style-adjusted fund overpricing. Notice also that the trading activity of overpriced funds in response to fund inflows provides confirming evidence that fund overpricing reflects poor managerial skills, in that overpriced funds react to inflows by purchasing overpriced stocks, while skilled managers avoid the overpriced stocks. Lastly, our results are robust to considering an ex-ante overpricing proxy. Such proxy considers anomalies only after they are published in academic journals, and the anomalies are based on observations that start after the sample period reported in the publications (McLean and Pontiff (2016)).

Our findings thus far emphasize the joint effects of stock mispricing and investor sentiment on fund performance and complement the stock-level findings in Stambaugh, Yu, and Yuan (2012). We provide statistically and economically significant evidence that the fund overpricing is inversely related to fund performance after controlling for (a) fund characteristics; and (b) other predictors of fund performance including tracking error (Wermers (2003), Cremers and Petajisto (2009)), industry concentration index (Kacperczyk, Sialm, and Zheng (2005)), return gap (Kacperczyk, Sialm, and Zheng (2008)), active share (Cremers and Petajisto (2009), Petajisto (2013)), and R-squared (Amihud

and Goyenko (2013)).⁴ In addition, we find that the predictive power of fund overpricing is robust to employing alternative risk-adjustment models to recover alphas, accounting for gross-of-fee returns, netting out the average overpricing in the fund's benchmark portfolio, as well as resorting to measures of changes in overpricing. We also implement the newly proposed measure of a fund's skill of Berk and van Binsbergen (2015) to find that high overpricing lowers the dollar value added of the fund.

An alternative interpretation of the overpricing-performance relation is that there are mispricing factors excluded from the risk-adjustment specification. If so, alpha variation across funds could reflect different exposures of fund returns to mispricing factors with overpriced funds exhibiting lower exposures. Empirical support for mispricing factors is provided by Stambaugh and Yuan (2015) and Kogan and Tian (2015). Both papers show that characteristics based anomalies share common return co-movement and factors created from anomalies capture much of the cross-sectional variation in average returns. Notice also that Kozak, Nagel, and Santosh (2015) imply that alphas due to mispricing related to investor sentiment are indistinguishable from exposures to mispricing factors. In either interpretation, our findings suggest that stock-level mispricing affects the cross-sectional variation in mutual fund performance.

Finally, we examine the investor reaction to fund overpricing. Miller's (1977) basic assertion implies that overpriced funds are likely to be held by optimistic investors. In high sentiment periods, overpriced funds could attract additional flows as optimistic investors, buoyed by positive market sentiment, pour more money into such funds. On the other hand, prior studies have also shown that fund flows are influenced by other fund characteristics, particularly past fund returns, as investors are known to chase past performance (e.g., Chevalier and Ellison (1997)) and overpriced funds are typically recent underperformers.

Interestingly, we find a significant positive relation between fund overpricing and future flows, controlling for fund characteristics, including past returns. Considering the state of investor sentiment, the positive overpricing-flow relationship is concentrated in high sentiment periods, while the effect

⁴ Our evidence on the cross-sectional relation between fund overpricing and performance adds to Pástor, Stambaugh, and Taylor (2015)'s findings on the relation between time variation in fund trading activity and manager skill. They find that funds trade more when investor sentiment is high, consistent with funds trading heavily when stocks are more mispriced.

of past fund returns on flows is considerably weaker when sentiment is high. Hence, even when overpriced funds tend to exhibit poor stock picking skills, they are able to attract considerable flows.

Additional analyses of the intriguing overpricing-flow relation are motivated by recent findings on investor preferences for particular equity characteristics. For example, Kumar (2009) documents investor preference for stocks with lottery-like characteristics, such as low price, high idiosyncratic volatility, and positive return skewness, even when such stocks deliver poor average returns. Bailey, Kumar, and Ng (2011) show that behaviorally biased individual investors are influenced by lottery-like features in their investment in mutual funds.⁵ Additionally, DeVault, Sias, and Starks (2016) argue that demand shocks from institutional investors are more likely to drive sentiment induced mispricing. In other words, the positive overpricing-flow relation in high sentiment periods could reflect a match in the preference for stock characteristics by fund managers and optimistic agents who ultimately invest in overpriced funds. Another strand of studies shows that mutual funds employ strategies to attract investor attention through intensive marketing and advertising activities (Jain and Wu (2000), Barber, Odean, and Zheng (2005)).

Hence, we predict that optimistic investors who display preferences towards lottery-like assets are likely to purchase overpriced funds, especially those funds that engage in heavy marketing. Indeed, we find that the greater flows to overpriced funds are concentrated in funds that record higher marketing expenses and positive return skewness. We also find that flows to overpriced funds, especially during high sentiment periods, are not related to the (lack of) sensitivity of flows to past fund performance or to the sensitivity of flows to fund overpricing, suggesting that fund managers are not actively catering to investors who are sensitive to overpricing. Rather, we argue that the overpriced funds receive flows due to naive matching in the preference of sentiment driven fund managers and optimistic investors.

Our overall findings provide a novel intuition in understanding the role of delegated portfolio management. Mutual fund managers aim to maximize revenue by attracting more capital and/or setting higher fees. On the one hand, skilled managers adopt a performance enhancing strategy that

⁵ Solomon, Soltes, and Sosyura (2014) find that stock characteristics play a role in attracting flows, especially when the stocks are featured in the media. Musto (1999) shows that funds window dress their reported holdings to attract flows, particularly the recent badly performing funds.

attracts capital. Indeed, performance is highly important for fund managers as Ma, Tang, and Gómez (2015) show that more than three-quarters of fund managers receive bonus-type compensation based on their performance. On the other hand, less skilled or sentiment driven managers also attract investor flows due to similar preference for some stock characteristics (such as preference for skewness), particularly during high sentiment periods. Indeed, the matching of investor and fund preferences for stock types reinforces the sentiment driven mispricing phenomenon in DeVault, Sias, and Starks (2016). Ultimately, overpriced funds charge higher (fixed) fees, which further incentivize low skilled managers to remain active instead of adopting a low-fee passive strategy. Our findings also support Gârleanu and Pedersen (2016)'s theoretical prediction that large and sophisticated investors benefit from searching for an informed manager, and hence outperform the small investors. We provide empirical evidence that less sophisticated sentiment driven investors are more likely to pair with less skilled managers holding overpriced stocks, confirming the endogenous matching in the mutual fund industry.

The rest of the paper is organized as follows. Section II describes the data and the construction of variables of interest. Section III presents some stylized patterns of mutual fund overpricing and relates mutual fund overpricing to fund investment of inflows. Section IV studies the implications of fund overpricing for future performance. Section V relates mutual fund overpricing to investor response in terms of flows. Section VI concludes.

II. Variable Construction and Data

A. Fund Overpricing Measure

We measure the degree of mutual fund overpricing by aggregating the mispricing of stocks held by the fund. We rely on a set of eleven anomalies to identify mispriced stocks, following Stambaugh, Yu, and Yuan (2012). Specifically, stock-level overpricing is based on the eleven anomalies which survive the exposure to the three factors of Fama and French (1993). Each anomaly reflects mispriced stocks and by combining the eleven anomalies, we obtain mispricing information that is common across all these anomalies (Stambaugh, Yu, and Yuan (2015)). We proceed to construct fund-level overpricing as the investment value-weighted average of overpricing of stocks in a fund's portfolio.

The eleven anomalies consist of failure probability (e.g., Campbell, Hilscher, and Szilagyi (2008), Chen, Novy-Marx, and Zhang (2011)), O-Score (Ohlson (1980), Chen, Novy-Marx, and Zhang (2011)), net stock issuance (Ritter (1991), Loughran and Ritter (1995)), composite equity issuance (Daniel and Titman (2006)), total accruals (Sloan (1996)), net operating assets (Hirshleifer, Hou, Teoh, and Zhang (2004)), momentum (Jegadeesh and Titman (1993)), gross profitability (Novy-Marx (2013)), asset growth (Cooper, Gulen, and Schill (2008)), return on assets (Fama and French (2006)), and abnormal capital investment (Titman, Wei, and Xie (2004)). The details on the construction of the firm specific variables underlying these eleven anomalies are provided in Appendix A. Most anomalies are constructed on annual basis, while the failure probability, O-Score, and return on assets are computed quarterly, and momentum is updated monthly. For anomalies based on information from financial statements, we use the fiscal year-end but consider the accounting variables observable in June of the next calendar year.

Stock level overpricing is constructed as follows. For each anomaly, we rank the stocks in each quarter with the highest rank indicating the most overpriced stock. Ranks are normalized to follow a [0, 1] uniform distribution. For example, more overpriced stocks, or stocks with higher failure probability, higher O-Score, higher net stock issuance, higher composite equity issuance, higher total accruals, higher net operating assets, lower past six-month returns, lower gross profitability, higher asset growth, lower return on assets, and higher abnormal capital investment receive higher ranks (closer to 1). A stock's composite rank is the equal-weighted average of its ranks across all eleven anomalies. The quarterly fund-level *Overpricing* measure is then computed as the investment value-weighted average of overpricing of stocks in a fund's most recently reported portfolio holdings.⁶

B. Data Sources and Sample Description

We obtain quarterly institutional equity holdings from Thomson-Reuters's mutual fund holdings database. The database contains quarter-end security holding information for all registered mutual funds that report their holdings to the U.S. Securities and Exchange Commission (SEC). We match the holdings database to the Center for Research in Security Prices (CRSP) mutual fund database,

⁶ Because most anomalies are formed annually and do not vary within a quarter, we also construct the overpricing measure at the annual frequency. Our findings are similar across the sampling frequencies.

which reports monthly total returns and total net assets (TNA). We focus on U.S. equity mutual funds and include all CRSP/CDA-merged general equity funds that have one of the following Lipper objectives: “EP”, “EMN”, “G”, “GP”, “I”, “LSE”, “MC”, “MR”, or “SG”. Although two of these fund objectives, “EMN” and “LSE”, may involve long-short trading strategies, our main findings are unaffected when we remove these two categories of funds. We eliminate index funds by deleting those whose name includes any of the following strings: “Index”, “Ind”, “Ix”, “Indx”, “S&P”, “500”, “Dow”, “DJ”, “Nasdaq”, “Mkt”, “Barra”, “Wilshire”, and “Russell”. In unreported results, we confirm that our findings are robust to excluding the closet indexers, defined as funds with active share below 60%, following Cremers and Petajisto (2009) and Cremers, Ferreira, Matos, and Starks (2016). We consolidate multiple share classes into portfolios by adding together share-class TNA and by value-weighting share-class characteristics (e.g., returns, fees) based on lagged share-class TNA. Similar to Elton, Gruber, and Blake (1996) and Amihud and Goyenko (2013), funds are required to have TNA of at least USD 15 million. We consider both Lipper objectives from CRSP and Morningstar 3×3 style box to define the benchmark or style of the mutual funds. We conduct all our analyses accounting for similarities among funds within the same fund benchmark as well as fund style groups. Our test period is 1981–2010, and the sample consists of 1,888 actively managed equity mutual funds.

Daily and monthly common stock data are from the CRSP database while quarterly and annual financial statement data come from the COMPUSTAT database. We use these data to construct the eleven anomalies as described earlier.

Our *Overpricing* measure at the fund level mirrors the selection of mispriced stocks by funds and, hence, reflects the stock picking skills of fund managers. To ensure that our measure is different from other managerial skill proxies documented in literature, we control for *Active Share* (Cremers and Petajisto (2009), Petajisto (2013)),⁷ *R-square* (Amihud and Goyenko (2013)), *Industry Concentration Index* (Kacperczyk, Sialm, and Zheng (2005)), *Return Gap* (Kacperczyk, Sialm, and Zheng (2008)), and *Tracking Error* (Wermers (2003), Cremers and Petajisto (2009)). For each fund, we also construct a list of control variables, including the logarithm of the fund TNA, expense ratio, turnover, the

⁷ We thank Antti Petajisto for making the active share data publicly available: <http://www.petajisto.net/data.html>.

logarithm of the age of the fund, the logarithm of manager tenure, and the logarithm of the stock illiquidity. Fund attributes formed based on stock characteristics (e.g., illiquidity) are computed as the investment value-weighted average of stock characteristics. Detailed descriptions of all variables are provided in Appendix A.

Table 1 provides the summary statistics of stocks sorted into deciles based on the overpricing measure. It is apparent that stock overpricing is negatively related to future performance: stocks in the most overpriced decile earn about 2% less per month than the least overpriced stocks, over the next quarter. In addition, overpriced stocks are more illiquid, less covered by analysts, have higher idiosyncratic volatility, and they are also firms with lower market capitalization, higher book-to-market ratio, and higher credit risk. The most overpriced stocks display characteristics that are consistent with high short-sale constraints and difficult to arbitrage (see e.g., Stambaugh, Yu, and Yuan (2012, 2015)).

Interestingly, mutual funds tend to hold less overpriced stocks. Mutual funds hold only 6.3% of stocks in the highest decile of overpriced stocks, significantly less than the unconditional expected holdings of 10%. On the other hand, mutual fund ownership of the less overpriced stocks is slightly above 10% in the lowest few deciles. This is also in line with the finding that mutual funds have a significant preference towards large, liquid stocks (Falkenstein (1996)), which are less likely to be overpriced. Although mutual fund ownership monotonically declines with stock overpricing, mutual funds as a group are significantly exposed to overpriced stocks in their portfolios, as shown in Edelen, Ince and Kadlec (2015). We extend the analysis in Edelen, Ince and Kadlec (2015) by focusing on the cross-sectional differences in the propensity of mutual funds to purchase overvalued stocks and its implications about the mutual fund industry.

III. Stylized Patterns of Mutual Fund Overpricing

A. Is Fund Overpricing Persistent?

The characteristics of mutual funds with varying propensity to hold overpriced stocks are presented in Table 2. We first sort mutual funds into ten groups based on *Overpricing* at the beginning of each quarter q , and report average fund return along with other characteristics during quarter q and

subsequent quarters. The overpricing measure ranges between 38% for the least overpriced fund decile and 52% for the most overpriced funds. The propensity of a fund to hold overpriced stocks in a quarter continues into subsequent quarters. The average fund-level *Overpricing* across the deciles is similar even one year ahead in quarter $q + 4$, with a range of 40% to 50% across the extreme deciles. In unreported results, we find that 53% of the overpriced funds remain in the top overpricing decile after one year, while 47% of the least overpriced funds remain in the same decile. We also find that the difference in the overpricing of the extreme deciles is highly stable over the entire 1981 to 2010 sample period. This indicates that the least and most overpriced funds are unaffected by the trend towards index-like investing by active managers, which would have reduced the cross-fund differences in their holdings of overpriced stocks (Stambaugh (2014)) (details are available upon request).

As shown in Table 2, high *Overpricing* funds are typically younger with higher expense ratio, higher turnover, lower stock liquidity, and shorter manager tenure, yet they have similar total net assets as other funds. The funds characterized by high *Overpricing* at the beginning of the quarter display low quarterly returns. For example, the difference in fund returns between the low and high overpricing deciles (“LMH”) is 0.35% per month ($t=2.09$), or 4.19% annualized. The corresponding difference in benchmark-adjusted (DGTW-adjusted) fund returns is an economically significant 4.49% (4.36%) per year.

Despite the low returns on overpriced funds, the most overpriced funds attract more flows in the subsequent quarter than the lowest overpricing funds, and the difference is 3.31% per year, albeit insignificant ($t=-1.55$). The univariate positive relation between overpricing and subsequent flows hints at two opposing forces possibly at work. On the one hand, overpriced funds are associated with poor performance, which typically leads to lower fund flow as investors chase performance. On the other hand, overpriced funds may engage in other activities to attract more capital. In Section V, we provide a rigorous analysis of the mutual fund flow-overpricing relation.

The univariate findings in Table 2 are confirmed in Fama-MacBeth regressions of fund *Overpricing* on its lagged value as well as a set of lagged control variables, including *Lag(Fund Return)*, *Lag(Fund Flow)*, *Log(Fund TNA)*, *Expense Ratio*, *Turnover*, *Log(Fund Age)*, *Log(Manager*

Tenure) and *Log(Stock Illiquidity)*. The results (reported in Internet Appendix Table IA2) indicate that there is strong persistence in overpricing with positive autocorrelations in *Overpricing* in both quarterly as well as annual frequencies. The quarterly (annual) autocorrelation coefficient is statistically significant at 0.91 (0.75). We also observe a slightly stronger persistence among funds with higher overpricing. Similar findings emerge in the multivariate regressions: overpriced funds display low recent fund returns, are younger, have high expenses and turnover, and the manager has a shorter tenure. In sum, the propensity of mutual funds to overweight overpriced stocks is highly persistent in both the cross-section and the time-series and is correlated with several prominent fund characteristics.

B. How Are Fund Inflows Invested?

Although mutual fund overpricing is highly persistent, holding overpriced stocks could be due to the inheritance of a bad portfolio or simply due to bad luck. We examine whether fund managers buy underpriced or overpriced stocks in response to inflows and whether their stock investment decisions depend upon fund overpricing. We account for the evidence in Pollet and Wilson (2008) that funds tend to invest incremental flows proportionally in their existing stock positions by examining each fund's change in stock positions that is not explained simply by flows. Specifically, we estimate the following quarterly panel regression:

$$\begin{aligned} \Delta IO_Overpricing_{f,q}^+ &= \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Flow_{f,q-1} + \\ &\beta_3 Dummy(Overpricing)_{f,q-1} \times Flow_{f,q-1} + cM_{f,q-1} + e_{f,q}, \end{aligned} \quad (1a)$$

$$\begin{aligned} \Delta IO_Underpricing_{f,q}^+ &= \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Flow_{f,q-1} + \\ &\beta_3 Dummy(Overpricing)_{f,q-1} \times Flow_{f,q-1} + cM_{f,q-1} + e_{f,q}, \end{aligned} \quad (1b)$$

In Equation (1a), the dependent variable is the increase in the holdings of overpriced stocks i by fund f in quarter q , defined as $\Delta IO_Overpricing_{f,q}^+ = \sum_{i \in f} \Delta IO_{f,i,q} \times Dummy(Overpricing)_{i,q} \times I\{\Delta IO_{f,i,q} > 0\}$, and $\Delta IO_{f,i,q} = IO_{f,i,q} - IO_{f,i,q-1}$, $IO_{f,i,q}$ is computed as the number of shares of stock i held by fund f in quarter q divided by the number of shares outstanding of stock i in the same quarter, $\Delta IO_{f,i,q}$ refers to the change in ownership of fund f in quarter q , $Dummy(Overpricing)_{i,q}$ refers to a dummy variable that takes a value of one if the stock level composite overpricing is in the

top decile across all stocks in that quarter and zero otherwise, and $I\{\Delta IO_{f,i,q} > 0\}$ is an indicator function that equals one if $\Delta IO_{f,i,q} > 0$ and zero otherwise. We focus on the purchase of stocks by funds (or increases in fund holdings) associated with inflows rather than stocks sold by the funds because the most overpriced funds may hold more overpriced stocks by construction, and, therefore, naturally sell more overpriced stocks. $Overpricing_{f,q-1}$ is the fund overpricing level, $Flow_{f,q-1}$ is the average monthly flow, $Dummy(Overpricing)_{f,q-1}$ is a dummy variable that takes a value of one if the fund overpricing is in the top decile across all funds in that quarter and zero otherwise. The vector M stacks all other fund-level control variables, including the *Fund Return*, $Log(Fund\ TNA)$, *Expense Ratio*, *Turnover*, $Log(Fund\ Age)$, $Log(Manager\ Tenure)$, and $Log(Stock\ Illiquidity)$. We estimate the panel regression with quarter and fund fixed effects and the standard errors are clustered at the fund level. Equation (1b) follows the same specification as Equation (1a), but is estimated using the set of stocks in the least overpriced decile in each quarter q .

The specifications in Equations (1a) and (1b) aim to measure the purchase decision of overpriced and underpriced stocks made by mutual funds relative to proportionally scaling up the existing holdings when they receive inflows. In Equation (1a), where the dependent variable represents an increase in holdings of overpriced stocks, the regression coefficient β_3 measures the propensity of the most overpriced funds to increase their holdings of overpriced stocks with the new capital they receive. Similarly, in Equation (1b), where the dependent variable is associated with an increase in the holdings of stocks in the bottom decile of overpricing, β_3 captures the propensity of the most overpriced funds with net inflows to buy underpriced stocks.

Model 2 of Table 3 reports the estimates of Equation (1a) based on data for the full sample period. It shows that the most overpriced funds are more likely to increase their holdings of overpriced stocks in the next quarter with inflows, as depicted by the significantly positive β_3 coefficient. The purchase of overpriced stocks by overpriced funds is beyond persistence in their holdings of overpriced stocks (as shown by a positive β_2 coefficient). Similarly, the estimate of Equation (1a) presented in Model 1 of Table 3 shows that overpriced funds are less likely to increase their holdings of underpriced stocks (β_2 is negative) and their change in holdings of these stocks are unaffected by the fund inflows.

Moreover, our findings cannot be explained by the tendency of funds to expand their existing portfolios in ways demonstrated by Pollet and Wilson (2008) and Khan, Kogan, and Serafeim (2012). To provide further evidence on the latter, we re-estimate the holdings of overpriced funds at the fund-stock level and confirm that the persistence in investment decisions is not simply driven by the tendency to expand their existing portfolios when they receive new flows (results are reported in Internet Appendix Table IA3).⁸ As shown in Models 3 and 4 of Table 3, our findings are qualitatively similar when we estimate Equations (1a) and (1b) during high sentiment periods.

While Edelen, Ince, and Kadlec (2015) show that active mutual funds as a whole appear to trade on the “wrong side” of market anomalies, we find that the trading activities of funds adds to the persistent cross-fund differences in their ability to avoid overpriced stocks. The evidence is thus consistent with fund managers holding the most overpriced stocks tend to purchase more overpriced stocks when they receive new capital. We observe that unconditionally, overpriced funds not only increase (decrease) their holdings of overpriced (underpriced) stocks but also create new long positions in stocks that fall into the most overpriced (underpriced) deciles. When overpriced funds receive inflows, they appear to sell both existing and newly underpriced stocks and increase their holdings of overpriced stocks already in the portfolio. The evidence on the investment choices of underpriced and overpriced funds supports our conjecture that fund overpricing proxies for the stock selection ability of the mutual fund managers. Specifically, managers of overpriced funds display less stock picking skills and continue to load on overpriced stocks when they receive inflows.

IV. Overpricing and Fund Performance

A. Overpricing as a Predictor of the Cross-Section of Fund Performance

In this section, we conduct a comprehensive set of tests to examine whether mutual fund overpricing predicts cross-sectional differences in future fund performance. While stock level overpricing is negatively related to subsequent stock returns, this does not translate mechanically to the predictability of fund performance for several reasons. First, Tables 1 and 2 show that cross-fund

⁸ Our results also remain intact if fund overpricing and flow are measured by dummy variables for level of fund overpricing and positive flows instead of continuous variables.

differences in overpricing are smaller than the cross-sectional variation in stock overpricing measures, i.e., funds have lower exposure to overpriced stocks. Second, if fund managers respond to stock overpricing by dynamically adjusting their holdings to mitigate the effects of stock overpricing (not reflected in the quarter end reported holdings), fund level overpricing will not reliably forecast fund returns. Third, if the fund overpricing is unrelated to fund managers' ability to select stocks, fund overpricing should be unrelated to benchmark-adjusted and style-adjusted fund performance. In addition to total fund returns, benchmark-adjusted fund returns (BMK) and style-adjusted fund returns, we also compute fund returns adjusted for risk using the CAPM and the Fama-French-Carhart (FFC) four-factor model (Fama and French (1993), Carhart (1997)), as well as characteristic-adjusted returns in Daniel, Grinblatt, Titman, and Wermers (DGTW) (1997). Our approach is to sort mutual funds into deciles according to lagged *Overpricing* at the beginning of each month m , and examine the value-weighted (i.e., fund TNA-weighted) average fund return realized in month $m + 1$. In unreported results, we obtain qualitatively and quantitatively similar returns when funds in each decile are equally weighted.

Table 4 reports the abnormal fund return in each overpricing decile as well as the differential return between the least and the most overpriced funds ("LMH"). It is evident from Panel A of Table 4 that the most overpriced funds underperform the least overpriced funds by 3.07% (2.76%) per year in benchmark-adjusted (style-adjusted) return over the sample period. The corresponding DGTW-adjusted (benchmark and FFC-adjusted, style and FFC-adjusted) return difference between funds with high and low *Overpricing* is economically significant at 2.27% (2.24%, 1.84%) per annum. In addition to generating low investment returns, the overpriced funds exhibit higher return dispersion. For instance, the most overpriced funds generate monthly return volatility of 5.64% while the corresponding figure for the least overpriced funds is 4.06%. Unreported results indicate that the annual Sharpe ratio generated by the least overpriced funds is 0.43 (monthly Sharpe ratio multiplied by the square root of 12), while that for the most overpriced funds is 0.17. The evidence suggests that fund overpricing is a strong candidate to predict cross-sectional differences in fund performance.

Notice that the average risk and style adjusted return of mutual funds is generally found to be negative (e.g., Malkiel (1995), Gruber (1996), Carhart (1997), Wermers (2000), Christoffersen and

Musto (2002), Gil-Bazo and Ruiz-Verdú (2009)). Similarly, in our entire sample of mutual funds, unreported results show that the annualized CAPM-adjusted alpha is -0.58% ($t=-1.88$) and the FFC-adjusted alpha is -0.7% ($t=-2.14$). However, we find that the average mutual fund alpha is indistinguishable from zero when twenty percent of the most overpriced funds are excluded from the sample. This suggests that the documented negative performance of actively managed mutual funds is attributable to those, ex-ante identifiable, funds holding the most overpriced stocks.

Stambaugh, Yu, and Yuan (2012) show that investment strategies based on market anomalies are the most profitable during high sentiment periods and primarily stem from the short leg of the trade. They attribute the sentiment effect to binding short-sale constraints, which are especially at work during episodes of high investor sentiment. To examine the impact of investor sentiment on the overpricing-fund performance relation, we split the sample into high (above median) and low (below median) sentiment periods based on the Baker and Wurgler (2006, 2007) investor sentiment index.⁹

The basic hypothesis is that the fund overpricing measure predicts fund performance during high sentiment periods when stocks are more likely to be overvalued, as indicated by Miller (1977). Panels B and C of Table 4 provide supportive evidence: fund overpricing predicts performance during high sentiment periods but not when investor sentiment is low. Following high sentiment periods, the most overpriced funds deliver a monthly benchmark-adjusted (style-adjusted) return of -0.44% (-0.37%) or an annual return of -5.32% (-4.43%), which is drastically lower than the 2.09% (2.56%) per annum associated with the least overpriced funds. The return differential between the lowest and the highest overpriced funds is economically and statistically significant and is independent of the metric used to measure performance. For example, when investor sentiment is high, the annualized benchmark-adjusted (style-adjusted, DGTW-adjusted) return difference between the most and the least overpriced funds is 7.39% (6.98% , 3.9%). In contrast, there is no difference in the performance of funds with high and low overpricing following low sentiment periods across all fund performance metrics.¹⁰

⁹ We thank Jeffry Wurgler for making their index of investor sentiment publicly available.

¹⁰ In related work, Moskowitz (2000) shows that actively managed funds perform better during economic recessions when the marginal utility of wealth is high (see also Kosowski (2011) and Kacperczyk, Van Nieuwerburgh, and Veldkamp (2014)).

The existing literature has proposed various other approaches to gauge mutual fund managerial skills. To list, Cremers and Petajisto (2009) and Petajisto (2013) show that *Active Share* — the sum of the absolute deviations of the fund’s portfolio holdings from its benchmark index holdings — predicts superior fund performance. Amihud and Goyenko (2013) employ an alternative active share measure — the *R-squared* obtained from a regression of fund returns on a multifactor benchmark model. They show that lower *R-squared* is associated with greater selectivity and better performance. Kacperczyk, Sialm, and Zheng (2005) find that mutual funds with holdings concentrated in only a few industries outperform their more diverse counterparts. Their *Industry Concentration Index (ICI)* is defined as the sum of the squared deviations of the fund’s portfolio holdings in each industry from the industry weights of the total stock market. Kacperczyk, Sialm, and Zheng (2008) use *Return Gap* — the difference between the gross-of-fee fund return and the holding-based return to proxy for fund managers’ unobserved actions, and show that it leads to better future performance. Next, *Tracking Error* — the volatility of the difference between a portfolio return and its benchmark index return — also measures the activeness of fund management (e.g., Cremers and Petajisto (2009)). Notice also that Chen, Ibbotson, and Hu (2010) and Idzorek, Xiong, and Ibbotson (2012) find that mutual funds that hold less liquid stocks significantly outperform mutual funds that hold more liquid stocks. The latter finding suggests that fund illiquidity based on stock holdings also predicts future performance. Finally, Pástor, Stambaugh, and Taylor (2015) document a positive time-series relation between a fund’s turnover and its subsequent performance. Our empirical tests include fund fixed effects and control for fund turnover to capture the time variation in fund trading activity.

To give prominence to these important variables, we examine the role of *Overpricing* in predicting mutual fund performance, controlling for all the above noted predictors of managerial skills. Specifically, we estimate the following quarterly panel regression model:

$$Perf_{f,q} = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Sentiment_{q-1} + \beta_3 Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q}. \quad (2)$$

where $Perf_{f,q}$ is the performance of fund f in quarter q , $Overpricing_{f,q-1}$ is the overpricing measure at the fund level, $Sentiment_{q-1}$ is the average monthly Baker and Wurgler (2007) market

sentiment index, and the vector M stacks all other control variables. We use four measures of fund performance ($Perf_{f,q}$): total fund returns, benchmark-adjusted returns, DTGW-adjusted returns, and benchmark and Fama-French-Carhart (FFC) adjusted returns.¹¹ The control variables include measures of managerial skills, that is, *Active Share*, (logistic transformation of) *R-squared*, *Industry Concentration Index*, *Return Gap*, *Tracking Error*, as well as fund specific variables *Lag(Fund Return)*, *Lag(Fund Flow)*, *Log(Fund TNA)*, *Expense Ratio*, *Turnover*, *Log(Fund Age)*, *Log(Manager Tenure)*, and *Log(Stock Illiquidity)*. The model in Equation (2) is estimated with quarter and fund fixed effects and standard errors clustered at the fund level. With fund fixed effects, the analyses emphasize the within-fund time-series variation in *Overpricing* and performance. Alternative style-adjusted performance measures as well as style-quarter fixed effects are also considered in robustness checks.

As shown in Table 5, *Overpricing* is negatively related to future fund performance, and this relation is significant across all fund performance measures and regression specifications. For instance, in Model 2 (Model 7) of Panel A, one standard deviation higher *Overpricing* reduces annualized raw (DGTW-adjusted) fund returns by an economically significant 2.85% (0.81%), after controlling for the other measures of managerial skills and fund characteristics.¹²

To examine return predictability of the extreme overpriced fund deciles separately, we consider two dummy variables: $Dummy(Underpricing)_{f,q-1}$ takes a value of one if $Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter, while $Dummy(Overpricing)_{f,q-1}$ takes a value of one if the $Overpricing_{f,q-1}$ is in the top decile. We find that the return predictability exists in both groups with a stronger effect among the highest overpriced funds. Investing in the least overpriced funds leads to 1.88% higher annual raw fund return (Model 3) or 0.76% higher DGTW-adjusted return (Model 8) in the subsequent period, while overpriced funds underperform by 3.12% in annual raw return or 1.32% in DGTW-adjusted annual return over the same period.

¹¹ Empirically, we estimate the benchmark and FFC-adjusted alpha in a given month as the difference between the benchmark-adjusted return of the fund and its realized risk premium, defined as the vector of beta — estimated from a rolling Fama-French-Carhart four-factor model for the five years preceding the month in question — times the vector of realized factors for that month. We then compute the average of monthly alpha values of funds within a given quarter.

¹² The annual impact of the fund return is -2.85% , computed as $-5.11\% \times 4.654\% \times 12$, where -5.11% is the regression coefficient and 4.654% is the standard deviation of *Overpricing*.

Moreover, the impact of *Overpricing* on fund performance is the largest during high sentiment periods. Specifically, the slope coefficient capturing the interaction between fund overpricing and investor sentiment is negative and significant (Models 4 and 9 of Panel A, Table 5), suggesting that overpricing influences future fund performance more when sentiment is high. We obtain a similar predictive effect on fund performance when we interact sentiment with the dummy representing the most (least) overpriced funds (Models 5 and 10 of Panel A, Table 5). To gauge the economic magnitude of the combined effect of *Overpricing* and investor sentiment, we create a dummy variable *High Sentiment* taking a value of one when investor sentiment is above median over the sample period. We then replace the *Sentiment* variable in Models 5 and 10 with the *High Sentiment* dummy. The (unreported) regression coefficient for the interaction of *Dummy(Overpricing)* and *High Sentiment* is -0.649 ($t=-11.33$) for raw return and -0.199 ($t=-4.55$) for DGTW-adjusted return. In other words, high *Overpricing* funds underperform by 7.79% in raw return and 2.39% in DGTW-adjusted return per year during high sentiment period. This represents a marked increase in magnitude from 3.12% in raw return or 1.32% in DGTW-adjusted return, without conditioning on the state of investor sentiment.

Panel B of Table 5 presents similar evidence on the relation between the *Overpricing* measure and fund performance when fund returns are adjusted for benchmark returns or further adjusted by the Fama-French-Carhart (FFC) model (or, in unreported results, when fund returns are adjusted by FFC only). The marginal effect of investor sentiment on the relation between overpricing and fund return is also unaffected by other measures of managerial skills or fund characteristics. The robust evidence emerging from Table 5 supports the notion that high *Overpricing* has a negative effect on future fund returns especially during episodes of high investor sentiment, consistent with binding short-sale constraints discussed in Miller (1977) and Stambaugh, Yu, and Yuan (2012).

Recently, Berk and van Binsbergen (2015) advocate a measure of skill that is based on the dollar value that a mutual fund adds. They argue that the expected value the fund adds (defined as the product of the benchmark-adjusted fund gross return and lagged asset under management (adjusted by inflation)) is a better measure of skill than the fund's return or alpha. In response, we perform the same set of tests in Equation (2) using the Berk and van Binsbergen (2015) measure as the dependent variable. Panel C of Table 5 displays the results.

Notice that overpriced funds deliver lower value-added for their investors. The negative relation between value added by a fund and overpricing is economically and statistically significant. For instance, a one percent increase in *Overpricing* reduces the fund value by \$0.7 million per month, after controlling for other measures of managerial skills and fund characteristics (Model 2). In addition, Model 3 indicates that there is almost symmetric effect of overpricing on value added for the funds in the extreme overpricing deciles. Finally, the effect of fund overpricing on the dollar value added of the fund is significantly larger following high investor sentiment period. Hence, our key finding on the negative relation between fund skill and overpricing is strong and pervasive.

B. Robustness Tests

We provide six sets of robustness tests of the main results in Table 5 and report the findings in the Internet Appendix to conserve space. In the first three tests, we repeat our analyses using alternative transformations of the *Overpricing* measure. The first test relies on benchmark-adjusted overpricing (*BMK-adjusted Overpricing*), where the fund overpricing is adjusted by netting out the average overpricing of funds corresponding to the same benchmark. The second test uses the change in overpricing ($\Delta Overpricing$) over the previous quarter, in view of the persistence in the fund overpricing measure. In the third test, we construct the overpricing measure (*PostSample Overpricing*) utilizing anomalies and sample periods that correspond to the period after the end of the original sample period used in the academic publication of the anomaly. The post-sample period follows the recent work of McLean and Pontiff (2016) and attempts to use information on overpricing that is available to fund managers.

In the Internet Appendix Table IA4, Panel A reports the results using *BMK-adjusted Overpricing*, while Panels B and C report similar statistics for $\Delta Overpricing$ and *PostSample Overpricing*, respectively. For brevity, we report only the benchmark-adjusted return and benchmark and FFC-adjusted return, following Cremers and Petajisto (2009), noting that the other fund performance measures leave the evidence unchanged. The tests based on *BMK-adjusted Overpricing* show a similar statistical and economic impact, confirming that the relationship between mutual fund overpricing and its performance is robust among comparable funds. Notice in particular that all the

regression coefficients pertaining to overpricing are negative and significant, while all coefficients pertaining to underpricing are positive and significant. The evidence also suggests a negative effect of the $\Delta Overpricing$ on fund performance, on a stand-alone basis as well as on a joint basis after controlling for the level effect. For example, one standard deviation increase in $\Delta Overpricing$ translates to an economically significant 82 bps lower benchmark-adjusted return per year (Model 3) and 22 bps lower annualized return if further adjusted by the Fama-French-Carhart model (Model 8).¹³ The *PostSample Overpricing* also predicts lower performance especially during the high sentiment period, confirming that our results are not driven by the ex-post stock return predictability in those anomalies.

The next robustness test considers whether the findings in Table 5 are affected when fund returns are measured before fees. While thus far we have focused on the net return delivered to mutual fund investors after all fees and expenses, we next re-estimate Equation (2) using gross-of-fee fund return as the dependent variable. Gross-of-fee fund return, computed as the total fund return plus one-twelfth of the annualized expense ratio, gauges whether outperform their benchmarks before fees. The results (reported in Table IA5) confirm that the fund performance is significantly worse for more overpriced funds, even on a gross-of-fee basis, especially during the high sentiment period.

Since our previous tests focus on benchmark-adjusted performance and fund overpricing, we consider an alternative adjustment for fund styles using the 3×3 Morningstar style box. The results are presented in Table IA6. In addition to the quarter and fund fixed effects in our main specifications, Panel A employs the style-quarter fixed effects to rule out any unobserved characteristics at the style-quarter level, and reports standard errors clustered at the style-quarter level to account for the correlation across funds within the same style in a quarter. The fund *Overpricing* is associated with lower performance especially during the high sentiment period on style-adjusted basis. Panel B further explores the relationship between style-adjusted overpricing and style-adjusted performance, confirming that the negative return predictability is robust among funds in the same investment style.

¹³ The dependent variable is reported as a percentage of monthly return. Thus, the impact of one standard deviation increase in $\Delta Overpricing$ can be estimated for Model 3, for instance, as $-3.721\% \times 1.829\% \times 12 = -82$ bps, where -3.721% is the regression parameter and 1.829% is the standard deviation of $\Delta Overpricing$.

Finally, our main findings hold when we estimate Equation (2) at annual frequency. For example, one standard deviation increase in *Overpricing* reduces the benchmark-adjusted return by 0.53% per year (see Model 2 in Table IA7). It is worth noting that the predictive power of fund overpricing decays rapidly beyond a one year horizon. Overall, the negative relation between *Overpricing* and subsequent fund returns depicted in Table 5 is highly robust.

V. Overpricing and Fund Flow

Our findings suggest that mutual funds vary in their propensity to hold overpriced stocks, leading to an economically significant impact on the payoff received by their investors. In this section, we first investigate how mutual fund investors react to fund overpricing, as measured by subsequent net fund flows. This is followed by a discussion of the potential managerial incentives to invest in overpriced stocks.

A. Overpricing as a Predictor of the Cross-Section of Fund Flow

We start by examining mutual fund investors' reaction to fund overpricing as reflected through the net fund flows. Interestingly, the assertion in Miller (1977) is consistent with overpriced funds being most likely held by optimistic investors. Specifically, in periods of high sentiment, overpriced funds could attract additional flows as optimistic investors, buoyed by positive market sentiment, pour more money into these funds. On the other hand, mutual fund investors are known to chase past performance (e.g., Chevalier and Ellison (1997)) and overpriced funds are typically recent underperformers. Hence, we examine the empirical relation between overpricing and future flows, after controlling for the effects of past fund performance.

To assess the relation between fund overpricing and fund flows, we estimate the quarterly panel regressions of the following form:

$$Flow_{f,q} = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Sentiment_{q-1} + \beta_3 Overpricing_{f,q-1} \times Sentiment_{q-1} + \beta_4 Perf_{f,q-1} + cM_{f,q-1} + e_{f,q} \quad (3)$$

where $Flow_{f,q}$ refers to the average monthly flow of fund f in quarter q , and all other variables are defined as in Equation (2). We estimate a panel specification with quarter and fund fixed effects, with standard errors clustered at the fund level.

Table 6 presents the results. As expected, past performance is a strong predictor of flows as slope coefficients of past fund return variables are positive and economically significant. Focusing on the predictive power of *Overpricing*, which is the core of our analysis, several findings are noteworthy. First, there is a strong positive relationship between *Overpricing* and fund flow and this result is unaffected by control for fund characteristics (including past fund returns) and measures of manager skills. A one standard deviation increase in *Overpricing* is associated with a higher annual flow of 2.63% (Model 3). Second, the flow-overpricing relation is sensitive to the state of market sentiment. In particular, the positive flow-overpricing relationship is amplified when investor sentiment is high, as the interaction between overpricing and sentiment is positive and highly significant (Model 5). Moreover, the positive influence of investor sentiment on flows is confined to the most overpriced funds (Model 6).¹⁴ In Models 7 and 8 of Table 6, we interact past fund returns with the sentiment indicator and find that the positive effect of past returns on flows is weakened during high sentiment periods. This is in contrast to the strengthening of overpricing effect on flows in high sentiment periods. Hence, funds that hold overpriced stocks attract additional flows, particularly during high sentiment periods. On the other hand, flows to the least overpriced funds are not affected by market sentiment (Model 6).

The positive relation between fund overpricing and future flows is robust to a battery of alternative specifications. Since fund flows could be driven by investor demand in a particular style or benchmark, Panel A of Table 7 investigates the benchmark-adjusted flow and benchmark-adjusted overpricing (*BMK-adjusted Overpricing*), where the fund flow and overpricing are adjusted by netting out their benchmark average. Internet Appendix Table IA8 further adjusts for fund styles using the 3×3 Morningstar style box – Panel A includes style-quarter fixed effects while Panel B considers the style-adjusted flow and style-adjusted overpricing. The tests based on benchmark-adjusted overpricing and style-adjusted overpricing provide confirming evidence that overpriced funds attract more investor capitals, especially during periods of high sentiment, and this is not simply driven by mutual fund investors chasing a particular style.

¹⁴ Since the main regression specification includes fund fixed effects, we do not report results including lagged flow as an independent variable. Unreported evidence suggests that our results remain the same after controlling for lagged fund flow.

Given that both fund flow and fund overpricing are persistent over time, we also employ the change in overpricing ($\Delta Overpricing$). The results in Panel B of Table 7 imply a positive effect of the $\Delta Overpricing$ on fund flow, even after controlling for the level of *Overpricing*. For example, one standard deviation increase in $\Delta Overpricing$ is associated with 0.62% higher flow per year (Model 6). Therefore, funds that hold overpriced stocks are rewarded by additional flows, after controlling for other known predictors of fund flow. Our findings are also robust when we re-estimate Equation (3) at the annual frequency, with the effect weakening beyond the one-year interval (results reported in Internet Appendix Table IA9).

Overall, overpriced funds attract additional flows, after controlling for other known fund characteristics such as past fund performance. While fund overpricing may be deemed to be unobservable by mutual fund investors, we consider other assessable measures of managerial skills. Indeed, we find higher flows to funds with higher *R-square* (Amihud and Goyenko (2013)) and lower *Tracking Error* (Cremers and Petajisto (2009)) as shown in Tables 6 and 7. This observation reinforces our contention that after controlling for response of flows to past fund performance, overpriced funds and those reflecting low skill seem to attract more flows. We provide some exploratory investigation of the seemingly anomalous investor behavior in the next sub-section.

B. Fund Characteristics and Flows

Recent evidence suggests that characteristics of stocks held by mutual funds may affect flows. For example, Solomon, Soltes, and Sosyura (2014) find that funds holding past winners attract additional inflows only if such winner stocks are featured in the media. Also, funds window dress their reported stock holdings to attract flows, particularly for funds that are bad recent performers (Musto (1999)). This is echoed by investor surveys and anecdotal evidence indicating that fund managers are often under pressure to hold hot, well-publicized stocks (Moeller (1999), McDonald (2000), Solomon, Soltes, and Sosyura (2014)). Other studies at individual stock level show that optimistic investors are influenced by characteristics of stocks that are associated with lottery-like features such as low price, high idiosyncratic volatility, and high skewness, although they deliver poor returns (Kumar (2009)). Bailey, Kumar, and Ng (2011) find that behaviorally biased individual investors are influenced by

similar lottery-like characteristics in their investment in mutual funds. Using the commonly used sentiment metrics, DeVault, Sias, and Starks (2016) show that institutional investors (mutual funds) are sentiment traders whose demand shocks drive mispricing. Moreover, mutual funds also employ strategies to attract investor attention through intensive marketing and advertising activities (Jain and Wu (2000), Barber, Odean, and Zheng (2005)). Together, these findings are consistent with the argument that overpriced funds may be matched with optimistic investors, who in turn increase capital flow to these funds, especially in high sentiment periods. Finally, existing literature document a convex flow-performance relationship, and mutual funds that recently outperform attract disproportionately more inflows (e.g., Chevalier and Ellison (1997), Sirri and Tufano (1998)). While *Overpricing* and other managerial skill measures may not be directly observable by investors, we examine whether such funds display other characteristics that attract investor attention and hence, flows. The fund characteristics that we examine include idiosyncratic volatility and skewness of fund returns (representing lottery-like features of funds), expense ratio and marketing expense incurred by the funds, as well as the flow convexity (representing the sensitivity of flows to recent performance).

As shown in Table 8, we find that flows are positively affected by idiosyncratic volatility and skewness but not by expense ratio or marketing expense (on its own) (see Models 1 and 2). More interestingly, high *Overpricing* interacts significantly with marketing expense to predict additional flows into the fund (see Models 4 and 8). In other words, funds holding overpriced stocks but spend more on marketing their funds attract additional flows. This suggests that the investors in these funds are swayed by the marketing activities, despite underperformance of the funds. Unreported univariate test suggests that funds with high *Overpricing* (top decile) display higher marketing expense (35.4 bps per year), and the difference between the low and high overpricing deciles (“LMH”) is 3.8 bps ($t=-4.16$) per year. As shown in Table 2, overpriced funds hold stocks that share characteristics associated with lottery-type investments in Kumar (2009): stocks that have low share price, high idiosyncratic volatility, and high distress risk (skewness). Moreover, overpriced funds with high return skewness are also rewarded with additional flows (Models 6, 8, and 9). In addition, Model 7 suggests that overpriced funds attract more capital when the flow convexity is low, i.e., when investors are less sensitive to performance. The estimate of the joint model (Model 9) shows that the

positive effect of overpricing on flows exclusively comes from overpriced funds that exhibit skewed returns and high marketing expenses. Notably, the overpricing coefficient, in itself, is insignificant. The evidence here is consistent with investors rewarding the funds with high *Overpricing* and marketing activities by higher inflows due to their demand for lottery-type investments. Although they are not reported, our findings are robust to excluding December months from the sample, alleviating concerns about window dressing.

Our findings that flows are positively influenced by fund overpricing is related to the literature on dumb money effect in the mutual fund industry (e.g., Teo and Woo (2004), Frazzini and Lamont (2008), Akbas, Armstrong, Sorescu, and Subrahmanyam (2015)). For example, Teo and Woo (2004) attribute their dumb money effect to the style-level positive feedback trading model of Barberis and Shleifer (2003). Frazzini and Lamont (2008) show that money flows into funds that hold growth stocks and out of funds holding value stocks, and earns low returns associated with the reallocation. Our overpricing measure goes beyond the size and book-to-market styles, as it accounts for eleven distinct anomalies that survive the adjustment to the SMB and HML common factors. Indeed, we add to these important studies by arguing that the flow into overpriced funds is consistent with Miller's basic intuition that investors who are optimistic about a particular fund tilt their investments into these funds. This interpretation is reinforced by the amplification of the flow-overpricing effect during periods of high sentiment.

We consider the alternative explanation that mutual fund managers may actively purchase overpriced stocks to attract flows from optimistic investors. Several papers have shown that flow of capital to a mutual fund is sensitive to its past performance (e.g., Chavalier and Ellison (1997)). We examine if fund flows are also sensitive to the level of fund overpricing. This is based on the premise that if managers of overpriced funds seek additional flows from sentiment driven investors by investing in overpriced stocks, then flows into these funds ought to be more sensitive to fund overpricing (high flow-overpricing sensitivity). At the same time, the overpriced funds are expected to be less sensitive to past performance (low flow-performance sensitivity) so that the managers choose to tilt their portfolio towards overpriced stocks and yet are not severely punished for poor performance.

Empirically, we estimate the flow-overpricing sensitivity and flow-performance sensitivity from the following regression for each fund-year with a three-year rolling window,

$$Flow_{f,m} = \alpha_0 + \beta_{OP} Overpricing_{f,m-1} + \beta_{Perf} Perf_{f,m-1} + e_{f,m}, \quad (4)$$

where $Flow_{f,m}$ refers to the monthly flow of fund f in month m , $Overpricing_{f,m-1}$ is the fund overpricing level in the prior month, and $Perf_{f,m-1}$ is the monthly fund return. We require a fund to have at least 30 observations during the three-year estimation period. At the end of each year, mutual funds are independently sorted into quintiles according to their flow-overpricing sensitivity (β_{OP}) and flow-performance sensitivity (β_{Perf}).

Table 9 Panel A reports the equal-weighted average of mutual fund overpricing in the following year for each quintile portfolio, as well as the 25 (5×5) portfolios sorted by flow-overpricing sensitivity and flow-performance sensitivity over the full sample period, while Panel B reports similar statistics for high sentiment period.

Panel A suggests that funds with greater sensitivity to overpricing (high β_{OP}) do not hold more overpriced stocks. The average level of overpricing in the full sample among funds with the highest β_{OP} is surprisingly lower than the average overpricing among low β_{OP} funds. The difference in fund overpricing between high and low β_{OP} fund quintiles are not different from each other during high sentiment periods. These findings are contrary to the idea that fund managers may deliberately cater to investor sensitivity to overpricing and funds with greater flow-overpricing sensitivity invest in overpriced stocks.

Similarly, funds with flows that are less sensitive to past performance (low β_{Perf}) are not likely to invest in overpriced stocks as they do not appear to be holding more overpriced stocks in the next period, as shown in Table 9. Again, the difference in the average level of overpricing between low and high β_{Perf} quintiles exhibits the wrong sign, both in the full sample and during high sentiment periods. The evidence based on β_{Perf} is consistent with that using β_{OP} : we fail to find evidence of fund managers strategically investing in stocks to exploit the variations in (optimistic) investors' preference for funds that invest in overpriced stocks. To conclude, the empirical evidence supports the

matching hypothesis where sentiment driven mutual fund managers invest in overpriced stocks, matching the preference of optimistic investors.

The overall evidence suggests that although managers of overpriced funds exhibit low stock picking skills, they seem to be rewarded with positive flows during high sentiment periods, consistent with investor optimism perpetuating fund overpricing. Our findings imply that skilled managers compete on performance and attract capital through their attempts to outperform benchmarks, while sentiment driven managers match their preference for stock characteristics and hence receive additional flows from optimistic investors via marketing efforts. We also note that more overpriced funds charge high (fixed) fees but have lower manager tenure (see Table 2), therefore low skilled managers are better off by remaining active instead of adopting a passive, low-fee strategy.

VI. Conclusion

Stocks are likely to be overpriced when investors possess heterogeneous beliefs about asset values and short-sale constraints are binding (Miller (1977)). Actively managed mutual funds typically undertake long-only investments, and hence, are disposed to holding overpriced assets. In this paper, we examine cross-sectional variations among mutual funds in their holdings of mispriced stocks, where mispricing is measured using prominent stock market anomalies employed in Stambaugh, Yu, and Yuan (2012, 2015). We find large and persistent cross-sectional differences in the propensity of active mutual funds to hold mispriced stocks. For example, among the funds that belong to the highest (lowest) decile in terms of their exposure to overpriced stocks, 53% remain in the top (bottom) decile one year later. We also find that funds in the highest (lowest) overpricing deciles continue to purchase the most (least) overpriced stocks in response to new fund flows, including taking new positions in mispriced stocks.

While recent evidence shows that mutual funds as a whole are on the wrong side of anomalies (Edelen, Ince, and Kadlec (2015), and Akbas, Armstrong, Sorescu, and Subrahmanyam (2015)), we argue that there are significant cross-sectional variations in these funds. We also show that the propensity of active mutual funds to hold overpriced stocks is a strong predictor of future fund performance. In particular, funds that rank in the top decile in terms of fund overpricing underperform

funds in the bottom decile by 3.07% (2.76%) per year in benchmark-adjusted (style-adjusted) returns. The performance of overpriced funds declines dramatically following periods of high sentiment, with annual benchmark-adjusted (style-adjusted) return being 7.39% (6.98%) lower than the least overpriced funds. The least overpriced funds earn a large benchmark-adjusted (style-adjusted) annual return of 2.09% (2.56%). In low sentiment periods, on the other hand, cross-sectional differences in fund returns are unrelated to fund overpricing. Collectively, our evidence is consistent with the persistent exposure of active mutual funds to overpriced stocks revealing an aspect of stock selection skills.

Additional evidence on the flows to mutual funds sheds light on the mechanism that links fund overpricing, market sentiment, and subsequent fund returns. The evidence shows that overpriced funds attract considerable investor capital, particularly following high investor sentiment. Mutual fund investors seem to be chasing overpriced funds, and in particular those funds spending more on marketing activities and displaying greater skewness in fund returns. Our findings are better explained by flows to overpriced funds arising from a simple matching of preferences for certain stock characteristics among investors and fund managers rather than active effort by fund managers to cater to specific segment of investors.

Indeed, mutual fund managers could maximize revenues by attracting more capital and/or setting higher fees. Our findings are consistent with skilled managers adopting a performance enhancing strategy that ultimately attracts capital. At the same time, sentiment-driven managers benefit from engaging in marketing activities and receiving new flows from investors who share the preference for specific asset characteristics, such as the preference for skewed returns. These overpriced funds tend to charge higher (fixed) fees, which incentivize low skilled managers to remain active instead of adopting a low-fee, passive strategy.

References

- Abreu, D., and M. K. Brunnermeier. 2002. Synchronization Risk and Delayed Arbitrage. *Journal of Financial Economics* 66:341–360.
- Akbas, F., W. J. Armstrong, S. Sorescu, and A. Subrahmanyam. 2015. Smart Money, Dumb Money, and Capital Market Anomalies. *Journal of Financial Economics* 118:355–382.
- Ali, A., X. Chen, T. Yao, and T. Yu. 2008. Do Mutual Funds Profit from the Accruals Anomaly? *Journal of Accounting Research* 46:1–26.
- Amihud, Y. 2002. Illiquidity and Stock Returns: Cross-Section and Time-Series Effects. *Journal of Financial Markets* 5:31–56.
- Amihud, Y., and R. Goyenko. 2013. Mutual Fund's R^2 as Predictor of Performance. *Review of Financial Studies* 26:667–694.
- Ang, A., R. Hodrick, Y. Xing, and X. Zhang. 2006. The Cross-Section of Volatility and Expected Returns. *Journal of Finance* 61:259–299.
- Avramov, D., T. Chordia, G. Jostova, and A. Philipov. 2013. Anomalies and Financial Distress. *Journal of Financial Economics* 108:139–159.
- Bailey, W., A. Kumar, and D. Ng. 2011. Behavioral Biases of Mutual Fund Investors. *Journal of Financial Economics* 102:1–27.
- Baker, M., and J. Wurgler. 2006. Investor Sentiment and the Cross-Section of Stock Returns. *Journal of Finance* 61:1645–1680.
- Baker, M., and J. Wurgler. 2007. Investor Sentiment in the Stock Market. *Journal of Economic Perspectives* 21:129–151.
- Barber, B. M., T. Odean, and L. Zheng. 2005. Out of Sight, Out of Mind: The Effects of Expenses on Mutual Fund Flows. *Journal of Business* 78:2095–2119.
- Barberis, N., and A. Shleifer. 2003. Style Investing. *Journal of Financial Economics* 68:161–199.
- Berk, J. B., and J. H. van Binsbergen. 2015. Measuring Skill in the Mutual Fund Industry. *Journal of Financial Economics* 118:1–20.
- Brunnermeier, M. K., and S. Nagel. 2004. Hedge Funds and the Technology Bubble. *Journal of Finance* 59:2013–2040.
- Campbell, J. Y., J. Hilscher, and J. Szilagyi. 2008. In Search of Distress Risk. *Journal of Finance* 63:2899–2939.
- Carhart, M. M. 1997. On Persistence in Mutual Fund Performance. *Journal of Finance* 52:57–82.
- Chen, J., H. Hong, and J. C. Stein. 2002. Breadth of Ownership and Stock Returns. *Journal of Financial Economics* 66:171–205.
- Chen, Z., R. G. Ibbotson, and W. Y. Hu. 2010. Liquidity as an Investment Style. Working Paper.
- Chen, L., R. Novy-Marx, and L. Zhang. 2011. An Alternative Three-Factor Model. Working Paper.

- Chevalier, J., and G. Ellison. 1997. Risk Taking by Mutual Funds as a Response to Incentives. *Journal of Political Economy* 105:1167–1200.
- Christoffersen, S. E. K., and D. K. Musto. 2002. Demand Curves and the Pricing of Money Management. *Review of Financial Studies* 15:1499–1524.
- Cooper, M. J., H. Gulen, and M. J. Schill. 2008. Asset Growth and the Cross-Section of Stock Returns. *Journal of Finance* 63:1609–1651.
- Coval, J., and E. Stafford. 2007. Asset Fire Sales (and Purchases) In Equity Markets. *Journal of Financial Economics* 86:479–512.
- Cremers, M., M. A. Ferreira, P. Matos, and L. Starks. 2016. Indexing and Active Fund Management: International Evidence. *Journal of Financial Economics* 120:539–560.
- Cremers, K. J. M., and A. Petajisto. 2009. How Active Is Your Fund Manager? A New Measure That Predicts Performance. *Review of Financial Studies* 22:3329–3365.
- Daniel, K., M. Grinblatt, S. Titman, and R. Wermers. 1997. Measuring Mutual Fund Performance with Characteristic-based Benchmarks. *Journal of Finance* 52:1035–1058.
- Daniel, K. D., and S. Titman. 2006. Market Reactions to Tangible and Intangible Information. *Journal of Finance* 61:1605–1643.
- De Long, J. B., A. Shleifer, L. H. Summers, and R. J. Waldmann. 1990. Positive Feedback Investment Strategies and Destabilizing Rational Speculation. *Journal of Finance* 45:379–395.
- DeVault, L., R. Sias, and L. Starks. 2016. Who are the Sentiment Traders? Evidence from the Cross-Section of Stock Returns and Demand. Working Paper.
- Duffie, D., N. Gârleanu, and L. H. Pedersen. 2002. Securities Lending, Shorting, and Pricing. *Journal of Financial Economics* 66:307–339.
- Edelen, R. M., O. S. Ince, and G. B. Kadlec. 2015. Institutional Investors and Stock Return Anomalies. *Journal of Financial Economics*, Forthcoming.
- Elton, E. J., M. J. Gruber, and C. R. Blake. 1996. Survivorship Bias and Mutual Fund Performance. *Review of Financial Studies* 9:1097–1120.
- Falkenstein, E. G. 1996. Preferences for Stock Characteristics As Revealed by Mutual Fund Portfolio Holdings. *Journal of Finance* 51:111–135.
- Fama, E. F. 1972. Components of Investment Performance. *Journal of Finance* 27:551–567.
- Fama, E. F., and K. R. French. 1993. Common Risk Factors in the Returns on Stocks and Bonds. *Journal of Financial Economics* 33:3–56.
- Fama, E. F., and K. R. French. 2006. Profitability, Investment and Average Returns. *Journal of Financial Economics* 82:491–518.
- Fama, E. F., and J. MacBeth. 1973. Risk, Return, and Equilibrium: Empirical Tests. *Journal of Political Economy* 71:607–636.
- Frazzini, A., and O. A. Lamont. 2008. Dumb Money: Mutual Fund Flows and the Cross-Section of Stock Return. *Journal of Financial Economics* 88:299–322.

- Gârleanu, N., and L. H. Pedersen. 2016. Efficiently Inefficient Markets for Assets and Asset Management. Working Paper.
- Gil-Bazo, J., and P. Ruiz-Verdú. 2009. The Relation between Price and Performance in the Mutual Fund Industry. *Journal of Finance* 64:2153–2183.
- Gruber, M. J. 1996. Another Puzzle: The Growth in Actively Managed Mutual Funds. *Journal of Finance* 51:783–810.
- Harrison, J. M., and D. M. Kreps. 1978. Speculative Investor Behavior in a Stock Market with Heterogeneous Expectations. *Quarterly Journal of Economics* 92:323–336.
- Hirshleifer, D., K. Hou, S. H. Teoh, and Y. Zhang. 2004. Do Investors Overvalue Firms With Bloated Balance Sheets? *Journal of Accounting and Economics* 38:297–331.
- Hong, H., J. Scheinkman, and W. Xiong. 2006. Asset Float and Speculative Bubbles. *Journal of Finance* 61:1073–1117.
- Hong, H., and D. A. Sraer. 2016. Speculative Betas. *Journal of Finance* 71:2095–2144.
- Idzorek, T. M., J. X. Xiong, and R. G. Ibbotson. 2012. The Liquidity Style of Mutual Funds. Working Paper.
- Jain, P. C., and J. S. Wu. 2000. Truth in Mutual Fund Advertising: Evidence on Future Performance and Fund Flows. *Journal of Finance* 55:937–958.
- Jegadeesh, N., and S. Titman. 1993. Returns to Buying Winners and Selling Losers: Implications for Market Efficiency. *Journal of Finance* 48:65–91.
- Kacperczyk, M., C. Sialm, and L. Zheng. 2005. On The Industry Concentration of Actively Managed Equity Mutual Funds. *Journal of Finance* 60:1983–2012.
- Kacperczyk, M., C. Sialm, and L. Zheng. 2008. Unobserved Actions of Mutual Funds. *Review of Financial Studies* 21:2379–2416.
- Kacperczyk, M., S. Van Nieuwerburgh, and L. Veldkamp. 2014. Time-Varying Fund Manager Skill. *Journal of Finance* 69:1455–1484.
- Khan, M., L. Kogan, and G. Serafeim. 2012. Mutual Fund Trading Pressure: Firm-Level Stock Price Impact and Timing of SEOs. *Journal of Finance* 67:1371–1395.
- Kogan, L., and M. Tian. 2015. Firm Characteristics and Empirical Factor Models: A Model-Mining Experiment. Working Paper.
- Korajczyk, R. A., and R. Sadka. 2004. Are Momentum Profits Robust to Trading Costs? *Journal of Finance* 59:1039–1082.
- Kosowski, R. 2011. Do Mutual Funds Perform When It Matters Most to Investors? US Mutual Fund Performance and Risk in Recessions and Expansions. *Quarterly Journal of Finance* 1:607–664.
- Kozak, S., S. Nagel, and S. Santosh. 2015. Interpreting Factor Models. Working Paper.
- Kumar, A. 2009. Who Gambles in the Stock Market? *Journal of Finance* 64:1889–1933.
- Loughran, T., and J. R. Ritter. 1995. The New Issues Puzzle. *Journal of Finance* 50:23–51.

- Ma, L., Y. Tang, and J. P. Gómez. 2015. Portfolio Manager Compensation in the U.S. Mutual Fund Industry. Working Paper.
- Malkiel, B. G. 1995. Returns from Investing In Equity Mutual Funds 1971 To 1991. *Journal of Finance* 50:549–572.
- McDonald, I. 2000. A Must To A Bust: Scores of Funds Get Burned On Big Qualcomm Bets. TheStreet.com, June 15.
- McLean, D., and J. Pontiff. 2016. Does Academic Research Destroy Stock Return Predictability? *Journal of Finance* 71:5–32.
- Miller, E. M. 1977. Risk, Uncertainty, and Divergence of Opinion. *Journal of Finance* 32:1151–1168.
- Moeller, S. 1999. Effort-Less Marketing for Financial Advisors: 5 Steps to a Super-Profitable Business and a Wonderful Life. American Business Visions, Tustin, CA.
- Moskowitz, T. J. 2000. Mutual Fund Performance: An Empirical Decomposition Into Stock-Picking Talent, Style, Transactions Costs, and Expenses: Discussion. *Journal of Finance* 55:1695–1703.
- Musto, D. 1999. Investment Decisions Depend On Portfolio Disclosures. *Journal of Finance* 54:935–952.
- Newey, W. K., and K. D. West. 1987. A Simple Positive-Definite Heteroskedasticity and Autocorrelation Consistent Covariance Matrix. *Econometrica* 55:703–708.
- Novy-Marx, R. 2013. The Other Side of Value: The Gross Profitability Premium. *Journal of Financial Economics* 108:1–28.
- Ohlson, J. A. 1980. Financial Ratios and the Probabilistic Prediction of Bankruptcy. *Journal of Accounting Research* 18:109–131.
- Pástor, L., R. F. Stambaugh, and L. A. Taylor. 2015. Do Funds Make More When They Trade More? *Journal of Finance*, Forthcoming.
- Petajisto, A. 2013. Active Share and Mutual Fund Performance. *Financial Analysts Journal* 69:73–93.
- Pollet, J. M., and M. Wilson. 2008. How Does Size Affect Mutual Fund Behavior? *Journal of Finance* 63:2941–2969.
- Ritter, J. R. 1991. The Long-Run Performance of Initial Public Offerings. *Journal of Finance* 46:3–27.
- Scheinkman, J. A., and W. Xiong. 2003. Overconfidence and Speculative Bubbles. *Journal of Political Economy* 111:1183–1220.
- Sirri, E. R., and P. Tufano. 1998. Costly Search and Mutual Fund Flows. *Journal of Finance* 53:1589–1622.
- Sloan, R. G. 1996. Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings? *Accounting Review* 71:289–315.
- Solomon, D. H., E. Soltes, and D. Sosyura. 2014. Winners in the Spotlight: Media Coverage of Fund Holdings as a Driver of Flows. *Journal of Financial Economics* 113:53–72.
- Stambaugh, R. F. 2014. Presidential Address: Investment Noise and Trends. *Journal of Finance* 69:1415–1453.

- Stambaugh, R. F., J. Yu, and Y. Yuan. 2012. The Short of It: Investor Sentiment and Anomalies. *Journal of Financial Economics* 104:288–302.
- Stambaugh, R. F., J. Yu, and Y. Yuan. 2015. Arbitrage Asymmetry and the Idiosyncratic Volatility Puzzle. *Journal of Finance* 70:1903–1948.
- Teo, M., and S. Woo. 2004. Style Effects in the Cross-Section of Stock Returns. *Journal of Financial Economics* 74:367–398.
- Titman, S., K. Wei, and F. Xie. 2004. Capital Investments and Stock Returns. *Journal of Financial and Quantitative Analysis* 39:677–700.
- Wermers, R. 2000. Mutual Fund Performance: An Empirical Decomposition into Stock-Picking Talent, Style, Transactions Costs, and Expenses. *Journal of Finance* 55:1655–1695.
- Wermers, R. 2003. Are Mutual Fund Shareholders Compensated for Active Management Bets? Working Paper.

Appendix A: Variable Definitions

Variables	Definitions
A. Anomaly Measures	
Failure Probability	<p>Failure probability in a given month t is computed as follows: $Distress_{i,t} = -9.164 - 20.264 \times \overline{NIMTA}_{i,t} + 1.416 \times \overline{TLMTA}_{i,t} - 7.129 \times \overline{EXRET}_{i,t} + 1.411 \times \overline{SIGMA}_{i,t} - 0.045 \times \overline{RSIZE}_{i,t} - 2.132 \times \overline{CASHMTA}_{i,t} + 0.075 \times \overline{MB}_{i,t} - 0.058 \times \overline{PRICE}_{i,t}$, where $\overline{TLMTA}_{i,t}$ is the ratio of total liabilities (COMPUSTAT quarterly item LTQ) divided by the sum of market equity and total liabilities of stock i in month t, $\overline{SIGMA}_{i,t}$ is the annualized three-month rolling sample standard deviation, $\overline{RSIZE}_{i,t}$ is the logarithm of the ratio of the stock market equity to that of the S&P 500 index, $\overline{CASHMTA}_{i,t}$ is the ratio of cash and short-term investments (item CHEQ) divided by the sum of market equity and total liabilities, $\overline{MB}_{i,t}$ is the market-to-book ratio, $\overline{PRICE}_{i,t}$ is the logarithm of the price per share and truncated above at 15 USD. $\overline{NIMTA}_{i,t}$ and $\overline{EXRET}_{i,t}$ are further computed as follows:</p> $\overline{NIMTA}_{i,t} = \frac{1-\phi^3}{1-\phi^{12}} (NIMTA_{i,t-3:t-1} + \dots + \phi^9 NIMTA_{i,t-12:t-10}),$ $\overline{EXRET}_{i,t} = \frac{1-\phi}{1-\phi^{12}} (EXRET_{i,t-1} + \dots + \phi^{11} EXRET_{i,t-12}),$ <p>$EXRET_{i,t} = \log(1 + R_{i,t}) - \log(1 + R_{S\&P500,t})$, where $\phi = 2^{-1/3}$, $NIMTA_{i,t-3:t-1}$ is the ratio of net income (item NIQ) divided by the sum of market equity and total liabilities, $R_{i,t}$ is the return of stock i in month t, and $R_{S\&P500,t}$ is the return of S&P 500 index, following Campbell, Hilscher, and Szilagyi (2008) and Chen, Novy-Marx, and Zhang (2011).</p>
O-Score	<p>O-Score in a given quarter q is computed as follows: $OScore_{i,q} = -1.32 - 0.407 \times \log(\overline{ADJASSET}_{i,q}/\overline{CPI}_q) + 6.03 \times \overline{TLTA}_{i,q} - 1.43 \times \overline{WCTA}_{i,q} + 0.076 \times \overline{CLCA}_{i,q} - 1.72 \times \overline{OENEG}_{i,q} - 2.37 \times \overline{NITA}_{i,q} - 1.83 \times \overline{FUTL}_{i,q} + 0.285 \times \overline{INTWO}_{i,q} - 0.521 \times \overline{CHIN}_{i,q}$, where $\overline{ADJASSET}_{i,q}$ is the adjusted total assets of stock i in quarter q, defined as total assets (COMPUSTAT quarterly item ATQ) plus 10% of the difference between market equity and book equity, \overline{CPI}_q is the consumer price index, $\overline{TLTA}_{i,q}$ is the leverage ratio defined as the book value of debt (item DLCQ plus item DLTTQ) divided by $\overline{ADJASSET}_{i,q}$, $\overline{WCTA}_{i,q}$ is the ratio of working capital (item ACTQ - item LCTQ) divided by $\overline{ADJASSET}_{i,q}$, $\overline{CLCA}_{i,q}$ is the ratio of current liabilities (item LCTQ) divided by current assets (item ACTQ), $\overline{OENEG}_{i,q}$ is a dummy variable taking a value of one if total liabilities (item LTQ) exceeds total assets and zero otherwise, $\overline{NITA}_{i,q}$ is the ratio of net income (item NIQ) divided by $\overline{ADJASSET}_{i,q}$, $\overline{FUTL}_{i,q}$ is the ratio of fund provided by operations (item PIQ) divided by total liabilities, and $\overline{INTWO}_{i,q}$ is a dummy variable taking a value of one if net income is negative for the last two quarters and zero otherwise. $\overline{CHIN}_{i,q}$ is further computed as follows: $\overline{CHIN}_{i,q} = (NI_{i,q} - NI_{i,q-1}) / (NI_{i,q} + NI_{i,q-1})$, where $NI_{i,q}$ is the net income of stock i in quarter q, following Ohlson (1980) and Chen, Novy-Marx, and Zhang (2011).</p>
Net Stock Issuance	<p>Net stock issuance in a given year t is computed as follows: $NetStk_{i,t} = \log(\overline{SHROUT}_{i,t} / \overline{SHROUT}_{i,t-1})$, where $\overline{SHROUT}_{i,t}$ is the split-adjusted number of shares outstanding of stock i in year t.</p>
Composite Equity Issuance	<p>Composite equity issuance in a given year t is computed as follows: $CompEqu_{i,t} = \log(\overline{ME}_{i,t} / \overline{ME}_{i,t-5}) - \overline{LR}_{i,t-5:t}$, where $\overline{ME}_{i,t}$ is the market equity of stock i in year t, $\overline{LR}_{i,t-5:t}$ is the cumulative log return on stock i over the previous five years, following Daniel and Titman (2006).</p>
Total Accruals	<p>Total accruals in a given year t is computed as follows: $Accruals_{i,t} = [(\Delta CA_{i,t} - \Delta Cash_{i,t}) - (\Delta CL_{i,t} - \Delta STD_{i,t} - \Delta TP_{i,t}) - Dep_{i,t}] / \overline{ASSET}_{i,t}$, where $\Delta CA_{i,t}$ is the change in current assets (COMPUSTAT annual item ACT) of stock i in year t, $\Delta Cash_{i,t}$ is the change in cash and short-term investments (item CHE), $\Delta CL_{i,t}$ is the change in current liabilities (item LCT), $\Delta STD_{i,t}$ is the change in debt included in current liabilities (item DLC), $\Delta TP_{i,t}$ is the change in income taxes payable (item TXP), $Dep_{i,t}$ is the depreciation and amortization expense (item DP), and $\overline{ASSET}_{i,t}$ is the average total assets (item AT) of the beginning and end of year t, following Sloan (1996).</p>
Net Operating Assets	<p>Net operating assets in a given year t is computed as follows: $NOA_{i,t} = [(\overline{ASSET}_{i,t} - \overline{Cash}_{i,t}) - (\overline{ASSET}_{i,t} - \overline{STD}_{i,t} - \overline{LTD}_{i,t} - \overline{MI}_{i,t} - \overline{PS}_{i,t} - \overline{CE}_{i,t})] / \overline{ASSET}_{i,t-1}$, where $\overline{ASSET}_{i,t}$ is the total assets (COMPUSTAT annual item AT) of stock i in year t, $\overline{Cash}_{i,t}$ is the cash and short-term investments (item CHE), $\overline{STD}_{i,t}$ is the debt included in current liabilities (item DLC), $\overline{LTD}_{i,t}$ is the long term debt (item DLTT), $\overline{MI}_{i,t}$ is the minority interests (item MIB), $\overline{PS}_{i,t}$ is the preferred stocks (item PSTK), and $\overline{CE}_{i,t}$ is the common equity (item CEQ), following Hirshleifer, Hou, Teoh, and Zhang (2004).</p>

Momentum	Formation period return in a given month m is computed as the cumulative six-month return from month $m - 6$ to month $m - 1$, following Jegadeesh and Titman (1993).
Gross Profitability	Gross profitability in a given year t is computed as follows: $GP_{i,t} = (REVT_{i,t} - COGS_{i,t})/ASSET_{i,t}$, where $REVT_{i,t}$ is the total revenue (COMPUSTAT annual item REVT) of stock i in year t , $COGS_{i,t}$ is the cost of goods sold (item COGS), $ASSET_{i,t}$ is the total assets (item AT), following Novy-Marx (2013).
Asset Growth	Asset growth in a given year t is computed as follows: $ASSETG_{i,t} = (ASSET_{i,t} - ASSET_{i,t-1})/ASSET_{i,t-1}$, where $ASSET_{i,t}$ is the total assets (COMPUSTAT annual item AT) of stock i in year t , following Cooper, Gulen, and Schill (2008).
Return on Assets	Return on assets in a given quarter q is computed as follows: $ROA_{i,q} = INCOME_{i,q}/ASSET_{i,q-1}$, where $INCOME_{i,q}$ is the income before extraordinary items (COMPUSTAT quarterly item IBQ) of stock i in quarter q , and $ASSET_{i,q-1}$ is the total assets (item ATQ).
Abnormal Capital Investment	Abnormal capital investment in a given year t is computed as follows: $CI_{i,t} = \frac{CE_{i,t}}{(CE_{i,t-1} + CE_{i,t-2} + CE_{i,t-3})/3} - 1$, where $CE_{i,t}$ is the ratio of capital expenditures (COMPUSTAT annual item CAPX) divided by sales (item SALE) of stock i in year t , following Titman, Wei and Xie (2004).

B. Managerial Skill Measures

Overpricing	For each of the eleven anomalies above, we rank the stocks in each quarter with the highest rank indicating the most overpriced stock (lowest future return), and the ranks are normalized to follow a [0, 1] uniform distribution. A stock's composite rank is the equal-weighted average of its ranks for all anomalies, following Stambaugh, Yu, and Yuan (2015). The fund-level overpricing is then computed as the investment value-weighted average of overpricing of stocks in a fund's most recently reported holding portfolio.
Active Share	Active share in a given quarter q is computed as follows: $AS_{f,q} = \frac{1}{2} \sum_{i \in f} w_{i,f,q} - w_{i,idx,q} $, where $w_{i,f,q}$ is the investment weight of stock i by fund f in quarter q , and $w_{i,idx,q}$ is the portfolio weight in the index, following Cremers and Petajisto (2009), and Petajisto (2013).
R-square (TR^2)	R-square of fund f in a given month m , $R_{f,m}^2$ is obtained from the Fama-French-Carhart four-factor model with a twenty-four-month estimation period. More specifically, we regress monthly fund excess return on the market, size, book-to-market, and momentum factor returns. The logistic transformation of R-square in a given month m is then computed as follows: $TR_{f,m}^2 = \log \left[\sqrt{R_{f,m}^2 + c} / \left(1 - \sqrt{R_{f,m}^2 + c} \right) \right]$, where $c = 0.5/n$, and n is the sample size ($n = 24$), following Amihud and Goyenko (2013).
Industry Concentration Index (ICI)	Industry concentration index in a given quarter q is computed as follows: $ICI_{f,q} = \sum_{j=1}^{10} (\omega_{j,f,q} - \bar{\omega}_{j,q})^2$, where $\omega_{j,f,q}$ is the investment weight of industry j in fund f in quarter q , $\bar{\omega}_{j,q}$ is the investment weight of industry j in the market portfolio in the same quarter, following Kacperczyk, Sialm, and Zheng (2005).
Return Gap	Return gap is computed as the difference between fund gross-of-fee return and holding-based return, where gross-of-fee return is the fund total return plus one-twelfth of the annualized expense ratio, and holding-based return is the investment value-weighted average of stock returns of a fund's most recently reported holding portfolio, following Kacperczyk, Sialm, and Zheng (2008).
Tracking Error (in %)	Tracking error in a given quarter q is computed as the standard deviation of the difference between monthly fund gross-of-fee return and its gross-of-fee benchmark index return.

C. Fund Performance and Flow Measures (in %)

Fund Return	The monthly return reported by CRSP survivorship bias free mutual fund database. When a portfolio has multiple share classes, its total return is computed as the share class TNA-weighted return of all share classes, where the TNA values are one-month lagged.
Benchmark-adjusted Return	Fund returns minus the average return of the funds in the same benchmark, defined as Lipper objective in CRSP mutual fund database.
Style-adjusted Return	Fund returns minus the average return of the funds in the same style, defined as the 3×3 Morningstar style box.
Benchmark and Fama-French-Carhart (FFC)-adjusted Return	Benchmark-adjusted fund return minus the productions between a fund's four-factor betas multiplied by the realized four factor returns in a given month. The four Fama-French-Carhart factors include market, size, book-to-market, and momentum. The betas of the fund are estimated as the exposures of the fund to the relevant risk factors with a five-year estimation period.

Style and Fama-French-Carhart (FFC)-adjusted Return	Style-adjusted fund return minus the productions between a fund's four-factor betas multiplied by the realized four factor returns in a given month. The estimation method is the same as in the Benchmark and FFC-adjusted Return above.
DGTW-adjusted Return	The investment-value weighted average of stock-level DGTW adjusted returns, according to a fund's most recently reported holding information. More specifically, stock returns are adjusted by the style average, where stock styles are created by double-sorting stocks into 25 independent book-to-market and size portfolios, following Daniel, Grinblatt, Titman, and Wermers (1997).
Gross-of-Fee Fund Return	Fund total return plus one-twelfth of the annualized expense ratio.
Gross-of-Fee Benchmark-adjusted Return	Gross-of-fee fund returns minus the average gross-of-fee return of the funds in the same benchmark.
Gross-of-Fee Benchmark and Fama-French-Carhart (FFC)-adjusted Return	Gross-of-fee benchmark-adjusted fund return minus the productions between a fund's four-factor betas multiplied by the realized four factor returns in a given month. The estimation method is the same as in the Benchmark and FFC-adjusted Return above.
Fund Flow	Fund flow in a given month m is computed as follows: $Flow_{f,m} = [TNA_{f,m} - TNA_{f,m-1} \times (1 + r_{f,m})] / TNA_{f,m-1}$, where $TNA_{f,m}$ refers to the total net asset of fund f in month m , and $r_{f,m}$ refers to fund total return in the same month.
D. Stock Characteristics	
Log (Illiquidity)	The logarithm of the stock illiquidity, and the stock illiquidity measure in a given month m is computed as follows: $ILLIQ_{i,m} = (\sum_{d \in m} R_{i,d,m} / VOLD_{i,d,m}) / D_{i,m} \times 10^8$, where $R_{i,d,m}$ refers to the percentage return of stock i in day d of month m , $VOLD_{i,d,m}$ refers to the dollar trading volume at the same time, and $D_{i,m}$ is the number of trading days for stock i in month m , following Amihud (2002).
Mutual Fund Ownership (in %)	The mutual fund ownership in a given quarter q is computed as follows: $IO_{i,q} = \sum_f SHR_{i,f,q} / SHROUT_{i,q}$, where $SHR_{i,f,q}$ refers to the number of shares of stock i held by fund f in quarter q , and $SHROUT_{i,q}$ refers to the shares outstanding at the same time.
Analyst Coverage	The number of analyst following the firm as reported in I/B/E/S in each quarter.
Book-to-Market	The book-to-market ratio in a given quarter q is computed as: $BM_{i,q} = BE_{i,q} / ME_{i,q}$, where $BE_{i,q}$ refers to the book value of equity of stock i in quarter q , computed as the summation of stockholders' equity and deferred taxes, minus the preferred stock, and $ME_{i,q}$ refers to its market value at the end of the same quarter.
Stock IdioVol (in %)	For each stock i , a Fama and French three-factor model is estimated using daily returns in each month m : $R_{i,d,m}^e = \alpha_i + \beta_{MKT,i} MKT_{d,m} + \beta_{SMB,i} SMB_{d,m} + \beta_{HML,i} HML_{d,m} + e_{i,d,m}$, where $R_{i,d,m}^e$ refers to the excess return of stock i in day d of month m , $MKT_{d,m}$, $SMB_{d,m}$, and $HML_{d,m}$ refer to the three Fama and French factors (market, size and book-to-market). The idiosyncratic volatility for stock i in month m is computed as the standard deviation of the residual $e_{i,d,m}$, following Ang, Hodrick, Xing, and Zhang (2006).
E. Other Fund Characteristics	
Log (Fund TNA)	The logarithm of total net asset as reported in CRSP survivorship bias free mutual fund database, in millions.
Expense Ratio (in %)	The annualized expense ratio as reported in CRSP survivorship bias free mutual fund database.
Turnover	The turnover ratio as reported in CRSP survivorship bias free mutual fund database.
Log (Fund Age)	The logarithm of number of operational months since inception.
Log (Manager Tenure)	The logarithm of number of months since the current portfolio manager took control.
Log (Stock Illiquidity)	The logarithm of the investment value-weighted average of illiquidity of stocks in a fund's most recently reported holding portfolio. The Amihud stock illiquidity measure is computed as in Log(Illiquidity) above.
Marketing Expense (in %)	The annualized 12B-1 fee plus one-seventh of the front-end-load fee as reported in CRSP survivorship bias free mutual fund database.
Idiosyncratic Volatility (in %)	Similar to stock-level idiosyncratic volatility described above, fund-level idiosyncratic volatility is computed by estimating a four-factor model in each month. The four Fama-French-Carhart factors include market, size, book-to-market, and momentum.
Skewness (in %)	The third moment (skewness) of fund return.
Convexity	The flow convexity ($\gamma_{f,t}$) in a given year t is computed as follows: $Flow_{f,t,m} = \alpha_{f,t} + \beta_{f,t} \times Rank_{f,t,m-1} + \gamma_{f,t} \times Rank_{f,t,m-1}^2$, where $Flow_{f,t,m}$ refers to the monthly flow of fund f in month m year t , $Rank_{f,t,m-1}$ refers to the rank of benchmark-adjusted fund returns, and the ranks are normalized to follow a [0, 1] uniform distribution.

Table 1: Stock Overpricing and Stock Characteristics

Stocks are sorted into deciles according to lagged overpricing in quarter q . This table reports, for each decile portfolio, the average overpricing (in %), Log(Stock Price), Log(Stock Size), Log(Illiquidity), mutual fund ownership, analyst coverage, book-to-market ratio, idiosyncratic volatility, failure probability, O-Score and the market share represented by each decile portfolio in formation quarter q , as well as the average stock return in the following quarter $q + 1$ over the entire sample period from 1981 to 2010. The rows “LMH” report the difference in values between low and high overpricing portfolios (“Bottom 10% – Top 10%”). Appendix A provides the detailed definition of each variable. Newey-West adjusted t-statistics are shown in parentheses. Numbers with “*”, “**” and “***” are significant at the 10%, 5% and 1% level, respectively.

Overpricing and Stock Characteristics												
Rank of Overpricing	Overpricing _q	Stock Return _{q+1}	Market Share _q	Log (Stock Price) _q	Log (Stock Size) _q	Log (Illiquidity) _q	Mutual Fund Ownership _q	Analyst Coverage _q	Book-to-Market _q	Stock IdioVol _q	Failure Probability _q	O-Score _q
Low	29.514	1.968	0.252	3.007	5.794	6.043	10.549	3.201	0.636	2.002	-8.452	-3.238
2	36.835	1.729	0.181	2.859	5.655	6.251	10.629	3.093	0.731	2.160	-8.159	-2.826
3	41.150	1.583	0.133	2.733	5.485	6.463	10.522	2.925	0.797	2.281	-7.936	-2.500
4	44.721	1.590	0.111	2.594	5.284	6.720	10.233	2.797	0.842	2.437	-7.725	-2.220
5	48.013	1.515	0.089	2.449	5.078	7.004	9.832	2.593	0.887	2.625	-7.510	-1.924
6	51.280	1.386	0.073	2.313	4.892	7.282	9.413	2.406	0.923	2.814	-7.294	-1.651
7	54.706	1.263	0.060	2.175	4.718	7.512	8.908	2.266	0.950	2.987	-7.067	-1.374
8	58.551	1.010	0.046	2.021	4.557	7.743	8.354	2.087	0.952	3.190	-6.873	-1.081
9	63.409	0.827	0.035	1.815	4.366	7.990	7.715	1.908	0.931	3.475	-6.586	-0.724
High	72.573	-0.048	0.020	1.474	4.049	8.405	6.331	1.592	0.900	4.021	-6.067	-0.153
LMH	-43.059	2.016*** (7.11)	0.232*** (16.26)	1.533*** (23.46)	1.745*** (15.77)	-2.362*** (-13.75)	4.219*** (7.81)	1.609*** (9.00)	-0.265*** (-8.16)	-2.019*** (-14.43)	-2.386*** (-28.64)	-3.085*** (-65.81)

Table 2: Mutual Fund Overpricing and Other Fund Characteristics

At the beginning of each quarter, mutual funds are sorted into deciles according to lagged overpricing in quarter q . This table reports, for each decile portfolio, the average overpricing (in %), fund return, Log(Fund TNA), Expense Ratio, Log(Fund Age), Log(Manager Tenure) and Log(Stock Illiquidity) in formation quarter q , the average overpricing (in %) and fund flow in the following quarter $q + 1$, as well as the average overpricing (in %) in quarter $q + 4$ over the entire sample period from 1981 to 2010. Fund returns are further adjusted by the benchmark return of funds and the Daniel, Grinblatt, Titman, and Wermers (1997) model. The rows “LMH” report the difference in values between low and high overpricing portfolios (“Bottom 10% – Top 10%”). Appendix A provides the detailed definition of each variable. Newey-West adjusted t-statistics are shown in parentheses. Numbers with “*”, “**” and “***” are significant at the 10%, 5% and 1% level, respectively.

Mutual Fund Overpricing and Other Fund Characteristics													
Rank of Overpricing	Overpricing _q	Fund Return _q	BMK-adjusted _q	DGTW _q	Log (Fund TNA) _q	Expense Ratio _q	Turnover _q	Log (Fund Age) _q	Log (Manager Tenure) _q	Log (Stock Illiquidity) _q	Overpricing _{q+1}	Fund Flow _{q+1}	Overpricing _{q+4}
Low	38.041	1.088	0.156	0.179	5.378	1.041	0.624	5.308	4.443	2.702	38.617	0.197	39.569
2	39.977	1.010	0.079	0.102	5.691	1.009	0.655	5.329	4.365	2.711	40.283	0.244	40.789
3	41.014	0.959	0.037	0.064	5.818	0.991	0.683	5.325	4.359	2.821	41.195	0.127	41.429
4	41.947	0.947	0.029	0.063	5.785	1.014	0.723	5.303	4.339	3.004	42.042	0.170	42.059
5	42.940	0.978	0.035	0.064	5.766	1.028	0.754	5.286	4.339	3.325	42.959	0.266	42.835
6	44.051	0.955	0.013	0.052	5.735	1.079	0.796	5.215	4.352	3.818	43.979	0.394	43.806
7	45.345	0.954	-0.013	0.062	5.734	1.091	0.794	5.115	4.355	4.207	45.320	0.376	44.944
8	46.790	0.921	-0.044	0.020	5.667	1.121	0.810	5.053	4.314	4.673	46.657	0.363	46.175
9	48.571	0.822	-0.146	-0.044	5.569	1.164	0.823	4.974	4.305	5.124	48.242	0.315	47.608
High	52.040	0.739	-0.218	-0.184	5.380	1.243	0.854	4.965	4.345	5.599	51.213	0.473	49.780
LMH	-13.998	0.349**	0.374***	0.363***	-0.001	-0.202***	-0.230***	0.343***	0.098***	-2.897***	-12.596***	-0.276	-10.212***
		(2.09)	(2.92)	(4.62)	(-0.03)	(-14.44)	(-8.00)	(8.45)	(3.70)	(-16.11)	(-32.61)	(-1.55)	(-23.49)

Table 3: Fund Overpricing, Inflows, and Fund Trading Activity

This table presents the results of the following quarterly panel regressions with quarter and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$\Delta IO_Overpricing_{f,q}^+ = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Flow_{f,q-1} + \beta_3 Dummy(Overpricing)_{f,q-1} \times Flow_{f,q-1} + cM_{f,q-1} + e_{f,q},$$

$$\Delta IO_Underpricing_{f,q}^+ = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Flow_{f,q-1} + \beta_3 Dummy(Overpricing)_{f,q-1} \times Flow_{f,q-1} + cM_{f,q-1} + e_{f,q},$$

where $\Delta IO_Overpricing_{f,q}^+$ refers to the change in ownership of fund f in underpriced stocks in quarter q (Models 2 and 4), and $\Delta IO_Underpricing_{f,q}^+$ refers to the change in ownership of fund f in overpriced stocks in quarter q (Models 1 and 3). In particular, $\Delta IO_Overpricing_{f,q}^+ = \sum_{i \in f} \Delta IO_{f,i,q} \times Dummy(Overpricing)_{i,q} \times I\{\Delta IO_{f,i,q} > 0\}$, where $\Delta IO_{f,i,q} = IO_{f,i,q} - IO_{f,i,q-1}$, $IO_{f,i,q}$ is computed as the number of shares of stock i held by fund f in quarter q divided by the number of shares outstanding of stock i in the same quarter, $Dummy(Overpricing)_{i,q}$ refers to a dummy variable that takes a value of one if the stock level composite overpricing is in the top decile across all stocks in that quarter and zero otherwise, and $I\{\Delta IO_{f,i,q} > 0\}$ is an indicator function that equals one if $\Delta IO_{f,i,q} > 0$ and zero otherwise. $Overpricing_{f,q-1}$ is the fund overpricing level, $Flow_{f,q-1}$ is the average monthly flow, $Dummy(Overpricing)_{f,q-1}$ is a dummy variable that takes a value of one if the fund overpricing is in the top decile across all funds in that quarter and zero otherwise, and the vector M stacks all other fund-level control variables, including the Fund Return, Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age), Log(Manager Tenure) and Log(Stock Illiquidity). Models 1 to 2 include the entire sample period while Models 3 to 4 only include periods of high sentiment, defined as above median sentiment level over the full sample period. Appendix A provides the detailed definition of each variable. Numbers with “*”, “**” and “***” are significant at the 10%, 5% and 1% level, respectively.

Dep. Var. =	Change in Mutual Fund Ownership Regressed on Lagged Fund Overpricing and Flow			
	Full Sample		High Sentiment	
	$\Delta IO_Underpricing^+$ Model 1	$\Delta IO_Overpricing^+$ Model 2	$\Delta IO_Underpricing^+$ Model 3	$\Delta IO_Overpricing^+$ Model 4
Intercept	-0.341 (-0.83)	-2.174*** (-6.32)	-0.167 (-0.41)	-2.174*** (-5.36)
Overpricing	-1.925*** (-4.81)	1.891*** (6.73)	-1.808*** (-4.60)	1.530*** (3.40)
Dummy (Overpricing) × Lag (Fund Flow)	-0.043 (-0.97)	0.276*** (6.85)	-0.084 (-1.35)	0.301*** (4.74)
Lag (Fund Flow)	0.032 (1.57)	-0.106*** (-6.38)	0.052* (1.84)	-0.113*** (-4.28)
Fund Return	0.013*** (3.40)	0.006* (1.67)	0.012*** (3.34)	0.000 (0.04)
Log (Fund TNA)	0.262*** (7.64)	0.195*** (10.46)	0.253*** (6.85)	0.201*** (9.48)
Expense Ratio	0.094 (1.53)	0.069 (1.10)	0.076 (0.93)	0.108 (1.02)
Turnover	0.087*** (3.22)	0.046** (2.25)	0.085*** (3.16)	0.058*** (2.58)
Log (Fund Age)	-0.038 (-0.70)	0.024 (0.70)	-0.066 (-1.22)	0.052 (1.19)
Log (Manager Tenure)	-0.016 (-1.13)	0.005 (0.46)	-0.000 (-0.01)	0.008 (0.41)
Log (Stock Illiquidity)	0.054*** (4.19)	0.071*** (4.60)	0.057*** (3.50)	0.085*** (3.41)
R-squared	0.028	0.024	0.033	0.025
Obs	70,668	70,668	31,525	31,525

Table 4: Mutual Fund Returns Sorted by Fund Overpricing

At the beginning of each month, mutual funds are sorted into deciles according to lagged overpricing in month m . Panel A reports the month $m + 1$ (value-weighted) return for each decile portfolio as well as the strategy of going long (short) the one-month underpriced (overpriced) funds (“LMH”) over the entire sample period from 1981 to 2010. Fund returns are further adjusted by the benchmark return of funds, the Morningstar style return of funds, the Daniel, Grinblatt, Titman and Wermers (1997) model, the benchmark return and CAPM, the benchmark return and Fama-French-Carhart (FFC) model, the style return and CAPM, as well as the style return and FFC model. Panels B and C report similar statistics in the sub-period when investor sentiment is high (above median) and low (below median) in month m , respectively. Appendix A provides the detailed definition of each variable. Newey-West adjusted t-statistics are shown in parentheses. Numbers with “*”, “**” and “***” are significant at the 10%, 5% and 1% level, respectively.

Panel A: Returns to Investment Strategies Sorted by Fund Overpricing (1981 – 2010)								
Rank of Overpricing	Return	BMK-adjusted	Style-adjusted	DGTW	BMK & CAPM	BMK & FFC	Style & CAPM	Style & FFC
Low	0.914*** (3.95)	0.065 (1.30)	0.053 (0.96)	0.092** (2.51)	0.093** (2.01)	0.050 (1.38)	0.066 (1.22)	0.016 (0.39)
2	0.851*** (3.59)	0.012 (0.34)	0.007 (0.16)	0.022 (0.63)	0.025 (0.73)	0.014 (0.50)	-0.004 (-0.09)	-0.013 (-0.33)
3	0.829*** (3.37)	0.012 (0.38)	-0.010 (-0.25)	0.018 (0.52)	0.018 (0.58)	0.013 (0.47)	-0.026 (-0.63)	-0.038 (-1.03)
4	0.829*** (3.38)	-0.007 (-0.23)	-0.016 (-0.43)	-0.003 (-0.07)	-0.012 (-0.38)	-0.037 (-1.39)	-0.031 (-0.83)	-0.050 (-1.56)
5	0.879*** (3.43)	0.013 (0.41)	0.007 (0.21)	0.054 (1.48)	-0.001 (-0.05)	-0.026 (-0.69)	-0.017 (-0.50)	-0.037 (-0.93)
6	0.947*** (3.62)	0.070** (2.50)	0.060* (1.84)	0.097** (2.26)	0.065** (2.33)	0.050 (1.55)	0.039 (1.26)	0.039 (1.17)
7	0.846*** (3.11)	-0.026 (-0.64)	-0.006 (-0.13)	0.014 (0.31)	-0.048 (-1.26)	-0.039 (-0.99)	-0.053 (-1.37)	-0.053 (-1.23)
8	0.823*** (2.92)	-0.053 (-1.39)	-0.049 (-1.15)	-0.034 (-0.80)	-0.083** (-2.34)	-0.056* (-1.73)	-0.102*** (-2.71)	-0.067* (-1.80)
9	0.753** (2.54)	-0.131** (-2.51)	-0.091* (-1.70)	-0.029 (-0.54)	-0.173*** (-3.29)	-0.115*** (-2.66)	-0.151*** (-3.11)	-0.096** (-2.27)
High	0.691** (2.10)	-0.190** (-2.34)	-0.177** (-2.27)	-0.096 (-1.31)	-0.257*** (-3.22)	-0.137** (-2.36)	-0.251*** (-3.49)	-0.137** (-2.38)
LMH	0.223 (1.32)	0.256** (2.11)	0.230* (1.93)	0.189** (2.32)	0.350*** (3.06)	0.187** (2.24)	0.317*** (2.83)	0.153* (1.92)

Table 4—Continued

Panel B: Returns to Investment Strategies Sorted by Fund Overpricing (High Sentiment)								
Rank of Overpricing	Return	BMK-adjusted	Style-adjusted	DGTW	BMK & CAPM	BMK & FFC	Style & CAPM	Style & FFC
Low	0.872** (2.31)	0.174** (2.38)	0.213*** (2.97)	0.215*** (4.03)	0.184*** (2.74)	0.068 (1.16)	0.217*** (3.07)	0.098 (1.57)
2	0.772** (1.99)	0.081* (1.89)	0.099* (1.70)	0.131*** (2.75)	0.084* (1.94)	0.050 (1.16)	0.093 (1.56)	0.058 (0.89)
3	0.688* (1.72)	0.050 (1.12)	0.051 (0.92)	0.063 (1.15)	0.052 (1.17)	0.042 (1.10)	0.044 (0.81)	0.001 (0.03)
4	0.674* (1.68)	0.002 (0.04)	0.047 (0.97)	0.056 (1.02)	-0.000 (-0.01)	-0.063 (-1.35)	0.042 (0.86)	-0.014 (-0.28)
5	0.691 (1.64)	0.004 (0.07)	0.052 (0.97)	0.112* (1.95)	-0.003 (-0.06)	-0.076 (-1.47)	0.043 (0.87)	-0.030 (-0.51)
6	0.713* (1.69)	0.067 (1.54)	0.079 (1.49)	0.136** (2.31)	0.067 (1.52)	0.017 (0.38)	0.072 (1.45)	0.040 (0.79)
7	0.567 (1.29)	-0.103 (-1.65)	-0.012 (-0.18)	0.053 (0.88)	-0.114** (-2.13)	-0.104* (-1.91)	-0.031 (-0.61)	-0.039 (-0.71)
8	0.454 (1.03)	-0.158*** (-2.97)	-0.139** (-2.14)	-0.041 (-0.68)	-0.169*** (-3.43)	-0.110** (-2.56)	-0.160*** (-2.82)	-0.097* (-1.86)
9	0.273 (0.59)	-0.305*** (-3.95)	-0.257*** (-3.32)	-0.110 (-1.55)	-0.321*** (-4.25)	-0.169*** (-2.89)	-0.280*** (-4.18)	-0.137** (-2.46)
High	0.181 (0.35)	-0.443*** (-3.27)	-0.369*** (-3.01)	-0.111 (-0.95)	-0.470*** (-3.73)	-0.204** (-2.04)	-0.400*** (-3.71)	-0.174* (-1.86)
LMH	0.691*** (2.75)	0.616*** (3.19)	0.582*** (3.26)	0.325** (2.50)	0.654*** (3.71)	0.272* (1.86)	0.618*** (3.80)	0.272** (1.99)
Panel C: Returns to Investment Strategies Sorted by Fund Overpricing (Low Sentiment)								
Rank of Overpricing	Return	BMK-adjusted	Style-adjusted	DGTW	BMK & CAPM	BMK & FFC	Style & CAPM	Style & FFC
Low	0.956*** (3.92)	-0.043 (-0.75)	-0.107 (-1.51)	-0.030 (-0.72)	-0.001 (-0.01)	0.008 (0.21)	-0.087 (-1.27)	-0.082 (-1.62)
2	0.929*** (3.82)	-0.058 (-1.13)	-0.085 (-1.38)	-0.088** (-2.08)	-0.021 (-0.45)	-0.015 (-0.49)	-0.090 (-1.54)	-0.078* (-1.96)
3	0.969*** (3.79)	-0.026 (-0.64)	-0.072 (-1.24)	-0.026 (-0.60)	-0.017 (-0.42)	-0.010 (-0.29)	-0.092* (-1.74)	-0.080* (-1.71)
4	0.984*** (3.95)	-0.015 (-0.41)	-0.078 (-1.50)	-0.061 (-1.47)	-0.023 (-0.66)	-0.013 (-0.47)	-0.113** (-2.32)	-0.096*** (-2.62)
5	1.066*** (4.15)	0.023 (0.62)	-0.038 (-0.94)	-0.003 (-0.07)	0.006 (0.18)	0.018 (0.51)	-0.074* (-1.75)	-0.055 (-1.38)
6	1.181*** (4.39)	0.072* (1.84)	0.041 (0.98)	0.059 (1.02)	0.057 (1.45)	0.062 (1.54)	0.001 (0.03)	0.016 (0.38)
7	1.125*** (4.06)	0.051 (1.01)	0.000 (0.00)	-0.024 (-0.37)	0.038 (0.72)	0.050 (0.93)	-0.056 (-1.03)	-0.049 (-0.87)
8	1.192*** (4.04)	0.052 (1.06)	0.040 (0.74)	-0.026 (-0.41)	0.007 (0.16)	0.015 (0.36)	-0.028 (-0.56)	-0.024 (-0.46)
9	1.232*** (3.99)	0.043 (0.77)	0.075 (1.24)	0.051 (0.65)	-0.010 (-0.19)	-0.018 (-0.39)	0.001 (0.01)	-0.017 (-0.34)
High	1.201*** (3.60)	0.062 (0.90)	0.016 (0.19)	-0.082 (-0.95)	-0.011 (-0.19)	-0.010 (-0.22)	-0.061 (-0.77)	-0.053 (-0.80)
LMH	-0.245 (-1.36)	-0.105 (-0.94)	-0.123 (-0.98)	0.052 (0.60)	0.011 (0.11)	0.019 (0.28)	-0.026 (-0.22)	-0.029 (-0.37)

Table 5: Overpricing and Mutual Fund Performance: Regression Analysis

Panel A presents the results of the following quarterly panel regressions with quarter and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$Perf_{f,q} = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Sentiment_{q-1} + \beta_3 Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q},$$

where $Perf_{f,q}$ is the average monthly performance of fund f in quarter q , $Overpricing_{f,q-1}$ is the overpricing level, $Sentiment_{q-1}$ is the average monthly Baker and Wurgler (2007) market sentiment index, and the vector M stacks all other control variables, including the Active Share, (logistic transformation of) R-square, Industry Concentration Index, Return Gap, Tracking Error, Lag(Fund Return), Lag(Fund Flow), Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age), Log(Manager Tenure) and Log(Stock Illiquidity). $Overpricing_{f,q-1}$ can be further replaced with two dummy variables, $Dummy(Underpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter and zero otherwise) and $Dummy(Overpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the top decile across all funds in that quarter and zero otherwise). In Panel A, the dependent variable $Perf_{f,q}$ is measured by raw return (Models 1 to 5) and further adjusted by the Daniel, Grinblatt, Titman and Wermers (1997) model (Models 6 to 10). Panel B reports similar statistics when $Perf_{f,q}$ is measured by benchmark-adjusted return (Models 1 to 5), as well as further adjusted by the Fama-French-Carhart (FFC) model (Models 6 to 10). Panel C reports similar statistics when $Perf_{f,q}$ is replaced with $V_{f,q}$, defined as the product of gross-of-fee benchmark-adjusted return in quarter q and the assets under management (adjusted by inflation, expressed in January 1, 2000 USD) in quarter $q - 1$, following Berk and van Binsbergen (2015). Appendix A provides detailed definitions for each variable. Numbers with “*”, “**”, and “***” are significant at the 10%, 5%, and 1% levels, respectively.

Table 5—Continued

Panel A: Fund Performance (in %) Regressed on Lagged Overpricing										
	Return					DGTW-adjusted Return				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	2.336*** (10.46)	3.037*** (11.35)	1.062*** (4.25)	1.364*** (5.42)	0.165 (0.69)	0.575*** (3.62)	0.705*** (3.50)	0.197 (1.02)	0.353* (1.87)	0.176 (0.96)
Overpricing	-4.961*** (-16.88)	-5.110*** (-15.84)		-3.693*** (-11.56)		-1.535*** (-7.43)	-1.448*** (-6.22)		-0.557** (-2.40)	
Dummy (Underpricing)			0.157*** (6.33)		0.092*** (3.92)			0.063*** (3.68)		0.028* (1.70)
Dummy (Overpricing)			-0.260*** (-6.74)		-0.166*** (-4.72)			-0.110*** (-3.81)		-0.050* (-1.81)
Sentiment				3.641*** (19.56)	1.298*** (21.27)				1.521*** (11.85)	0.021 (0.34)
Overpricing × Sentiment				-5.339*** (-13.53)					-3.461*** (-13.14)	
Dummy (Underpricing) × Sentiment					0.313*** (8.08)					0.172*** (6.65)
Dummy (Overpricing) × Sentiment					-0.544*** (-8.62)					-0.366*** (-9.19)
Active Share		0.509*** (4.25)	0.291** (2.43)	0.527*** (4.53)	0.313*** (2.70)		-0.047 (-0.60)	-0.102 (-1.33)	-0.037 (-0.49)	-0.087 (-1.15)
TR ²		-0.044*** (-5.32)	-0.051*** (-6.03)	-0.031*** (-3.94)	-0.041*** (-5.04)		-0.025*** (-4.19)	-0.026*** (-4.45)	-0.016*** (-2.90)	-0.020*** (-3.44)
ICI		0.380 (1.05)	0.162 (0.45)	0.521 (1.48)	0.308 (0.88)		0.077 (0.30)	0.034 (0.14)	0.165 (0.67)	0.125 (0.51)
Return Gap		-0.052*** (-2.96)	-0.058*** (-3.31)	-0.044** (-2.48)	-0.051*** (-2.91)		-0.045*** (-3.27)	-0.046*** (-3.36)	-0.039*** (-2.88)	-0.042*** (-3.04)
Tracking Error		-0.009 (-1.03)	-0.008 (-0.89)	-0.001 (-0.07)	-0.002 (-0.18)		-0.002 (-0.38)	-0.002 (-0.27)	0.003 (0.49)	0.002 (0.38)
Lag (Fund Flow)	-0.006*** (-3.61)	-0.007*** (-3.33)	-0.006*** (-3.01)	-0.007*** (-3.41)	-0.006*** (-3.06)	0.001 (0.55)	0.001 (0.36)	0.001 (0.48)	0.000 (0.31)	0.001 (0.46)
Log (Fund TNA)	-0.238*** (-20.70)	-0.249*** (-19.12)	-0.267*** (-20.16)	-0.246*** (-19.29)	-0.262*** (-20.36)	-0.117*** (-16.07)	-0.121*** (-14.23)	-0.125*** (-14.91)	-0.118*** (-14.25)	-0.122*** (-14.90)
Expense Ratio	-0.067* (-1.82)	-0.070* (-1.69)	-0.063 (-1.51)	-0.079* (-1.93)	-0.067 (-1.63)	0.032 (1.26)	0.030 (1.04)	0.032 (1.09)	0.024 (0.84)	0.030 (1.05)
Turnover	0.039** (2.38)	0.042** (2.26)	0.037** (2.00)	0.051*** (2.81)	0.043** (2.36)	0.035*** (3.17)	0.037*** (2.97)	0.035*** (2.89)	0.043*** (3.49)	0.039*** (3.20)
Log (Fund Age)	0.072** (2.32)	0.112*** (3.22)	0.098*** (2.83)	0.090*** (2.60)	0.086** (2.48)	0.035* (1.66)	0.050** (2.17)	0.046** (2.01)	0.036 (1.56)	0.039* (1.71)
Log (Manager Tenure)	0.004 (0.33)	0.004 (0.35)	0.008 (0.63)	0.004 (0.30)	0.006 (0.48)	-0.001 (-0.14)	-0.001 (-0.10)	-0.000 (-0.01)	-0.001 (-0.14)	-0.001 (-0.17)
Log (Stock Illiquidity)	0.119*** (12.30)	0.103*** (9.33)	0.084*** (7.61)	0.092*** (8.43)	0.077*** (7.08)	0.019*** (2.88)	0.013* (1.68)	0.009 (1.16)	0.006 (0.85)	0.005 (0.63)
R-squared	0.812	0.810	0.809	0.811	0.810	0.153	0.161	0.160	0.165	0.164
Obs	74,328	61,180	61,180	61,180	61,180	72,484	60,134	60,134	60,134	60,134

Table 5—Continued

Panel B: Benchmark-adjusted Fund Performance (in %) Regressed on Lagged Overpricing										
	Benchmark-adjusted Return					Benchmark & FFC-adjusted Return				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	1.580*** (7.67)	1.277*** (5.08)	-0.085 (-0.35)	0.750*** (3.18)	0.083 (0.37)	1.004*** (7.15)	0.877*** (5.31)	0.356** (2.26)	0.600*** (3.63)	0.374** (2.35)
Overpricing	-3.465*** (-13.32)	-3.476*** (-11.86)		-2.060*** (-6.96)		-1.357*** (-7.90)	-1.307*** (-6.73)		-0.703*** (-3.64)	
Dummy (Underpricing)			0.132*** (6.03)		0.073*** (3.45)			0.072*** (4.86)		0.044*** (3.03)
Dummy (Overpricing)			-0.201*** (-5.97)		-0.106*** (-3.45)			-0.065*** (-2.98)		-0.028 (-1.32)
Sentiment				2.360*** (13.53)	0.035 (0.60)				0.987*** (8.47)	-0.007 (-0.13)
Overpricing × Sentiment				-5.334*** (-14.31)					-2.275*** (-9.39)	
Dummy (Underpricing) × Sentiment					0.287*** (8.07)					0.137*** (5.77)
Dummy (Overpricing) × Sentiment					-0.553*** (-9.72)					-0.216*** (-6.39)
Active Share		0.371*** (3.51)	0.229** (2.17)	0.390*** (3.79)	0.253** (2.47)		0.218*** (2.99)	0.167** (2.29)	0.226*** (3.15)	0.176** (2.44)
TR ²		-0.024*** (-3.13)	-0.028*** (-3.67)	-0.011 (-1.52)	-0.018** (-2.46)		-0.006 (-1.30)	-0.008 (-1.62)	-0.001 (-0.14)	-0.003 (-0.73)
ICI		0.398 (1.19)	0.260 (0.78)	0.538* (1.65)	0.405 (1.25)		-0.389* (-1.73)	-0.452** (-2.02)	-0.329 (-1.47)	-0.393* (-1.77)
Return Gap		-0.033** (-2.17)	-0.036** (-2.42)	-0.024 (-1.62)	-0.030** (-1.97)		0.001 (0.16)	0.000 (0.02)	0.005 (0.54)	0.003 (0.31)
Tracking Error		-0.006 (-0.65)	-0.005 (-0.53)	0.003 (0.35)	0.002 (0.21)		0.002 (0.30)	0.002 (0.34)	0.005 (0.96)	0.004 (0.81)
Lag (Fund Flow)	-0.003** (-1.99)	-0.003** (-1.97)	-0.003* (-1.75)	-0.004** (-2.05)	-0.003* (-1.78)	-0.000 (-0.18)	-0.001 (-0.46)	-0.000 (-0.35)	-0.001 (-0.50)	-0.000 (-0.37)
Log (Fund TNA)	-0.213*** (-20.30)	-0.228*** (-19.07)	-0.239*** (-19.89)	-0.224*** (-19.33)	-0.234*** (-20.17)	-0.127*** (-17.27)	-0.138*** (-16.80)	-0.142*** (-17.37)	-0.137*** (-16.88)	-0.140*** (-17.40)
Expense Ratio	-0.060* (-1.80)	-0.051 (-1.37)	-0.047 (-1.26)	-0.060* (-1.65)	-0.050 (-1.39)	-0.052** (-2.16)	-0.062** (-2.33)	-0.061** (-2.30)	-0.066** (-2.49)	-0.063** (-2.38)
Turnover	0.036** (2.48)	0.035** (2.17)	0.032** (2.00)	0.045*** (2.81)	0.038** (2.41)	0.012 (1.16)	0.009 (0.72)	0.008 (0.65)	0.013 (1.06)	0.011 (0.87)
Log (Fund Age)	0.062** (2.24)	0.096*** (3.03)	0.086*** (2.73)	0.073** (2.29)	0.075** (2.32)	-0.008 (-0.42)	0.009 (0.42)	0.005 (0.25)	-0.001 (-0.03)	0.000 (0.02)
Log (Manager Tenure)	0.001 (0.10)	0.003 (0.27)	0.005 (0.46)	0.002 (0.22)	0.003 (0.28)	0.001 (0.18)	0.004 (0.59)	0.005 (0.67)	0.004 (0.55)	0.004 (0.57)
Log (Stock Illiquidity)	0.087*** (10.01)	0.073*** (7.24)	0.061*** (6.09)	0.062*** (6.27)	0.054*** (5.51)	0.029*** (4.96)	0.025*** (3.56)	0.021*** (3.00)	0.020*** (2.95)	0.018*** (2.62)
R-squared	0.024	0.026	0.023	0.033	0.030	0.017	0.018	0.018	0.022	0.020
Obs	74,328	61,180	61,180	61,180	61,180	74,328	61,180	61,180	61,180	61,180

Table 5—Continued

Panel C: Fund Realized Value Added (in millions USD) Regressed on Lagged Overpricing					
	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	18.137*** (3.47)	14.458** (1.97)	-14.050** (-2.29)	3.943 (0.55)	-11.912* (-1.78)
Overpricing	-64.360*** (-6.94)	-70.444*** (-7.41)		-46.330*** (-6.18)	
Dummy (Underpricing)			2.964*** (4.86)		1.828*** (3.31)
Dummy (Overpricing)			-2.952*** (-3.43)		-1.635** (-2.51)
Sentiment				38.625*** (5.58)	-0.915 (-1.18)
Overpricing × Sentiment				-89.900*** (-5.51)	
Dummy (Underpricing) × Sentiment					5.434*** (4.81)
Dummy (Overpricing) × Sentiment					-7.578*** (-3.42)
Active Share		10.474*** (2.67)	7.600* (1.94)	10.761*** (2.77)	7.835** (2.03)
TR ²		-0.845*** (-2.91)	-0.952*** (-3.21)	-0.617** (-2.34)	-0.789*** (-2.87)
ICI		11.650 (1.04)	8.083 (0.72)	13.981 (1.27)	10.201 (0.92)
Return Gap		-1.027* (-1.67)	-1.108* (-1.80)	-0.893 (-1.44)	-1.012 (-1.64)
Tracking Error		-0.620* (-1.65)	-0.611 (-1.63)	-0.474 (-1.32)	-0.519 (-1.45)
Lag (Fund Flow)	-0.054** (-2.00)	-0.051 (-1.55)	-0.045 (-1.35)	-0.053 (-1.58)	-0.046 (-1.38)
Expense Ratio	1.276 (1.35)	1.173 (1.05)	1.453 (1.31)	0.957 (0.86)	1.318 (1.19)
Turnover	0.565 (1.02)	0.437 (0.71)	0.421 (0.68)	0.584 (0.95)	0.504 (0.82)
Log (Fund Age)	-0.541 (-0.62)	0.071 (0.07)	-0.151 (-0.15)	-0.305 (-0.30)	-0.338 (-0.34)
Log (Manager Tenure)	-0.398 (-0.95)	-0.265 (-0.56)	-0.254 (-0.54)	-0.265 (-0.56)	-0.269 (-0.57)
Log (Stock Illiquidity)	2.290*** (7.09)	1.958*** (5.08)	1.730*** (4.64)	1.767*** (4.84)	1.613*** (4.48)
R-squared	0.006	0.008	0.007	0.010	0.008
Obs	74,091	60,982	60,982	60,982	60,982

Table 6: Fund Overpricing and Flows

This table presents the results of the following quarterly panel regressions with quarter and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$Flow_{f,q} = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Sentiment_{q-1} + \beta_3 Overpricing_{f,q-1} \times Sentiment_{q-1} + \beta_4 Perf_{f,q-1} + cM_{f,q-1} + e_{f,q},$$

where $Flow_{f,q}$ refers to the average monthly flow of fund f in quarter q , $Overpricing_{f,q-1}$ is the overpricing level, $Sentiment_{q-1}$ is the average monthly Baker and Wurgler (2007) market sentiment index, $Perf_{f,q-1}$ is the average monthly fund return, and the vector M stacks all other control variables, including the Active Share, (logistic transformation of) R-square, Industry Concentration Index, Return Gap, Tracking Error, Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age) and Log(Manager Tenure). $Overpricing_{f,q-1}$ can be further replaced with two dummy variables, $Dummy(Underpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter and zero otherwise) and $Dummy(Overpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the top decile across all funds in that quarter and zero otherwise). Appendix A provides detailed definitions for each variable. Numbers with “*”, “**”, and “***” are significant at the 10%, 5%, and 1% levels, respectively.

	Fund Flow (in %) Regressed on Lagged Overpricing							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	5.875*** (7.32)	7.878*** (11.06)	1.901** (2.06)	3.872*** (4.56)	3.473*** (3.67)	4.876*** (5.48)	2.936*** (3.10)	4.297*** (4.81)
Overpricing	4.181*** (5.26)		4.711*** (5.41)		3.844*** (4.30)		3.736*** (4.22)	
Dummy (Underpricing)		-0.205*** (-3.29)		-0.200*** (-2.88)		-0.177** (-2.45)		-0.162** (-2.25)
Dummy (Overpricing)		0.213*** (2.66)		0.258*** (3.02)		0.206** (2.38)		0.201** (2.33)
Sentiment					0.438 (1.07)	2.080*** (13.06)	1.420*** (3.51)	2.228*** (13.77)
Overpricing × Sentiment					3.817*** (4.30)		1.880** (2.17)	
Dummy (Underpricing) × Sentiment						-0.122 (-1.12)		-0.022 (-0.21)
Dummy (Overpricing) × Sentiment						0.327*** (3.00)		0.190* (1.80)
Fund Return _{q-1} × Sentiment							-0.210*** (-14.30)	-0.216*** (-14.79)
Active Share			0.242 (0.69)	0.484 (1.39)	0.242 (0.69)	0.477 (1.38)	0.357 (1.03)	0.568* (1.65)
TR ²			0.044* (1.91)	0.048** (2.10)	0.035 (1.55)	0.043* (1.87)	0.028 (1.22)	0.033 (1.44)
ICI			-0.893 (-1.07)	-0.709 (-0.85)	-0.971 (-1.17)	-0.776 (-0.94)	-0.906 (-1.11)	-0.745 (-0.91)
Return Gap			-0.037 (-1.35)	-0.031 (-1.13)	-0.043 (-1.60)	-0.035 (-1.28)	-0.060** (-2.24)	-0.054** (-2.01)
Tracking Error			-0.034** (-2.21)	-0.034** (-2.20)	-0.041*** (-2.66)	-0.038** (-2.48)	-0.044*** (-2.89)	-0.043*** (-2.84)
Fund Return _{q-1}	0.300*** (26.45)	0.293*** (26.34)	0.311*** (25.72)	0.303*** (25.63)	0.318*** (26.38)	0.307*** (26.11)	0.419*** (28.81)	0.413*** (28.75)
Fund Return _{q-4:q-2}	0.663*** (32.28)	0.654*** (32.32)	0.673*** (31.46)	0.662*** (31.48)	0.681*** (31.85)	0.666*** (31.63)	0.701*** (32.13)	0.690*** (32.03)
Log (Fund TNA)	-0.484*** (-12.31)	-0.477*** (-12.18)	-0.511*** (-11.73)	-0.500*** (-11.54)	-0.515*** (-11.84)	-0.503*** (-11.60)	-0.529*** (-12.19)	-0.519*** (-12.03)
Expense Ratio	0.187 (1.30)	0.187 (1.31)	0.223 (1.37)	0.222 (1.37)	0.228 (1.40)	0.222 (1.37)	0.252 (1.56)	0.249 (1.54)
Turnover	0.073 (1.39)	0.075 (1.42)	0.023 (0.43)	0.028 (0.50)	0.016 (0.29)	0.024 (0.44)	0.007 (0.13)	0.013 (0.24)
Log (Fund Age)	-1.384*** (-9.95)	-1.376*** (-9.91)	-1.258*** (-8.02)	-1.244*** (-7.95)	-1.243*** (-7.93)	-1.240*** (-7.94)	-1.233*** (-7.82)	-1.226*** (-7.81)
Log (Manager Tenure)	0.106*** (3.14)	0.106*** (3.14)	0.104*** (2.86)	0.101*** (2.78)	0.105*** (2.89)	0.103*** (2.82)	0.106*** (2.93)	0.104*** (2.87)
R-squared	0.139	0.139	0.144	0.143	0.145	0.144	0.151	0.150
Obs	74,322	74,322	61,180	61,180	61,180	61,180	61,180	61,180

Table 7: Fund Overpricing and Flows: Robustness Checks

Panel A presents the results of the following quarterly panel regressions with quarter and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$BMKadj\ Flow_{f,q} = \alpha_0 + \beta_1 BMKadj\ Overpricing_{f,q-1} + \beta_2 Sentiment_{q-1} + \beta_3 BMKadj\ Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q},$$

where $BMKadj\ Flow_{f,q}$ refers to the average monthly benchmark-adjusted flow of fund f in quarter q , $BMKadj\ Overpricing_{f,q-1}$ is the benchmark-adjusted overpricing level (adjusted by netting out the benchmark average), $Sentiment_{q-1}$ is the average monthly Baker and Wurgler (2007) market sentiment index, and the vector M stacks all other control variables, including the Active Share, (logistic transformation of) R-square, Industry Concentration Index, Return Gap, Tracking Error, Lag(Fund Return), Lag(Fund Flow), Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age) and Log(Manager Tenure). $BMKadj\ Overpricing_{f,q-1}$ can be further replaced with two dummy variables, $Dummy(BMKadj\ Underpricing)_{f,q-1}$ (takes a value of one if the $BMKadj\ Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter and zero otherwise) and $Dummy(BMKadj\ Overpricing)_{f,q-1}$ (takes a value of one if the $BMKadj\ Overpricing_{f,q-1}$ is in the top decile across all funds in that quarter and zero otherwise). Panel B reports similar regression parameters of the following quarterly panel regressions,

$$Flow_{f,q} = \alpha_0 + \beta_1 \Delta Overpricing_{f,q-1} + \beta_2 Overpricing_{f,q-1} + \beta_3 Sentiment_{q-1} + \beta_4 \Delta Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q},$$

where $Flow_{f,q}$ refers to the average monthly flow of fund f in quarter q , $\Delta Overpricing_{f,q-1}$ is the change in overpricing level of fund f in quarter q , and all other variables are defined as above. Appendix A provides detailed definitions for each variable. Numbers with “*”, “**”, and “***” are significant at the 10%, 5%, and 1% levels, respectively.

Table 7—Continued

Panel A: Benchmark-adjusted Fund Flow (in %) Regressed on Lagged Benchmark-adjusted Overpricing								
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	7.354*** (10.73)	7.363*** (10.72)	3.643*** (4.43)	3.511*** (4.28)	3.833*** (4.41)	3.682*** (4.25)	3.325*** (3.82)	3.195*** (3.68)
BMK-adjusted Overpricing	3.116*** (3.79)		3.540*** (3.93)		2.717*** (2.86)		2.652*** (2.80)	
Dummy (BMK-adjusted Underpricing)		-0.207*** (-3.36)		-0.192*** (-2.80)		-0.157** (-2.19)		-0.154** (-2.16)
Dummy (BMK-adjusted Overpricing)		0.144* (1.92)		0.156** (1.96)		0.114 (1.38)		0.099 (1.19)
Sentiment					1.934*** (12.90)	1.907*** (12.71)	2.038*** (13.46)	2.022*** (13.36)
BMK-adjusted Overpricing × Sentiment					2.932*** (2.90)		0.865 (0.86)	
Dummy (BMK-adjusted Underpricing) × Sentiment						-0.196* (-1.83)		-0.067 (-0.63)
Dummy (BMK-adjusted Overpricing) × Sentiment						0.230** (2.25)		0.113 (1.14)
Fund Return _{q-1} × Sentiment							-0.178*** (-12.14)	-0.180*** (-12.42)
Active Share			0.701* (1.96)	0.850** (2.39)	0.714** (1.99)	0.854** (2.40)	0.815** (2.29)	0.935*** (2.64)
TR ²			0.065*** (2.82)	0.067*** (2.87)	0.060*** (2.60)	0.063*** (2.70)	0.053** (2.33)	0.054** (2.35)
ICI			-0.353 (-0.42)	-0.214 (-0.26)	-0.381 (-0.46)	-0.238 (-0.29)	-0.331 (-0.40)	-0.214 (-0.26)
Return Gap			-0.013 (-0.46)	-0.009 (-0.32)	-0.017 (-0.60)	-0.012 (-0.45)	-0.031 (-1.13)	-0.028 (-1.03)
Tracking Error			-0.049*** (-3.16)	-0.047*** (-3.03)	-0.052*** (-3.31)	-0.049*** (-3.15)	-0.055*** (-3.57)	-0.053*** (-3.49)
Fund Return _{q-1}	0.259*** (22.90)	0.256*** (22.86)	0.272*** (22.60)	0.268*** (22.50)	0.276*** (22.89)	0.272*** (22.80)	0.361*** (24.77)	0.359*** (24.83)
Fund Return _{q-4:q-2}	0.618*** (30.55)	0.615*** (30.61)	0.633*** (30.22)	0.629*** (30.27)	0.639*** (30.37)	0.633*** (30.30)	0.656*** (30.59)	0.653*** (30.62)
Log (Fund TNA)	-0.499*** (-12.81)	-0.497*** (-12.77)	-0.513*** (-11.85)	-0.508*** (-11.77)	-0.516*** (-11.90)	-0.511*** (-11.82)	-0.527*** (-12.19)	-0.523*** (-12.14)
Expense Ratio	0.167 (1.16)	0.168 (1.16)	0.207 (1.27)	0.205 (1.26)	0.209 (1.29)	0.207 (1.27)	0.230 (1.41)	0.228 (1.40)
Turnover	0.066 (1.24)	0.067 (1.26)	0.027 (0.49)	0.030 (0.54)	0.024 (0.43)	0.027 (0.48)	0.016 (0.29)	0.018 (0.32)
Log (Fund Age)	-1.273*** (-9.67)	-1.274*** (-9.66)	-1.143*** (-7.63)	-1.140*** (-7.59)	-1.137*** (-7.57)	-1.137*** (-7.57)	-1.127*** (-7.50)	-1.126*** (-7.47)
Log (Manager Tenure)	0.102*** (2.99)	0.103*** (3.00)	0.104*** (2.78)	0.102*** (2.74)	0.105*** (2.81)	0.103*** (2.76)	0.105*** (2.83)	0.104*** (2.80)
R-squared	0.093	0.093	0.099	0.098	0.099	0.099	0.103	0.103
Obs	74,322	74,322	61,180	61,180	61,180	61,180	61,180	61,180

Table 7—Continued

	Panel B: Fund Flow (in %) Regressed on Change in Overpricing							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	8.315*** (17.02)	5.576*** (6.85)	8.950*** (12.64)	1.671* (1.79)	8.319*** (11.56)	2.905*** (3.03)	8.278*** (11.52)	2.554*** (2.67)
Δ Overpricing	1.608** (2.31)	2.519*** (2.86)	1.635** (2.21)	2.737*** (2.88)	1.988** (2.46)	2.826*** (2.86)	1.435* (1.77)	3.740*** (3.80)
Overpricing		4.708*** (5.43)		5.282*** (5.58)		5.286*** (5.59)		4.648*** (4.96)
Sentiment					0.200*** (4.85)	2.074*** (13.22)	0.184*** (4.43)	2.208*** (13.96)
Δ Overpricing \times Sentiment					-1.910 (-1.62)	-0.360 (-0.26)	0.150 (0.13)	-4.880*** (-3.55)
Fund Return _{q-1} \times Sentiment							-0.063*** (-11.51)	-0.223*** (-14.99)
Active Share			-0.678* (-1.95)	0.214 (0.61)	-0.513 (-1.46)	0.213 (0.61)	-0.445 (-1.27)	0.322 (0.93)
TR ²			-0.101*** (-5.13)	0.042* (1.84)	-0.068*** (-3.23)	0.042* (1.84)	-0.075*** (-3.57)	0.029 (1.26)
ICI			-3.093*** (-3.52)	-0.961 (-1.16)	-3.122*** (-3.55)	-0.960 (-1.16)	-3.104*** (-3.56)	-0.918 (-1.12)
Return Gap			0.086*** (3.13)	-0.033 (-1.22)	0.083*** (3.00)	-0.033 (-1.22)	0.076*** (2.76)	-0.054** (-2.02)
Tracking Error			0.047*** (3.15)	-0.035** (-2.28)	0.030** (2.05)	-0.035** (-2.28)	0.030** (2.08)	-0.042*** (-2.76)
Fund Return _{q-1}	0.094*** (22.20)	0.299*** (26.30)	0.101*** (20.53)	0.309*** (25.38)	0.107*** (21.39)	0.309*** (25.40)	0.124*** (24.72)	0.419*** (28.50)
Fund Return _{q-4;q-2}	0.143*** (19.10)	0.670*** (32.20)	0.162*** (17.82)	0.681*** (31.42)	0.167*** (18.14)	0.681*** (31.35)	0.174*** (19.00)	0.708*** (31.94)
Log (Fund TNA)	-0.386*** (-10.91)	-0.485*** (-12.29)	-0.443*** (-10.75)	-0.512*** (-11.79)	-0.445*** (-10.62)	-0.512*** (-11.79)	-0.459*** (-10.98)	-0.527*** (-12.20)
Expense Ratio	0.666*** (4.87)	0.198 (1.38)	0.651*** (4.18)	0.224 (1.38)	0.729*** (4.55)	0.224 (1.38)	0.698*** (4.36)	0.254 (1.57)
Turnover	0.152*** (2.71)	0.072 (1.37)	0.096 (1.63)	0.021 (0.39)	0.089 (1.51)	0.021 (0.39)	0.080 (1.38)	0.008 (0.15)
Log (Fund Age)	-1.403*** (-16.43)	-1.379*** (-10.08)	-1.270*** (-12.92)	-1.257*** (-8.06)	-1.201*** (-12.19)	-1.257*** (-8.06)	-1.186*** (-12.08)	-1.237*** (-7.91)
Log (Manager Tenure)	-0.011 (-0.29)	0.105*** (3.14)	0.005 (0.13)	0.104*** (2.84)	-0.008 (-0.22)	0.103*** (2.84)	-0.001 (-0.02)	0.104*** (2.88)
R-squared	0.071	0.139	0.073	0.144	0.074	0.144	0.076	0.151
Obs	74,081	74,081	61,128	61,128	61,128	61,128	61,128	61,128

Table 8: Fund Overpricing, Flows, and Fund Characteristics

This table presents the results of the following quarterly panel regressions with quarter and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$Flow_{f,q} = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 FundChar_{q-1} + \beta_3 Overpricing_{f,q-1} \times FundChar_{q-1} + \beta_4 Perf_{f,q-1} + cM_{f,q-1} + e_{f,q},$$

where $Flow_{f,q}$ refers to the average monthly flow of fund f in quarter q , $Overpricing_{f,q-1}$ is the overpricing level, $FundChar_{q-1}$ refers to a list of fund characteristics including Expense Ratio, Marketing Expense, Idiosyncratic Volatility, Skewness, and Convexity, $Perf_{f,q-1}$ is the average monthly fund return, and the vector M stacks all other control variables, including the Active Share, (logistic transformation of) R-square, Industry Concentration Index, Return Gap, Tracking Error, Log(Fund TNA), Turnover, Log(Fund Age) and Log(Manager Tenure). Appendix A provides detailed definitions for each variable. Numbers with “*”, “**”, and “***” are significant at the 10%, 5%, and 1% levels, respectively.

Table 8—Continued

	Fund Flow (in %) Regressed on Lagged Overpricing									
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	4.846*** (3.62)	5.655*** (4.45)	4.980*** (3.06)	6.816*** (5.20)	5.152*** (3.77)	4.777*** (3.58)	4.793*** (6.95)	5.105*** (3.11)	7.122*** (5.18)	7.140*** (5.20)
Overpricing	5.672*** (5.01)	5.671*** (5.01)	5.431* (1.91)	3.148** (2.16)	4.897*** (3.01)	5.873*** (5.21)	5.807*** (9.13)	4.988* (1.67)	2.272 (1.19)	2.251 (1.19)
Overpricing × Expense Ratio			0.301 (0.14)					0.119 (0.06)		
Overpricing × Marketing Expense				7.081*** (2.92)					7.184*** (2.97)	7.137*** (2.96)
Overpricing × Idiosyncratic Volatility					2.440 (0.62)			1.859 (0.47)	2.386 (0.60)	2.496 (0.63)
Overpricing × Skewness						1.928** (1.98)		1.640* (1.69)	1.642* (1.69)	1.587 (1.64)
Overpricing × Convexity							-0.046*** (-2.73)			-0.043 (-1.45)
Active Share	-0.306 (-0.70)	-0.310 (-0.71)	-0.164 (-0.38)	-0.200 (-0.47)	-0.287 (-0.66)	-0.154 (-0.36)	-0.164 (-0.63)	-0.280 (-0.64)	-0.312 (-0.71)	-0.312 (-0.71)
TR ²	0.057** (2.10)	0.056** (2.08)	0.055** (2.05)	0.053** (1.98)	0.057** (2.12)	0.055** (2.04)	0.056*** (2.89)	0.057** (2.11)	0.055** (2.03)	0.056** (2.07)
ICI	-2.935** (-2.47)	-2.929** (-2.47)	-2.533** (-2.16)	-2.593** (-2.21)	-2.921** (-2.47)	-2.577** (-2.19)	-2.515*** (-3.87)	-2.943** (-2.49)	-3.013** (-2.55)	-2.999** (-2.54)
Return Gap	-0.039 (-1.24)	-0.040 (-1.25)	-0.036 (-1.14)	-0.036 (-1.16)	-0.038 (-1.21)	-0.040 (-1.28)	-0.036 (-1.41)	-0.042 (-1.33)	-0.043 (-1.35)	-0.043 (-1.36)
Tracking Error	-0.043** (-2.55)	-0.044** (-2.56)	-0.033** (-1.97)	-0.033* (-1.94)	-0.045*** (-2.61)	-0.034** (-2.01)	-0.033** (-2.45)	-0.045*** (-2.59)	-0.045*** (-2.58)	-0.044** (-2.56)
Fund Return _{q-1}	0.303*** (22.67)	0.304*** (22.70)	0.298*** (22.70)	0.298*** (22.73)	0.301*** (22.92)	0.304*** (22.65)	0.298*** (32.55)	0.306*** (22.69)	0.307*** (22.73)	0.307*** (22.73)
Fund Return _{q-4;q-2}	0.591*** (26.65)	0.594*** (26.76)	0.590*** (26.71)	0.591*** (26.83)	0.590*** (26.73)	0.591*** (26.65)	0.589*** (41.31)	0.591*** (26.59)	0.592*** (26.70)	0.591*** (26.67)
Log (Fund TNA)	-0.557*** (-8.88)	-0.581*** (-9.45)	-0.555*** (-8.84)	-0.580*** (-9.47)	-0.558*** (-8.89)	-0.554*** (-8.83)	-0.554*** (-19.53)	-0.557*** (-8.87)	-0.582*** (-9.50)	-0.582*** (-9.51)
Expense Ratio	0.399 (1.37)		0.267 (0.28)		0.401 (1.38)	0.401 (1.38)	0.418*** (3.13)	0.347 (0.36)		
Turnover	-0.018 (-0.28)	-0.010 (-0.16)	-0.016 (-0.24)	-0.011 (-0.16)	-0.021 (-0.32)	-0.015 (-0.22)	-0.018 (-0.46)	-0.019 (-0.30)	-0.015 (-0.22)	-0.016 (-0.25)
Log (Fund Age)	-1.526*** (-7.06)	-1.551*** (-7.24)	-1.538*** (-7.07)	-1.560*** (-7.36)	-1.522*** (-7.02)	-1.536*** (-7.13)	-1.542*** (-15.22)	-1.519*** (-6.94)	-1.538*** (-7.22)	-1.540*** (-7.25)
Log (Manager Tenure)	0.111** (2.41)	0.112** (2.44)	0.112** (2.43)	0.117** (2.54)	0.111** (2.41)	0.112** (2.42)	0.114*** (3.62)	0.111** (2.41)	0.115** (2.52)	0.117** (2.55)
Marketing Expense		-0.173 (-0.38)		-3.342*** (-2.92)					-3.388*** (-2.96)	-3.377*** (-2.96)
Idiosyncratic Volatility	0.655* (1.76)	0.658* (1.77)			-0.513 (-0.27)			-0.267 (-0.14)	-0.512 (-0.27)	-0.566 (-0.30)
Skewness	0.143* (1.69)	0.143* (1.68)				-0.707 (-1.59)		-0.585 (-1.32)	-0.589 (-1.33)	-0.565 (-1.28)
Convexity							0.022*** (2.99)			0.022 (1.62)
R-squared	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.119
Obs	44,894	44,894	44,894	44,894	44,894	44,894	44,887	44,894	44,894	44,887

Table 9: Mutual Fund Overpricing Sorted by Flow Sensitivity

At the end of each year, mutual funds are independently sorted into quintiles according to their flow-overpricing sensitivity (β_{OP}) and flow-performance sensitivity (β_{Perf}). β_{OP} and β_{Perf} are estimated from the following regression for each fund-year with a three-year rolling window,

$$Flow_{f,m} = \alpha_0 + \beta_{OP}Overpricing_{f,m-1} + \beta_{Perf}Perf_{f,m-1} + e_{f,m},$$

where $Flow_{f,m}$ refers to the monthly flow of fund f in month m , $Overpricing_{f,m-1}$ is the overpricing level, $Perf_{f,m-1}$ is the monthly fund return. Panel A reports the equal-weighted average of mutual fund overpricing in the following year for each quintile portfolio, as well as the 25 (5×5) portfolios sorted by flow-overpricing sensitivity and flow-performance sensitivity over the full sample period from 1981 to 2010. The row “LMH” reports the difference in fund overpricing between low sensitivity and high sensitivity portfolios. Panel B reports similar statistics in the sub-period when investor sentiment is high (above median) in the portfolio formation month. Appendix A provides the detailed definition of each variable. Newey and West (1987)-adjusted t -statistics are shown in parentheses. Numbers with “*”, “**” and “***” are significant at the 10%, 5% and 1% level, respectively.

Panel A: Fund Overpricing Sorted by Flow-Overpricing and Flow-Performance Sensitivity (1981 – 2010)								
Rank of β_{OP}	Rank of β_{Perf}						LMH	
	All	Low	2	3	4	High		
All		0.437	0.435	0.435	0.440	0.445	-0.008***	(-3.66)
Low	0.445	0.439	0.445	0.445	0.446	0.449	-0.010**	(-2.53)
2	0.438	0.439	0.433	0.438	0.442	0.444	-0.006	(-1.43)
3	0.433	0.433	0.430	0.429	0.437	0.440	-0.008***	(-2.81)
4	0.435	0.435	0.435	0.432	0.436	0.442	-0.007***	(-2.63)
High	0.439	0.438	0.441	0.439	0.436	0.442	-0.004**	(-2.12)
LMH	0.006***	0.001	0.004	0.006**	0.009***	0.006***		
	(3.48)	(0.39)	(1.27)	(2.42)	(2.65)	(2.68)		

Panel B: Fund Overpricing Sorted by Flow-Overpricing and Flow-Performance Sensitivity (High Sentiment)								
Rank of β_{OP}	Rank of β_{Perf}						LMH	
	All	Low	2	3	4	High		
All		0.438	0.436	0.436	0.439	0.444	-0.006**	(-2.43)
Low	0.442	0.438	0.441	0.444	0.442	0.445	-0.007	(-1.30)
2	0.439	0.442	0.433	0.440	0.438	0.443	-0.001	(-0.14)
3	0.433	0.432	0.431	0.430	0.439	0.441	-0.009**	(-2.57)
4	0.438	0.436	0.439	0.434	0.436	0.443	-0.007	(-1.63)
High	0.441	0.442	0.443	0.439	0.436	0.443	-0.001	(-0.41)
LMH	0.002	-0.004	-0.002	0.005	0.006	0.002		
	(0.75)	(-0.77)	(-0.51)	(1.30)	(0.92)	(0.67)		

Table IA1: Summary Statistics

This table presents the summary statistics for the data used in the paper during the 1981–2010 period. We report the mean, median, standard deviation, and the quantile distribution of quarterly fund overpricing, monthly fund return, monthly fund flow, and other quarterly stock and fund characteristics. Appendix A provides the detailed definition of each variable.

	Quantile Distribution of Fund Characteristics						
	Mean	Std.Dev.	Quantile Distribution				
			10%	25%	Median	75%	90%
Overpricing	43.918	4.654	37.930	40.439	43.783	47.163	49.990
Δ Overpricing	0.007	1.829	-2.073	-1.049	0.001	1.069	2.112
Fund Return	0.665	3.339	-3.657	-0.882	0.957	2.545	4.480
BMK-adjusted	0.002	1.319	-1.350	-0.609	-0.008	0.602	1.372
Style-adjusted	-0.033	1.279	-1.377	-0.655	-0.034	0.581	1.323
DGTW-adjusted	0.013	1.193	-1.230	-0.543	-0.006	0.541	1.265
BMK & FFC-adjusted	-0.002	0.894	-1.034	-0.479	-0.002	0.473	1.029
Style & FFC-adjusted	-0.058	0.905	-1.121	-0.564	-0.065	0.442	1.004
Fund Flow	0.214	3.495	-2.555	-1.310	-0.312	1.025	3.368
Active Share	0.800	0.150	0.586	0.702	0.832	0.926	0.969
TR ²	3.704	1.221	2.339	2.899	3.547	4.336	5.278
ICI	0.046	0.051	0.009	0.018	0.033	0.056	0.091
Return Gap	-0.019	0.620	-0.587	-0.242	-0.017	0.204	0.559
Tracking Error	1.505	1.385	0.383	0.663	1.138	1.885	2.969
Log (Fund TNA)	5.843	1.624	3.731	4.613	5.768	6.932	8.037
Expense Ratio	1.186	0.403	0.704	0.931	1.159	1.424	1.730
Turnover	0.797	0.656	0.180	0.330	0.630	1.050	1.620
Log (Fund Age)	4.982	0.724	4.103	4.420	4.875	5.455	6.096
Log (Manager Tenure)	4.284	0.741	3.296	3.929	4.355	4.745	5.142
Log (Stock Illiquidity)	2.730	2.309	-0.062	0.824	2.414	4.293	6.088

Table IA2: Persistence of Mutual Fund Overpricing

In this table, Models 1 to 3 present the results of the following quarterly Fama-MacBeth regressions, as well as their corresponding Newey-West adjusted t-statistics,

$$Overpricing_{f,q} = \alpha_0 + \beta_1 Overpricing_{f,q-1} + cM_{f,q-1} + e_{f,q},$$

where $Overpricing_{f,q}$ is the overpricing level of fund f in quarter q , and the vector M stacks all other control variables, including the Lag(Fund Return), Lag(Fund Flow), Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age), Log(Manager Tenure) and Log(Stock Illiquidity). $Overpricing_{f,q-1}$ can be further replaced with two dummy variables, $Dummy(Underpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter and zero otherwise) and $Dummy(Overpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the top decile across all funds in that quarter and zero otherwise). Models 4 to 6 report similar regression parameters of the following quarterly Fama-MacBeth regressions,

$$Overpricing_{f,q} = \alpha_0 + \beta_1 Overpricing_{f,q-4} + cM_{f,q-1} + e_{f,q},$$

where all variables are defined as above. Appendix A provides detailed definitions for each variable. Numbers with “*”, “**” and “***” are significant at the 10%, 5% and 1% level, respectively.

	Fund Overpricing (in %) Regressed on Lagged Fund Overpricing					
	Quarter $q - 1$			Quarter $q - 4$		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	4.120*** (8.59)	5.568*** (13.70)	41.610*** (88.53)	11.047*** (8.98)	14.627*** (16.24)	41.018*** (83.82)
Overpricing	0.906*** (91.10)	0.865*** (110.59)		0.749*** (29.99)	0.635*** (38.99)	
Dummy (Underpricing)			-4.011*** (-38.16)			-2.954*** (-32.51)
Dummy (Overpricing)			5.465*** (30.05)			4.129*** (26.30)
Lag (Fund Return)		-0.065*** (-2.86)	-0.154*** (-2.91)		-0.286*** (-6.22)	-0.259*** (-4.24)
Lag (Fund Flow)		0.020*** (4.74)	0.013*** (2.06)		0.031*** (4.38)	0.020*** (2.58)
Log (Fund TNA)		0.045*** (5.24)	0.225*** (9.09)		0.144*** (6.79)	0.264*** (9.84)
Expense Ratio		0.107*** (3.36)	0.544*** (6.41)		0.262*** (3.27)	0.623*** (6.22)
Turnover		0.058*** (3.33)	0.302*** (8.61)		0.183*** (3.98)	0.336*** (8.32)
Log (Fund Age)		-0.062*** (-4.00)	-0.363*** (-6.90)		-0.152*** (-4.42)	-0.376*** (-6.84)
Log (Manager Tenure)		-0.028*** (-2.12)	-0.085*** (-3.39)		-0.067*** (-2.47)	-0.095*** (-3.06)
Log (Stock Illiquidity)		0.118*** (6.87)	0.712*** (10.86)		0.387*** (9.02)	0.810*** (11.85)
R-squared	0.826	0.846	0.627	0.575	0.649	0.524
Obs	72,030	72,030	72,030	72,030	72,030	72,030

Table IA3: Fund Overpricing, Flows, and Fund Trading Activity (Fund-Stock Level)

Panel A presents the results of the following quarterly logistic regressions with quarter fixed effects and their corresponding t-statistics with standard errors clustered at the fund-stock level,

$$Mispricing_{f,i,q}^+ = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Flow_{f,q-1} + \beta_3 Overpricing_{f,q-1} \times Flow_{f,q-1} + c_1 M_{f,q-1} + c_2 N_{i,q-1} + e_{f,i,q},$$

where $Mispricing_{f,i,q}^+$ refers to a dummy variable that equals to one if the mutual fund f increases its holding in underpriced (Models 1 to 3) or overpriced (Models 4 to 6) stock i in quarter q and zero otherwise, and underpriced (overpriced) stocks refer to stocks in the bottom (top) decile of stocks based on the stock level composite overpricing measure. $Overpricing_{f,q-1}$ is the overpricing level, $Flow_{f,q-1}$ is the average monthly flow, the vector M stacks all other fund-level control variables, including the Fund Return, Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age) and Log(Manager Tenure), and vector N stacks all stock-level control variables, including the Stock Return, Stock Turnover and Log(Illiquidity). Panel A includes the entire sample period while Panel B only include periods of high sentiment, defined as above median sentiment level over the full sample period. Panel C presents similar statistics of the following quarterly logistic regressions,

$$Mispricing_{f,i,q}^+ = \alpha_0 + \beta_1 Dummy(Underpricing)_{f,q-1} + \beta_2 Dummy(Overpricing)_{f,q-1} + \beta_3 Dummy(Inflow)_{f,q-1} + \beta_4 Dummy(Underpricing)_{f,q-1} \times Dummy(Inflow)_{f,q-1} + \beta_5 Dummy(Overpricing)_{f,q-1} \times Dummy(Inflow)_{f,q-1} + c_1 M_{f,q-1} + c_2 N_{i,q-1} + e_{f,i,q},$$

where $Dummy(Underpricing)_{f,q-1}$ ($Dummy(Overpricing)_{f,q-1}$) refers to a dummy variable that takes a value of one if the fund overpricing is in the bottom (top) decile across all funds in that quarter and zero otherwise, $Dummy(Inflow)_{f,q-1}$ refers to a dummy variable that takes a value of one if average monthly flow is positive in that quarter and zero otherwise. All other variables are defined as above. Models 1 to 2 include the entire sample period while Models 3 to 4 only include periods of high sentiment, defined as above median sentiment level over the full sample period. Appendix A provides the detailed definition of each variable. Numbers with “*”, “**” and “***” are significant at the 10%, 5% and 1% level, respectively.

Panel A: Mutual Fund Ownership Increase Regressed on Lagged Fund Overpricing and Flow (Full Sample)						
Dep. Var. =	Dummy (Underpricing ⁺)			Dummy (Overpricing ⁺)		
	All	Repeat	New	All	Repeat	New
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-2.148*** (-28.09)	-3.055*** (-34.47)	-1.004*** (-10.53)	-6.298*** (-64.30)	-8.111*** (-68.70)	-4.659*** (-34.28)
Overpricing	-5.126*** (-58.76)	-5.162*** (-50.02)	-4.685*** (-43.09)	8.917*** (75.79)	11.343*** (79.74)	4.016*** (25.23)
Overpricing × Lag (Fund Flow)	-0.125*** (-11.36)	-0.054*** (-4.47)	-0.075*** (-3.90)	0.118*** (5.83)	0.120*** (5.40)	0.014 (0.39)
Lag (Fund Flow)	0.083*** (17.45)	0.063*** (12.08)	0.028*** (3.24)	-0.028*** (-2.96)	-0.016 (-1.50)	-0.010 (-0.60)
Fund Return	-0.001 (-0.86)	0.021*** (12.32)	-0.058*** (-21.97)	0.033*** (15.37)	0.044*** (17.19)	0.012*** (3.23)
Log (Fund TNA)	-0.007*** (-2.94)	0.006** (2.41)	-0.041*** (-16.43)	0.051*** (16.02)	0.079*** (20.25)	-0.006 (-1.37)
Expense Ratio	0.010 (1.10)	-0.060*** (-5.79)	0.226*** (24.39)	0.066*** (5.57)	-0.036** (-2.43)	0.287*** (19.86)
Turnover	0.049*** (12.91)	-0.087*** (-16.48)	0.302*** (85.97)	0.043*** (8.18)	-0.063*** (-8.29)	0.196*** (34.91)
Log (Fund Age)	-0.024*** (-4.51)	-0.049*** (-7.99)	0.062*** (10.98)	-0.022*** (-2.87)	-0.074*** (-7.88)	0.071*** (7.50)
Log (Manager Tenure)	0.033*** (7.87)	0.057*** (11.60)	-0.065*** (-13.38)	-0.054*** (-9.05)	-0.009 (-1.22)	-0.137*** (-17.51)
Log (Stock Size)	0.124*** (15.97)	0.222*** (23.96)	-0.321*** (-34.13)	-0.318*** (-37.29)	-0.248*** (-24.16)	-0.455*** (-38.36)
Stock Return	0.052*** (171.07)	0.040*** (114.73)	0.073*** (146.04)	-0.058*** (-118.87)	-0.067*** (-113.73)	-0.038*** (-47.09)
Stock Turnover	-0.012*** (-41.86)	-0.013*** (-36.59)	-0.011*** (-32.07)	0.019*** (70.89)	0.016*** (50.85)	0.021*** (60.36)
Log (Illiquidity)	-0.126*** (-19.12)	-0.095*** (-11.79)	-0.316*** (-39.70)	-0.123*** (-19.62)	-0.105*** (-13.86)	-0.169*** (-19.26)
Obs	5,924,404	5,924,404	5,924,404	5,924,404	5,924,404	5,924,404

Table IA3—Continued

Panel B: Mutual Fund Ownership Increase Regressed on Lagged Fund Overpricing and Flow (High Sentiment)						
Dep. Var. =	Dummy (Underpricing ⁺)			Dummy (Overpricing ⁺)		
	All Model 1	Repeat Model 2	New Model 3	All Model 4	Repeat Model 5	New Model 6
Intercept	-1.549*** (-16.20)	-2.366*** (-21.43)	-0.805*** (-6.09)	-7.368*** (-57.46)	-9.004*** (-57.67)	-5.921*** (-32.35)
Overpricing	-5.068*** (-45.62)	-5.301*** (-40.74)	-4.074*** (-26.01)	8.963*** (58.90)	11.059*** (60.17)	4.694*** (21.29)
Overpricing × Lag (Fund Flow)	-0.148*** (-7.87)	-0.060*** (-2.98)	-0.111*** (-3.00)	0.237*** (7.31)	0.263*** (7.32)	0.061 (1.04)
Lag (Fund Flow)	0.095*** (11.95)	0.069*** (8.13)	0.041** (2.51)	-0.074*** (-4.88)	-0.072*** (-4.28)	-0.024 (-0.89)
Fund Return	0.003* (1.66)	0.022*** (10.54)	-0.046*** (-13.80)	0.034*** (13.12)	0.041*** (13.37)	0.022*** (4.86)
Log (Fund TNA)	-0.008*** (-2.69)	0.002 (0.76)	-0.029*** (-7.78)	0.050*** (11.46)	0.072*** (13.37)	0.010* (1.70)
Expense Ratio	0.014 (1.20)	-0.058*** (-4.27)	0.243*** (16.66)	0.077*** (4.56)	-0.004 (-0.19)	0.251*** (11.47)
Turnover	0.065*** (11.55)	-0.093*** (-12.80)	0.386*** (64.66)	0.027*** (3.13)	-0.111*** (-9.11)	0.232*** (22.52)
Log (Fund Age)	-0.010 (-1.48)	-0.029*** (-3.84)	0.057*** (6.79)	-0.025** (-2.37)	-0.085*** (-6.44)	0.073*** (5.24)
Log (Manager Tenure)	0.036*** (6.45)	0.053*** (8.27)	-0.047*** (-6.29)	-0.050*** (-5.84)	-0.021** (-1.98)	-0.103*** (-8.89)
Log (Stock Size)	0.149*** (14.64)	0.262*** (21.83)	-0.314*** (-22.08)	-0.203*** (-17.68)	-0.117*** (-8.34)	-0.378*** (-22.85)
Stock Return	0.044*** (107.19)	0.033*** (70.93)	0.064*** (89.82)	-0.059*** (-87.52)	-0.067*** (-81.98)	-0.041*** (-37.11)
Stock Turnover	-0.014*** (-32.24)	-0.014*** (-27.50)	-0.014*** (-23.97)	0.023*** (61.29)	0.021*** (45.54)	0.024*** (46.52)
Log (Illiquidity)	-0.100*** (-11.28)	-0.051*** (-4.84)	-0.322*** (-26.26)	-0.074*** (-8.64)	-0.034*** (-3.23)	-0.166*** (-13.22)
Obs	2,512,277	2,512,277	2,512,277	2,512,277	2,512,277	2,512,277

Panel C: Mutual Fund Ownership Increase Regressed on Lagged Fund Overpricing and Flow				
Dep. Var. =	Full Sample		High Sentiment	
	Dummy (Underpricing ⁺) Model 1	Dummy (Overpricing ⁺) Model 2	Dummy (Underpricing ⁺) Model 3	Dummy (Overpricing ⁺) Model 4
Intercept	-4.781*** (-78.55)	-1.696*** (-23.64)	-3.874*** (-48.20)	-3.018*** (-29.74)
Dummy (Underpricing)	0.271*** (28.49)	-0.611*** (-21.11)	0.282*** (21.70)	-0.561*** (-14.03)
Dummy (Overpricing)	-0.366*** (-25.19)	0.538*** (39.61)	-0.416*** (-18.78)	0.581*** (28.67)
Dummy (Underpricing) × Dummy (Inflow)	0.090*** (6.84)	-0.067 (-1.55)	0.081*** (4.45)	-0.053 (-0.90)
Dummy (Overpricing) × Dummy (Inflow)	-0.077*** (-3.83)	0.015 (0.79)	-0.086*** (-2.68)	0.065** (2.35)
Dummy (Inflow)	0.209*** (39.91)	0.228*** (27.40)	0.195*** (27.03)	0.218*** (18.13)
Fund Return	0.004*** (2.76)	0.023*** (10.52)	0.011*** (6.40)	0.021*** (8.04)
Log (Fund TNA)	-0.010*** (-4.37)	0.046*** (14.85)	-0.010*** (-3.60)	0.046*** (10.84)
Expense Ratio	-0.010 (-1.19)	0.117*** (9.97)	-0.012 (-1.00)	0.125*** (7.51)
Turnover	0.060*** (15.85)	0.055*** (10.51)	0.064*** (11.43)	0.038*** (4.36)
Log (Fund Age)	-0.009 (-1.62)	-0.021*** (-2.79)	-0.002 (-0.30)	-0.035*** (-3.32)
Log (Manager Tenure)	0.024*** (5.77)	-0.053*** (-8.97)	0.026*** (4.69)	-0.041*** (-4.89)
Log (Stock Size)	0.146*** (18.72)	-0.405*** (-48.14)	0.164*** (15.90)	-0.281*** (-24.66)
Stock Return	0.052*** (170.34)	-0.058*** (-118.24)	0.043*** (106.53)	-0.059*** (-86.85)
Stock Turnover	-0.013*** (-43.91)	0.019*** (70.95)	-0.015*** (-34.19)	0.023*** (63.22)
Log (Illiquidity)	-0.141*** (-20.97)	-0.144*** (-23.05)	-0.120*** (-13.38)	-0.089*** (-10.37)
Obs	5,924,404	5,924,404	2,512,277	2,512,277

Table IA4: Alternative Overpricing Measures and Mutual Fund Performance

Panel A presents the results of the following quarterly panel regressions with quarter and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$Perf_{f,q} = \alpha_0 + \beta_1 BMKadj\ Overpricing_{f,q-1} + \beta_2 Sentiment_{q-1} + \beta_3 BMKadj\ Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q},$$

where $Perf_{f,q}$ refers to the average monthly return of fund f in quarter q , adjusted by the benchmark return of funds or benchmark and Fama-French-Carhart (FFC) model, $BMKadj\ Overpricing_{f,q-1}$ is the benchmark-adjusted overpricing level (adjusted by netting out the benchmark average), $Sentiment_{q-1}$ is the average monthly Baker and Wurgler (2007) market sentiment index, and the vector M stacks all other control variables, including the Active Share, (logistic transformation of) R-square, Industry Concentration Index, Return Gap, Tracking Error, Lag(Fund Return), Lag(Fund Flow), Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age), Log(Manager Tenure) and Log(Stock Illiquidity). $BMKadj\ Overpricing_{f,q-1}$ can be further replaced with two dummy variables, $Dummy(BMKadj\ Underpricing)_{f,q-1}$ (takes a value of one if the $BMKadj\ Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter and zero otherwise) and $Dummy(BMKadj\ Overpricing)_{f,q-1}$ (takes a value of one if the $BMKadj\ Overpricing_{f,q-1}$ is in the top decile across all funds in that quarter and zero otherwise). Panel B reports similar regression parameters of the following quarterly panel regressions,

$$Perf_{f,q} = \alpha_0 + \beta_1 \Delta Overpricing_{f,q-1} + \beta_2 Overpricing_{f,q-1} + \beta_3 Sentiment_{q-1} + \beta_4 \Delta Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q},$$

where $\Delta Overpricing_{f,q-1}$ is the change in overpricing level of fund f in quarter q , and all other variables are defined as above. Panel C reports similar regression parameters of the following quarterly panel regressions,

$$Perf_{f,q} = \alpha_0 + \beta_1 PostSample\ Overpricing_{f,q-1} + \beta_2 Sentiment_{q-1} + \beta_4 PostSample\ Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q},$$

where $PostSample\ Overpricing_{f,q-1}$ is post sample overpricing level of fund f in quarter q when each anomaly is included only after the end of the original sample period used in the relevant academic publication, and all other variables are defined as above. Appendix A provides detailed definitions for each variable. Numbers with “*”, “**”, and “***” are significant at the 10%, 5%, and 1% levels, respectively.

Table IA4—Continued

Panel A: Benchmark-adjusted Fund Performance (in %) Regressed on Lagged Benchmark-adjusted Overpricing										
	Benchmark-adjusted Return					Benchmark & FFC-adjusted Return				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	-0.115 (-0.62)	-0.421* (-1.75)	-0.139 (-0.59)	-0.209 (-0.93)	0.044 (0.20)	0.336*** (2.63)	0.230 (1.45)	0.331** (2.10)	0.260 (1.62)	0.354** (2.22)
BMK-adjusted Overpricing	-4.241*** (-14.88)	-4.389*** (-13.96)		-2.484*** (-7.96)		-1.713*** (-9.25)	-1.738*** (-8.28)		-0.973*** (-4.65)	
Dummy (BMK-adjusted Underpricing)			0.138*** (5.64)		0.067*** (2.91)			0.070*** (4.07)		0.041** (2.52)
Dummy (BMK-adjusted Overpricing)			-0.220*** (-6.69)		-0.124*** (-4.25)			-0.093*** (-4.71)		-0.061*** (-3.21)
Sentiment				-0.016 (-0.27)	0.017 (0.29)				-0.025 (-0.44)	-0.016 (-0.28)
BMK-adjusted Overpricing × Sentiment				-6.130*** (-14.18)					-2.463*** (-8.58)	
Dummy (BMK-adjusted Underpricing) × Sentiment					0.375*** (10.12)					0.153*** (6.17)
Dummy (BMK-adjusted Overpricing) × Sentiment					-0.494*** (-8.68)					-0.163*** (-4.48)
Active Share		0.415*** (3.95)	0.268** (2.55)	0.413*** (4.06)	0.279*** (2.72)		0.239*** (3.28)	0.184** (2.52)	0.239*** (3.31)	0.187*** (2.58)
TR ²		-0.026*** (-3.37)	-0.029*** (-3.76)	-0.013* (-1.83)	-0.019*** (-2.68)		-0.007 (-1.41)	-0.008 (-1.64)	-0.002 (-0.37)	-0.005 (-0.95)
ICI		0.428 (1.29)	0.269 (0.80)	0.521 (1.60)	0.350 (1.06)		-0.372* (-1.67)	-0.432* (-1.94)	-0.334 (-1.50)	-0.403* (-1.81)
Return Gap		-0.032** (-2.12)	-0.036** (-2.43)	-0.024 (-1.62)	-0.030** (-1.99)		0.002 (0.22)	0.000 (0.04)	0.005 (0.53)	0.003 (0.29)
Tracking Error		-0.003 (-0.38)	-0.004 (-0.51)	0.001 (0.08)	-0.002 (-0.21)		0.003 (0.47)	0.002 (0.40)	0.004 (0.76)	0.003 (0.55)
Lag (Fund Flow)	-0.003* (-1.80)	-0.003* (-1.83)	-0.003* (-1.75)	-0.003** (-1.99)	-0.003* (-1.93)	-0.000 (-0.08)	-0.000 (-0.39)	-0.000 (-0.35)	-0.001 (-0.47)	-0.001 (-0.44)
Log (Fund TNA)	-0.210*** (-20.12)	-0.225*** (-18.99)	-0.236*** (-19.76)	-0.221*** (-19.17)	-0.231*** (-19.91)	-0.126*** (-17.12)	-0.137*** (-16.68)	-0.141*** (-17.24)	-0.135*** (-16.70)	-0.139*** (-17.17)
Expense Ratio	-0.065* (-1.94)	-0.056 (-1.50)	-0.049 (-1.32)	-0.061* (-1.69)	-0.053 (-1.49)	-0.054** (-2.25)	-0.064** (-2.42)	-0.062** (-2.32)	-0.066** (-2.51)	-0.064** (-2.41)
Turnover	0.038** (2.57)	0.037** (2.27)	0.034** (2.08)	0.042*** (2.66)	0.039** (2.48)	0.013 (1.20)	0.009 (0.78)	0.008 (0.68)	0.012 (0.96)	0.010 (0.86)
Log (Fund Age)	0.057** (1.98)	0.089*** (2.72)	0.084*** (2.66)	0.076** (2.37)	0.076** (2.45)	-0.010 (-0.53)	0.006 (0.30)	0.004 (0.21)	0.001 (0.06)	0.002 (0.07)
Log (Manager Tenure)	0.002 (0.16)	0.003 (0.23)	0.006 (0.54)	0.001 (0.10)	0.005 (0.42)	0.001 (0.22)	0.004 (0.55)	0.005 (0.71)	0.004 (0.48)	0.005 (0.66)
Log (Stock Illiquidity)	0.092*** (10.52)	0.077*** (7.63)	0.062*** (6.26)	0.065*** (6.49)	0.056*** (5.68)	0.032*** (5.34)	0.027*** (3.85)	0.022*** (3.14)	0.022*** (3.17)	0.019*** (2.81)
R-squared	0.025	0.027	0.024	0.035	0.030	0.017	0.019	0.018	0.022	0.020
Obs	74,328	61,180	61,180	61,180	61,180	74,328	61,180	61,180	61,180	61,180

Table IA4—Continued

Panel B: Benchmark-adjusted Fund Performance (in %) Regressed on Change in Overpricing										
	Benchmark-adjusted Return					Benchmark & FFC-adjusted Return				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	0.070 (0.38)	1.493*** (7.02)	1.239*** (4.90)	0.202 (0.90)	1.276*** (5.31)	0.392*** (2.98)	1.005*** (6.84)	0.908*** (5.45)	0.431*** (2.70)	0.872*** (5.18)
Δ Overpricing	-1.854*** (-5.39)	-3.600*** (-9.88)	-3.721*** (-9.23)	-1.570*** (-4.20)	-3.375*** (-8.35)	-0.197 (-0.83)	-0.950*** (-3.74)	-0.993*** (-3.46)	-0.178 (-0.68)	-0.918*** (-3.22)
Overpricing		-3.411*** (-12.00)	-3.374*** (-10.70)		-3.362*** (-10.68)		-1.470*** (-7.93)	-1.381*** (-6.65)		-1.378*** (-6.64)
Sentiment				-0.012 (-0.20)	0.018 (0.31)				-0.020 (-0.36)	-0.008 (-0.14)
Δ Overpricing \times Sentiment				-1.506* (-1.92)	-1.363* (-1.74)				-0.355 (-0.63)	-0.296 (-0.53)
Active Share			0.371*** (3.51)	0.203* (1.91)	0.367*** (3.48)			0.220*** (3.01)	0.151** (2.06)	0.219*** (3.00)
TR ²			-0.024*** (-3.13)	-0.032*** (-4.05)	-0.024*** (-3.18)			-0.006 (-1.26)	-0.009* (-1.87)	-0.006 (-1.27)
ICI			0.409 (1.22)	0.168 (0.50)	0.411 (1.22)			-0.381* (-1.70)	-0.481** (-2.14)	-0.381* (-1.70)
Return Gap			-0.032** (-2.11)	-0.037** (-2.48)	-0.032** (-2.10)			0.002 (0.24)	-0.000 (-0.02)	0.002 (0.24)
Tracking Error			-0.006 (-0.65)	-0.007 (-0.75)	-0.006 (-0.64)			0.002 (0.29)	0.001 (0.22)	0.002 (0.30)
Lag (Fund Flow)	-0.002 (-1.44)	-0.003* (-1.85)	-0.003* (-1.85)	-0.003 (-1.54)	-0.003* (-1.85)	-0.000 (-0.01)	-0.000 (-0.25)	-0.001 (-0.48)	-0.000 (-0.31)	-0.001 (-0.48)
Log (Fund TNA)	-0.227*** (-20.77)	-0.214*** (-20.17)	-0.229*** (-19.08)	-0.243*** (-19.89)	-0.228*** (-19.08)	-0.133*** (-17.78)	-0.127*** (-17.09)	-0.138*** (-16.73)	-0.144*** (-17.58)	-0.138*** (-16.74)
Expense Ratio	-0.054 (-1.60)	-0.058* (-1.72)	-0.053 (-1.42)	-0.045 (-1.22)	-0.052 (-1.41)	-0.049** (-2.04)	-0.051** (-2.12)	-0.062** (-2.33)	-0.059** (-2.22)	-0.062** (-2.33)
Turnover	0.037** (2.51)	0.038*** (2.59)	0.036** (2.21)	0.033** (2.01)	0.036** (2.21)	0.012 (1.11)	0.013 (1.17)	0.008 (0.69)	0.007 (0.57)	0.008 (0.69)
Log (Fund Age)	0.057** (2.11)	0.064** (2.29)	0.096*** (3.03)	0.085*** (2.77)	0.096*** (3.03)	-0.008 (-0.44)	-0.006 (-0.29)	0.009 (0.40)	0.004 (0.19)	0.009 (0.40)
Log (Manager Tenure)	0.002 (0.23)	0.001 (0.12)	0.003 (0.31)	0.007 (0.62)	0.003 (0.29)	0.001 (0.21)	0.001 (0.14)	0.004 (0.58)	0.006 (0.76)	0.004 (0.57)
Log (Stock Illiquidity)	0.063*** (7.37)	0.087*** (9.99)	0.072*** (7.17)	0.052*** (5.25)	0.071*** (7.13)	0.020*** (3.38)	0.030*** (5.03)	0.025*** (3.56)	0.017** (2.48)	0.025*** (3.55)
R-squared	0.020	0.024	0.026	0.022	0.026	0.015	0.017	0.018	0.017	0.018
Obs	74,087	74,087	61,128	61,128	61,128	74,087	74,087	61,128	61,128	61,128

Table IA4—Continued

Panel C: Benchmark-adjusted Fund Performance (in %) Regressed on Lagged Post Sample Overpricing										
	Benchmark-adjusted Return					Benchmark & FFC-adjusted Return				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	0.925*** (5.07)	0.486** (1.98)	-0.113 (-0.47)	0.676*** (2.81)	0.069 (0.31)	0.749*** (5.74)	0.583*** (3.77)	0.361** (2.29)	0.535*** (3.34)	0.375** (2.37)
PostSample Overpricing	-2.699*** (-12.49)	-2.941*** (-11.59)		-2.396*** (-9.01)		-1.064*** (-7.58)	-1.124*** (-6.98)		-0.723*** (-4.41)	
Dummy (PostSample Underpricing)			0.174*** (8.05)		0.135*** (6.18)			0.054*** (4.08)		0.035*** (2.67)
Dummy (PostSample Overpricing)			-0.264*** (-7.50)		-0.197*** (-6.36)			-0.098*** (-4.50)		-0.064*** (-3.11)
Sentiment				0.217** (2.33)	0.018 (0.30)				0.195*** (2.82)	-0.008 (-0.15)
PostSample Overpricing × Sentiment				-1.409*** (-4.90)					-1.036*** (-5.80)	
Dummy (PostSample Underpricing) × Sentiment					0.175*** (5.22)					0.083*** (3.73)
Dummy (PostSample Overpricing) × Sentiment					-0.379*** (-6.46)					-0.192*** (-5.78)
Active Share		0.402*** (3.77)	0.259** (2.44)	0.400*** (3.77)	0.277*** (2.65)		0.231*** (3.13)	0.173** (2.35)	0.230*** (3.13)	0.182** (2.50)
TR ²		-0.024*** (-3.09)	-0.027*** (-3.55)	-0.020*** (-2.65)	-0.020*** (-2.77)		-0.006 (-1.25)	-0.008 (-1.57)	-0.003 (-0.68)	-0.004 (-0.85)
ICI		0.416 (1.25)	0.286 (0.86)	0.461 (1.40)	0.387 (1.18)		-0.380* (-1.70)	-0.429* (-1.93)	-0.347 (-1.55)	-0.379* (-1.70)
Return Gap		-0.033** (-2.20)	-0.035** (-2.33)	-0.032** (-2.11)	-0.032** (-2.14)		0.001 (0.15)	0.001 (0.05)	0.002 (0.25)	0.002 (0.21)
Tracking Error		-0.008 (-0.94)	-0.005 (-0.58)	-0.006 (-0.68)	-0.001 (-0.11)		0.001 (0.12)	0.002 (0.35)	0.002 (0.43)	0.004 (0.73)
Lag (Fund Flow)	-0.003* (-1.93)	-0.004** (-2.04)	-0.003** (-1.97)	-0.003* (-1.94)	-0.004** (-2.09)	-0.000 (-0.15)	-0.001 (-0.50)	-0.001 (-0.46)	-0.000 (-0.39)	-0.001 (-0.53)
Log (Fund TNA)	-0.222*** (-21.14)	-0.235*** (-19.63)	-0.240*** (-20.04)	-0.235*** (-19.68)	-0.238*** (-20.32)	-0.131*** (-18.08)	-0.141*** (-17.29)	-0.143*** (-17.50)	-0.141*** (-17.44)	-0.142*** (-17.58)
Expense Ratio	-0.045 (-1.32)	-0.033 (-0.87)	-0.045 (-1.20)	-0.030 (-0.80)	-0.045 (-1.23)	-0.046* (-1.90)	-0.055** (-2.06)	-0.060** (-2.24)	-0.053** (-2.00)	-0.060** (-2.27)
Turnover	0.034** (2.33)	0.033** (2.03)	0.032** (2.00)	0.036** (2.24)	0.037** (2.29)	0.011 (1.07)	0.008 (0.65)	0.007 (0.61)	0.010 (0.86)	0.010 (0.80)
Log (Fund Age)	0.040 (1.43)	0.070** (2.17)	0.080** (2.52)	0.063* (1.90)	0.072** (2.26)	-0.017 (-0.87)	-0.001 (-0.03)	0.003 (0.14)	-0.006 (-0.30)	-0.001 (-0.03)
Log (Manager Tenure)	0.001 (0.13)	0.003 (0.25)	0.004 (0.38)	0.003 (0.25)	0.004 (0.38)	0.001 (0.20)	0.004 (0.57)	0.005 (0.67)	0.004 (0.58)	0.005 (0.66)
Log (Stock Illiquidity)	0.087*** (9.97)	0.074*** (7.33)	0.065*** (6.47)	0.069*** (6.84)	0.061*** (6.13)	0.030*** (4.99)	0.025*** (3.67)	0.022*** (3.13)	0.022*** (3.20)	0.019*** (2.85)
R-squared	0.024	0.026	0.025	0.027	0.028	0.017	0.019	0.018	0.020	0.020
Obs	74,328	61,180	61,180	61,180	61,180	74,328	61,180	61,180	61,180	61,180

Table IA5: Overpricing and Gross-of-Fee Mutual Fund Performance

This table presents the results of the following quarterly panel regressions with quarter and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$Perf_{f,q} = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Sentiment_{q-1} + \beta_3 Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q},$$

where $Perf_{f,q}$ refers to the average monthly gross-of-fee return of fund f in quarter q , adjusted by the benchmark return of funds or benchmark and Fama-French-Carhart (FFC) model, $Overpricing_{f,q-1}$ is the overpricing level, $Sentiment_{q-1}$ is the average monthly Baker and Wurgler (2007) market sentiment index, and the vector M stacks all other control variables, including the Active Share, (logistic transformation of) R-square, Industry Concentration Index, Return Gap, Tracking Error, Lag(Fund Return), Lag(Fund Flow), Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age), Log(Manager Tenure) and Log(Stock Illiquidity). Gross-of-fee fund return refers to the fund total return plus one-twelfth of the annualized expense ratio. $Overpricing_{f,q-1}$ can be further replaced with two dummy variables, $Dummy(Underpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter and zero otherwise) and $Dummy(Overpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the top decile across all funds in that quarter and zero otherwise). Appendix A provides detailed definitions for each variable. Numbers with “*”, “***”, and “****” are significant at the 10%, 5%, and 1% levels, respectively.

Table IA5—Continued

	Gross-of-Fee Fund Performance (in %) Regressed on Lagged Overpricing									
	Gross-of-Fee Benchmark-adjusted Return					Gross-of-Fee Benchmark & FFC-adjusted Return				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	1.531*** (7.39)	1.177*** (4.66)	-0.208 (-0.87)	0.687*** (2.91)	-0.007 (-0.03)	0.952*** (6.77)	0.788*** (4.75)	0.256 (1.62)	0.545*** (3.31)	0.307* (1.94)
Overpricing	-3.518*** (-13.51)	-3.541*** (-12.07)		-2.143*** (-7.23)		-1.384*** (-8.04)	-1.340*** (-6.89)		-0.737*** (-3.83)	
Dummy (Underpricing)			0.133*** (6.06)		0.074*** (3.50)			0.073*** (4.92)		0.045*** (3.09)
Dummy (Overpricing)			-0.202*** (-5.98)		-0.107*** (-3.49)			-0.065*** (-2.95)		-0.028 (-1.30)
Sentiment				2.320*** (13.32)	0.030 (0.51)				0.975*** (8.34)	-0.014 (-0.26)
Overpricing × Sentiment				-5.253*** (-14.12)					-2.262*** (-9.32)	
Dummy (Underpricing) × Sentiment					0.285*** (7.99)					0.138*** (5.80)
Dummy (Overpricing) × Sentiment					-0.548*** (-9.67)					-0.215*** (-6.35)
Active Share		0.395*** (3.74)	0.250** (2.36)	0.414*** (4.03)	0.274*** (2.67)		0.235*** (3.21)	0.182** (2.49)	0.243*** (3.37)	0.190*** (2.63)
TR ²		-0.023*** (-2.93)	-0.027*** (-3.49)	-0.009 (-1.32)	-0.016** (-2.26)		-0.005 (-1.13)	-0.007 (-1.46)	0.000 (0.04)	-0.003 (-0.56)
ICI		0.384 (1.15)	0.241 (0.73)	0.522 (1.61)	0.385 (1.19)		-0.389* (-1.73)	-0.456** (-2.03)	-0.330 (-1.47)	-0.397* (-1.78)
Return Gap		-0.032** (-2.12)	-0.036** (-2.38)	-0.024 (-1.58)	-0.029* (-1.94)		0.002 (0.18)	0.000 (0.03)	0.005 (0.55)	0.003 (0.32)
Tracking Error		-0.005 (-0.56)	-0.004 (-0.44)	0.004 (0.42)	0.003 (0.30)		0.001 (0.19)	0.001 (0.23)	0.005 (0.85)	0.004 (0.70)
Lag (Fund Flow)	-0.003* (-1.93)	-0.003* (-1.85)	-0.003 (-1.62)	-0.003* (-1.93)	-0.003* (-1.65)	-0.000 (-0.26)	-0.001 (-0.46)	-0.000 (-0.34)	-0.001 (-0.49)	-0.000 (-0.36)
Log (Fund TNA)	-0.213*** (-20.32)	-0.228*** (-19.09)	-0.240*** (-19.93)	-0.224*** (-19.37)	-0.235*** (-20.22)	-0.129*** (-17.41)	-0.140*** (-16.91)	-0.143*** (-17.49)	-0.138*** (-17.00)	-0.142*** (-17.54)
Expense Ratio	0.016 (0.47)	0.023 (0.63)	0.028 (0.75)	0.014 (0.38)	0.024 (0.67)	0.020 (0.82)	0.009 (0.33)	0.010 (0.36)	0.005 (0.17)	0.008 (0.30)
Turnover	0.037** (2.54)	0.035** (2.16)	0.032** (1.99)	0.044*** (2.79)	0.038** (2.39)	0.013 (1.17)	0.009 (0.74)	0.008 (0.67)	0.013 (1.08)	0.011 (0.89)
Log (Fund Age)	0.061** (2.18)	0.094*** (2.97)	0.084*** (2.66)	0.072** (2.24)	0.073** (2.26)	-0.010 (-0.52)	0.006 (0.30)	0.003 (0.13)	-0.003 (-0.15)	-0.002 (-0.10)
Log (Manager Tenure)	0.001 (0.13)	0.003 (0.26)	0.005 (0.46)	0.002 (0.22)	0.003 (0.28)	0.001 (0.18)	0.004 (0.54)	0.005 (0.63)	0.004 (0.51)	0.004 (0.53)
Log (Stock Illiquidity)	0.087*** (10.01)	0.072*** (7.21)	0.060*** (6.02)	0.062*** (6.26)	0.053*** (5.46)	0.030*** (5.00)	0.025*** (3.54)	0.021*** (2.95)	0.020*** (2.94)	0.018** (2.58)
R-squared	0.024	0.026	0.024	0.034	0.030	0.017	0.019	0.018	0.022	0.021
Obs	74,091	60,982	60,982	60,982	60,982	74,091	60,982	60,982	60,982	60,982

Table IA6: Overpricing and Mutual Fund Performance (Morningstar Style-adjusted)

Panel A presents the results of the following quarterly panel regressions with style-quarter fixed effects and their corresponding t-statistics with standard errors clustered at the style-quarter level,

$$Perf_{f,q} = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q},$$

where $Perf_{f,q}$ is the average monthly performance of fund f in quarter q , $Overpricing_{f,q-1}$ is the overpricing level, $Sentiment_{q-1}$ is the average monthly Baker and Wurgler (2007) market sentiment index, and the vector M stacks all other control variables, including the Active Share, (logistic transformation of) R-square, Industry Concentration Index, Return Gap, Tracking Error, Lag(Fund Return), Lag(Fund Flow), Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age), Log(Manager Tenure) and Log(Stock Illiquidity). $Overpricing_{f,q-1}$ can be further replaced with two dummy variables, $Dummy(Underpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter and zero otherwise) and $Dummy(Overpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the top decile across all funds in that quarter and zero otherwise). The dependent variable $Perf_{f,q}$ is measured by raw return (Models 1 to 5) and further adjusted by the Fama-French-Carhart (FFC) model (Models 6 to 10). Fund style is defined according to the 3×3 Morningstar style box. Panel B presents the results of the following quarterly panel regressions with quarter and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$Perf_{f,q} = \alpha_0 + \beta_1 STYadj Overpricing_{f,q-1} + \beta_2 Sentiment_{q-1} + \beta_3 STYadj Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q},$$

where $Perf_{f,q}$ refers to the average monthly return of fund f in quarter q , adjusted by the style return of funds or style and Fama-French-Carhart (FFC) model, $STYadj Overpricing_{f,q-1}$ is the style-adjusted overpricing level (adjusted by netting out the style average). $STYadj Overpricing_{f,q-1}$ can be further replaced with two dummy variables, $Dummy(STYadj Underpricing)_{f,q-1}$ (takes a value of one if the $STYadj Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter and zero otherwise) and $Dummy(STYadj Overpricing)_{f,q-1}$ (takes a value of one if the $STYadj Overpricing_{f,q-1}$ is in the top decile across all funds in that quarter and zero otherwise). All other variables are defined as above. Appendix A provides detailed definitions for each variable. Numbers with “*”, “**”, and “***” are significant at the 10%, 5%, and 1% levels, respectively.

Table IA6—Continued

	Panel A: Fund Performance (in %) Regressed on Lagged Overpricing									
	Return					FFC-adjusted Return				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Overpricing	-2.346*** (-3.82)	-2.803*** (-4.36)		-1.265*** (-2.72)		-1.264*** (-4.30)	-1.551*** (-5.00)		-0.862*** (-3.45)	
Dummy (Underpricing)			0.108*** (3.08)		0.048* (1.70)			0.077*** (3.44)		0.045** (2.24)
Dummy (Overpricing)			-0.184*** (-3.86)		-0.103*** (-3.05)			-0.088*** (-3.55)		-0.055** (-2.54)
Overpricing × Sentiment				-6.197*** (-3.52)					-2.775*** (-4.20)	
Dummy (Underpricing) × Sentiment					0.303*** (3.89)					0.165*** (3.93)
Dummy (Overpricing) × Sentiment					-0.524*** (-3.24)					-0.215*** (-3.20)
Active Share		0.486*** (4.06)	0.375*** (3.19)	0.501*** (4.16)	0.392*** (3.35)		0.199** (2.54)	0.140* (1.84)	0.206*** (2.62)	0.146* (1.92)
TR ²		-0.016 (-1.11)	-0.019 (-1.30)	-0.005 (-0.39)	-0.011 (-0.85)		-0.019*** (-2.93)	-0.021*** (-3.11)	-0.015** (-2.36)	-0.018*** (-2.75)
ICI		0.155 (0.40)	0.039 (0.10)	0.215 (0.56)	0.138 (0.36)		-0.030 (-0.17)	-0.105 (-0.59)	-0.003 (-0.01)	-0.063 (-0.35)
Return Gap		-0.007 (-0.37)	-0.010 (-0.52)	-0.000 (-0.02)	-0.004 (-0.23)		0.016 (1.42)	0.014 (1.26)	0.019* (1.70)	0.016 (1.48)
Tracking Error		-0.015 (-0.90)	-0.015 (-0.91)	-0.009 (-0.56)	-0.010 (-0.65)		0.005 (0.43)	0.004 (0.38)	0.008 (0.69)	0.006 (0.58)
Lag (Fund Flow)	0.004* (1.82)	0.004 (1.63)	0.005* (1.74)	0.004 (1.54)	0.004* (1.68)	0.007*** (5.50)	0.006*** (4.57)	0.006*** (4.69)	0.006*** (4.49)	0.006*** (4.62)
Log (Fund TNA)	-0.010** (-2.06)	-0.007 (-1.52)	-0.012** (-2.33)	-0.008 (-1.64)	-0.012** (-2.35)	-0.004 (-1.40)	-0.004 (-1.23)	-0.007* (-1.94)	-0.004 (-1.31)	-0.007** (-1.97)
Expense Ratio	-0.045*** (-2.61)	-0.075*** (-4.16)	-0.078*** (-4.27)	-0.078*** (-4.29)	-0.082*** (-4.40)	-0.057*** (-5.13)	-0.080*** (-6.76)	-0.082*** (-6.88)	-0.082*** (-6.81)	-0.084*** (-6.96)
Turnover	0.023 (1.21)	0.041* (1.92)	0.032 (1.45)	0.043** (2.01)	0.034 (1.52)	-0.016 (-1.43)	-0.014 (-1.07)	-0.018 (-1.42)	-0.013 (-1.00)	-0.018 (-1.36)
Log (Fund Age)	0.007 (0.89)	0.005 (0.61)	0.010 (1.13)	0.003 (0.37)	0.008 (0.91)	-0.008 (-1.39)	-0.010 (-1.43)	-0.007 (-1.09)	-0.011 (-1.57)	-0.008 (-1.23)
Log (Manager Tenure)	-0.005 (-0.62)	-0.010 (-1.15)	-0.006 (-0.63)	-0.010 (-1.16)	-0.007 (-0.83)	0.004 (0.75)	0.001 (0.15)	0.003 (0.51)	0.001 (0.15)	0.003 (0.40)
Log (Stock Illiquidity)	0.084*** (6.86)	0.070*** (5.71)	0.060*** (5.28)	0.060*** (5.33)	0.056*** (5.12)	0.042*** (7.27)	0.034*** (5.61)	0.028*** (5.01)	0.029*** (5.19)	0.027*** (4.83)
R-squared	0.865	0.864	0.864	0.865	0.865	0.191	0.203	0.202	0.206	0.204
Obs	70,842	58,263	58,263	58,263	58,263	70,842	58,263	58,263	58,263	58,263

Table IA6—Continued

Panel B: Style-adjusted Fund Performance (in %) Regressed on Lagged Style-adjusted Overpricing										
	Style-adjusted Return					Style & FFC-adjusted Return				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	0.824*** (5.06)	0.675*** (3.27)	0.852*** (4.21)	0.849*** (3.72)	1.014*** (4.49)	0.672*** (5.42)	0.652*** (4.33)	0.722*** (4.83)	0.712*** (3.97)	0.778*** (4.35)
Style-adjusted Overpricing	-3.638*** (-12.35)	-3.750*** (-11.81)		-2.125*** (-6.82)		-1.539*** (-8.05)	-1.519*** (-7.00)		-0.752*** (-3.54)	
Dummy (Style-adjusted Underpricing)			0.107*** (4.24)		0.045* (1.87)			0.063*** (3.68)		0.036** (2.15)
Dummy (Style-adjusted Overpricing)			-0.174*** (-5.73)		-0.102*** (-3.72)			-0.066*** (-3.34)		-0.036* (-1.90)
Sentiment				1.454** (2.25)	1.457** (2.26)				0.517 (0.81)	0.520 (0.81)
Style-adjusted Overpricing × Sentiment				-5.300*** (-11.74)					-2.502*** (-8.30)	
Dummy (Style-adjusted Underpricing) × Sentiment					0.317*** (7.09)					0.138*** (4.94)
Dummy (Style-adjusted Overpricing) × Sentiment					-0.408*** (-7.01)					-0.172*** (-4.61)
Active Share		0.493*** (4.84)	0.372*** (3.64)	0.520*** (5.22)	0.389*** (3.88)		0.242*** (3.20)	0.192** (2.52)	0.255*** (3.41)	0.199*** (2.64)
TR ²		-0.016** (-2.25)	-0.017** (-2.43)	-0.006 (-0.91)	-0.010 (-1.52)		-0.004 (-0.78)	-0.004 (-0.88)	0.001 (0.20)	-0.001 (-0.25)
ICI		0.158 (0.54)	0.013 (0.04)	0.221 (0.76)	0.070 (0.24)		-0.426** (-1.97)	-0.488** (-2.25)	-0.396* (-1.83)	-0.463** (-2.14)
Return Gap		-0.035** (-2.21)	-0.039** (-2.48)	-0.029* (-1.86)	-0.034** (-2.17)		-0.002 (-0.20)	-0.003 (-0.36)	0.001 (0.06)	-0.001 (-0.14)
Tracking Error		-0.017** (-2.23)	-0.019** (-2.39)	-0.013* (-1.73)	-0.016** (-2.04)		-0.000 (-0.05)	-0.001 (-0.16)	0.002 (0.32)	0.000 (0.09)
Lag (Fund Flow)	-0.004** (-2.40)	-0.003* (-1.80)	-0.003* (-1.84)	-0.003* (-1.87)	-0.003* (-1.91)	0.001 (0.67)	0.001 (0.45)	0.001 (0.44)	0.001 (0.43)	0.001 (0.41)
Log (Fund TNA)	-0.207*** (-20.31)	-0.221*** (-19.21)	-0.230*** (-19.66)	-0.217*** (-19.24)	-0.226*** (-19.76)	-0.126*** (-16.79)	-0.140*** (-17.16)	-0.143*** (-17.69)	-0.138*** (-17.11)	-0.141*** (-17.62)
Expense Ratio	-0.028 (-0.90)	-0.029 (-0.83)	-0.022 (-0.65)	-0.036 (-1.08)	-0.032 (-0.95)	-0.037 (-1.54)	-0.052* (-1.93)	-0.050* (-1.86)	-0.055** (-2.08)	-0.054** (-2.03)
Turnover	0.040*** (2.82)	0.049*** (3.11)	0.045*** (2.85)	0.054*** (3.46)	0.049*** (3.16)	0.016 (1.44)	0.013 (1.07)	0.011 (0.94)	0.015 (1.26)	0.013 (1.10)
Log (Fund Age)	0.051* (1.93)	0.076** (2.56)	0.076*** (2.66)	0.064** (2.15)	0.069** (2.41)	-0.006 (-0.28)	0.019 (0.87)	0.019 (0.88)	0.013 (0.60)	0.015 (0.73)
Log (Manager Tenure)	-0.001 (-0.10)	0.001 (0.12)	0.004 (0.35)	0.002 (0.16)	0.003 (0.30)	0.004 (0.58)	0.008 (1.02)	0.009 (1.13)	0.008 (1.04)	0.009 (1.10)
Log (Stock Illiquidity)	0.082*** (9.76)	0.066*** (6.77)	0.053*** (5.49)	0.056*** (5.80)	0.048*** (5.08)	0.029*** (5.13)	0.025*** (3.70)	0.020*** (3.01)	0.020*** (3.01)	0.018*** (2.73)
R-squared	0.057	0.064	0.061	0.070	0.066	0.064	0.068	0.067	0.070	0.069
Obs	70,892	58,323	58,323	58,323	58,323	70,892	58,323	58,323	58,323	58,323

Table IA7: Overpricing and Mutual Fund Performance (Annual)

This table presents the results of the following annual panel regressions with year and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$Perf_{f,t} = \alpha_0 + \beta_1 Overpricing_{f,t-1} + \beta_2 Sentiment_{t-1} + \beta_3 Overpricing_{f,t-1} \times Sentiment_{t-1} + cM_{f,t-1} + e_{f,t},$$

where $Perf_{f,t}$ refers to the average monthly return of fund f in year t , adjusted by the benchmark return of funds or benchmark and Fama-French-Carhart (FFC) model, $Overpricing_{f,t-1}$ is the average quarterly overpricing level, $Sentiment_{t-1}$ is the average monthly Baker and Wurgler (2007) market sentiment index, and the vector M stacks all other control variables, including the Active Share, (logistic transformation of) R-square, Industry Concentration Index, Return Gap, Tracking Error, Lag(Fund Return), Lag(Fund Flow), Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age), Log(Manager Tenure) and Log(Stock Illiquidity). $Overpricing_{f,t-1}$ can be further replaced with two dummy variables, $Dummy(Underpricing)_{f,t-1}$ (takes a value of one if the $Overpricing_{f,t-1}$ is in the bottom decile across all funds in that year and zero otherwise) and $Dummy(Overpricing)_{f,t-1}$ (takes a value of one if the $Overpricing_{f,t-1}$ is in the top decile across all funds in that year and zero otherwise). Appendix A provides detailed definitions for each variable. Numbers with “*”, “**”, and “***” are significant at the 10%, 5%, and 1% levels, respectively.

Table IA7—Continued

	Benchmark-adjusted Fund Performance (in %) Regressed on Lagged Overpricing									
	Benchmark-adjusted Return					Benchmark & FFC-adjusted Return				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	0.480** (2.55)	0.235 (1.03)	-0.170 (-0.82)	0.137 (0.63)	0.234 (1.20)	0.727*** (5.37)	0.803*** (5.03)	0.499*** (3.51)	0.677*** (4.47)	0.604*** (4.48)
Overpricing	-1.106*** (-3.92)	-0.996*** (-3.00)		0.166 (0.49)		-0.857*** (-4.38)	-0.763*** (-3.36)		-0.256 (-1.11)	
Dummy (Underpricing)			0.086*** (4.11)		0.036* (1.79)			0.052*** (3.41)		0.029* (1.90)
Dummy (Overpricing)			-0.053 (-1.64)		0.018 (0.57)			-0.042* (-1.83)		-0.014 (-0.62)
Sentiment				2.061*** (13.51)	-0.111*** (-3.64)				0.877*** (8.19)	-0.074*** (-3.10)
Overpricing × Sentiment				-5.033*** (-14.65)					-2.197*** (-9.08)	
Dummy (Underpricing) × Sentiment					0.251*** (8.14)					0.115*** (5.29)
Dummy (Overpricing) × Sentiment					-0.439*** (-8.88)					-0.178*** (-5.24)
Active Share		0.465*** (4.72)	0.431*** (4.49)	0.490*** (5.11)	0.449*** (4.80)		0.117 (1.63)	0.089 (1.26)	0.128* (1.81)	0.096 (1.37)
TR ²		-0.016** (-2.04)	-0.017** (-2.22)	-0.000 (-0.07)	-0.006 (-0.79)		-0.017*** (-3.21)	-0.018*** (-3.42)	-0.011** (-2.03)	-0.014*** (-2.59)
ICI		0.257 (0.80)	0.205 (0.63)	0.327 (1.05)	0.274 (0.88)		-0.393* (-1.70)	-0.429* (-1.86)	-0.362 (-1.59)	-0.400* (-1.75)
Return Gap		-0.069*** (-2.69)	-0.070*** (-2.74)	-0.060** (-2.36)	-0.061** (-2.40)		-0.011 (-0.60)	-0.013 (-0.68)	-0.007 (-0.39)	-0.009 (-0.47)
Tracking Error		-0.034*** (-2.60)	-0.034*** (-2.60)	-0.013 (-1.05)	-0.021* (-1.70)		-0.023*** (-2.96)	-0.023*** (-2.92)	-0.014* (-1.80)	-0.017** (-2.28)
Lag (Fund Flow)	-0.022*** (-11.02)	-0.024*** (-10.71)	-0.024*** (-10.64)	-0.025*** (-10.86)	-0.024*** (-10.72)	-0.007*** (-5.17)	-0.008*** (-5.24)	-0.008*** (-5.17)	-0.009*** (-5.37)	-0.008*** (-5.25)
Log (Fund TNA)	-0.194*** (-19.69)	-0.211*** (-18.49)	-0.213*** (-18.74)	-0.209*** (-18.88)	-0.209*** (-18.98)	-0.128*** (-16.93)	-0.136*** (-15.81)	-0.138*** (-16.19)	-0.135*** (-15.95)	-0.136*** (-16.21)
Expense Ratio	-0.019 (-0.56)	-0.020 (-0.49)	-0.021 (-0.53)	-0.029 (-0.73)	-0.030 (-0.75)	-0.022 (-0.89)	-0.033 (-1.14)	-0.033 (-1.15)	-0.037 (-1.28)	-0.037 (-1.29)
Turnover	0.015 (1.02)	0.011 (0.63)	0.011 (0.64)	0.020 (1.19)	0.016 (0.95)	-0.001 (-0.10)	-0.003 (-0.28)	-0.003 (-0.29)	0.001 (0.06)	-0.001 (-0.11)
Log (Fund Age)	0.032 (1.26)	0.035 (1.19)	0.033 (1.10)	0.014 (0.44)	0.021 (0.68)	0.004 (0.23)	0.008 (0.40)	0.006 (0.31)	-0.002 (-0.08)	0.001 (0.04)
Log (Manager Tenure)	-0.009 (-0.96)	-0.013 (-1.18)	-0.013 (-1.19)	-0.013 (-1.19)	-0.016 (-1.41)	-0.014* (-1.79)	-0.016* (-1.85)	-0.016* (-1.85)	-0.016* (-1.85)	-0.017* (-1.95)
Log (Stock Illiquidity)	0.086*** (10.54)	0.077*** (8.02)	0.076*** (7.87)	0.067*** (7.08)	0.070*** (7.34)	0.027*** (4.63)	0.027*** (3.99)	0.026*** (3.78)	0.023*** (3.37)	0.023*** (3.41)
R-squared	0.063	0.071	0.071	0.090	0.085	0.047	0.053	0.053	0.061	0.058
Obs	19,949	16,801	16,801	16,801	16,801	19,949	16,801	16,801	16,801	16,801

Table IA8: Overpricing and Mutual Fund Flows (Morningstar Style-adjusted)

Panel A presents the results of the following quarterly panel regressions with style-quarter fixed effects and their corresponding t-statistics with standard errors clustered at the style-quarter level,

$$Flow_{f,q} = \alpha_0 + \beta_1 Overpricing_{f,q-1} + \beta_2 Overpricing_{f,q-1} \times Sentiment_{q-1} + \beta_4 Perf_{f,q-1} + cM_{f,q-1} + e_{f,q},$$

where $Flow_{f,q}$ refers to the average monthly flow of fund f in quarter q , $Overpricing_{f,q-1}$ is the overpricing level, $Sentiment_{q-1}$ is the average monthly Baker and Wurgler (2007) market sentiment index, $Perf_{f,q-1}$ is the average monthly fund return, and the vector M stacks all other control variables, including the Active Share, (logistic transformation of) R-square, Industry Concentration Index, Return Gap, Tracking Error, Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age) and Log(Manager Tenure). $Overpricing_{f,q-1}$ can be further replaced with two dummy variables, $Dummy(Underpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter and zero otherwise) and $Dummy(Overpricing)_{f,q-1}$ (takes a value of one if the $Overpricing_{f,q-1}$ is in the top decile across all funds in that quarter and zero otherwise). Fund style is defined according to the 3×3 Morningstar style box. Panel B presents the results of the following quarterly panel regressions with quarter and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$STYadj Flow_{f,q} = \alpha_0 + \beta_1 STYadj Overpricing_{f,q-1} + \beta_2 Sentiment_{q-1} + \beta_3 STYadj Overpricing_{f,q-1} \times Sentiment_{q-1} + cM_{f,q-1} + e_{f,q},$$

where $STYadj Flow_{f,q}$ refers to the average monthly style-adjusted flow of fund f in quarter q , $STYadj Overpricing_{f,q-1}$ is the style-adjusted overpricing level (adjusted by netting out the style average). $STYadj Overpricing_{f,q-1}$ can be further replaced with two dummy variables, $Dummy(STYadj Underpricing)_{f,q-1}$ (takes a value of one if the $STYadj Overpricing_{f,q-1}$ is in the bottom decile across all funds in that quarter and zero otherwise) and $Dummy(STYadj Overpricing)_{f,q-1}$ (takes a value of one if the $STYadj Overpricing_{f,q-1}$ is in the top decile across all funds in that quarter and zero otherwise). All other variables are defined as above. Appendix A provides detailed definitions for each variable. Numbers with “*”, “**”, and “***” are significant at the 10%, 5%, and 1% levels, respectively.

Table IA8—Continued

	Panel A: Fund Flow (in %) Regressed on Lagged Overpricing							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Overpricing	2.347*** (4.66)		1.686*** (2.92)		0.718 (1.26)		0.700 (1.23)	
Dummy (Underpricing)		-0.214*** (-4.16)		-0.143** (-2.49)		-0.119** (-2.02)		-0.115* (-1.95)
Dummy (Overpricing)		0.145*** (2.73)		0.162*** (2.88)		0.118** (2.14)		0.109** (2.01)
Overpricing × Sentiment					4.438*** (3.90)		1.987* (1.84)	
Dummy (Underpricing) × Sentiment						-0.129 (-1.49)		-0.021 (-0.23)
Dummy (Overpricing) × Sentiment						0.307** (2.36)		0.143 (1.20)
Fund Return _{q-1} × Sentiment							-0.233*** (-9.13)	-0.238*** (-9.40)
Active Share			0.855*** (5.38)	0.910*** (5.98)	0.859*** (5.40)	0.903*** (5.96)	0.931*** (5.96)	0.947*** (6.37)
TR ²			-0.036** (-2.13)	-0.036** (-2.08)	-0.043*** (-2.64)	-0.040** (-2.38)	-0.051*** (-3.18)	-0.050*** (-3.09)
ICI			-1.060** (-2.36)	-1.010** (-2.26)	-1.092** (-2.43)	-1.060** (-2.38)	-1.217*** (-2.78)	-1.208*** (-2.78)
Return Gap			-0.052 (-1.57)	-0.052 (-1.57)	-0.059* (-1.82)	-0.056* (-1.71)	-0.069** (-2.21)	-0.069** (-2.20)
Tracking Error			-0.044** (-2.08)	-0.044** (-2.08)	-0.049** (-2.39)	-0.047** (-2.27)	-0.058*** (-2.90)	-0.057*** (-2.88)
Fund Return _{q-1}	0.368*** (16.51)	0.366*** (16.33)	0.379*** (15.47)	0.378*** (15.37)	0.388*** (16.89)	0.382*** (16.09)	0.495*** (24.32)	0.495*** (24.33)
Fund Return _{q-4:q-2}	0.901*** (19.43)	0.901*** (19.41)	0.916*** (18.43)	0.915*** (18.42)	0.927*** (18.75)	0.920*** (18.51)	0.945*** (19.69)	0.942*** (19.62)
Log (Fund TNA)	0.020** (2.39)	0.021** (2.45)	0.031*** (3.32)	0.032*** (3.44)	0.030*** (3.28)	0.031*** (3.41)	0.027*** (3.03)	0.028*** (3.05)
Expense Ratio	-0.011 (-0.25)	-0.001 (-0.03)	-0.011 (-0.22)	-0.011 (-0.22)	-0.007 (-0.14)	-0.008 (-0.17)	-0.007 (-0.15)	-0.009 (-0.19)
Turnover	-0.044 (-1.60)	-0.044 (-1.57)	-0.049 (-1.61)	-0.048 (-1.56)	-0.052* (-1.70)	-0.049 (-1.59)	-0.066** (-2.20)	-0.066** (-2.18)
Log (Fund Age)	-0.633*** (-28.14)	-0.636*** (-28.11)	-0.607*** (-24.54)	-0.609*** (-24.59)	-0.605*** (-24.49)	-0.608*** (-24.56)	-0.602*** (-24.57)	-0.604*** (-24.60)
Log (Manager Tenure)	0.077*** (4.64)	0.079*** (4.71)	0.057*** (3.10)	0.057*** (3.07)	0.058*** (3.14)	0.058*** (3.13)	0.060*** (3.24)	0.060*** (3.26)
R-squared	0.149	0.149	0.159	0.159	0.160	0.160	0.165	0.165
Obs	70,836	70,836	58,263	58,263	58,263	58,263	58,263	58,263

Table IA8—Continued

Panel B: Style-adjusted Fund Flow (in %) Regressed on Lagged Style-adjusted Overpricing								
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	7.696*** (8.72)	7.694*** (8.69)	4.777*** (4.70)	4.630*** (4.53)	-0.220 (-0.20)	-0.325 (-0.29)	0.426 (0.38)	0.338 (0.30)
Style-adjusted Overpricing	2.875*** (3.31)		3.322*** (3.45)		2.511** (2.51)		2.612*** (2.63)	
Dummy (Style-adjusted Underpricing)		-0.226*** (-3.33)		-0.215*** (-2.87)		-0.201** (-2.53)		-0.202** (-2.57)
Dummy (Style-adjusted Overpricing)		0.072 (1.01)		0.066 (0.86)		0.019 (0.25)		0.015 (0.20)
Sentiment					-38.193*** (-12.65)	-38.084*** (-12.61)	-30.930*** (-10.15)	-30.789*** (-10.11)
Style-adjusted Overpricing × Sentiment					2.880*** (2.73)		1.021 (0.98)	
Dummy (Style-adjusted Underpricing) × Sentiment						-0.081 (-0.71)		0.030 (0.27)
Dummy (Style-adjusted Overpricing) × Sentiment						0.287*** (2.80)		0.170* (1.73)
Fund Return _{q-1} × Sentiment							-0.188*** (-12.20)	-0.190*** (-12.52)
Active Share			0.921** (2.54)	1.091*** (3.03)	0.919** (2.53)	1.081*** (3.00)	1.010*** (2.80)	1.156*** (3.23)
TR ²			0.078*** (3.28)	0.078*** (3.30)	0.073*** (3.08)	0.074*** (3.15)	0.065*** (2.76)	0.065*** (2.77)
ICI			-1.179 (-1.37)	-1.002 (-1.16)	-1.199 (-1.40)	-1.023 (-1.19)	-1.141 (-1.34)	-0.982 (-1.15)
Return Gap			-0.026 (-0.93)	-0.022 (-0.79)	-0.029 (-1.05)	-0.025 (-0.89)	-0.044 (-1.63)	-0.041 (-1.51)
Tracking Error			-0.034** (-2.13)	-0.031** (-1.96)	-0.037** (-2.30)	-0.034** (-2.14)	-0.041** (-2.54)	-0.039** (-2.44)
Fund Return _{q-1}	0.236*** (20.97)	0.234*** (20.87)	0.248*** (20.71)	0.244*** (20.54)	0.251*** (20.87)	0.247*** (20.73)	0.341*** (23.00)	0.339*** (22.92)
Fund Return _{q-4;q-2}	0.594*** (29.32)	0.592*** (29.31)	0.604*** (28.51)	0.600*** (28.49)	0.608*** (28.60)	0.604*** (28.52)	0.629*** (28.97)	0.626*** (28.93)
Log (Fund TNA)	-0.501*** (-12.61)	-0.500*** (-12.57)	-0.524*** (-11.95)	-0.520*** (-11.86)	-0.528*** (-12.01)	-0.522*** (-11.91)	-0.541*** (-12.37)	-0.537*** (-12.30)
Expense Ratio	0.168 (1.16)	0.172 (1.18)	0.215 (1.31)	0.215 (1.31)	0.218 (1.32)	0.218 (1.32)	0.240 (1.46)	0.240 (1.45)
Turnover	0.085 (1.56)	0.088 (1.61)	0.036 (0.63)	0.040 (0.70)	0.033 (0.58)	0.038 (0.65)	0.024 (0.43)	0.028 (0.49)
Log (Fund Age)	-1.233*** (-8.91)	-1.233*** (-8.88)	-1.104*** (-7.08)	-1.103*** (-7.03)	-1.098*** (-7.05)	-1.101*** (-7.03)	-1.087*** (-6.95)	-1.089*** (-6.92)
Log (Manager Tenure)	0.098*** (2.78)	0.098*** (2.80)	0.094** (2.47)	0.092** (2.42)	0.094** (2.47)	0.093** (2.43)	0.095** (2.51)	0.094** (2.47)
R-squared	0.099	0.099	0.107	0.106	0.107	0.107	0.112	0.112
Obs	70,886	70,886	58,323	58,323	58,323	58,323	58,323	58,323

Table IA9: Overpricing and Mutual Fund Flow (Annual)

This table presents the results of the following annual panel regressions with year and fund fixed effects and their corresponding t-statistics with standard errors clustered at the fund level,

$$Flow_{f,t} = \alpha_0 + \beta_1 Overpricing_{f,t-1} + \beta_2 Sentiment_{t-1} + \beta_3 Overpricing_{f,t-1} \times Sentiment_{t-1} + \beta_4 Perf_{t-1} + cM_{f,t-1} + e_{f,t},$$

where $Flow_{f,t}$ refers to the average monthly flow of fund f in year t , $Overpricing_{f,t-1}$ is the average quarterly overpricing level, $Sentiment_{t-1}$ is the average monthly Baker and Wurgler (2007) market sentiment index, $Perf_{f,t-1}$ is the average monthly fund return, and the vector M stacks all other control variables, including the Active Share, (logistic transformation of) R-square, Industry Concentration Index, Return Gap, Tracking Error, Log(Fund TNA), Expense Ratio, Turnover, Log(Fund Age) and Log(Manager Tenure). $Overpricing_{f,t-1}$ can be further replaced with two dummy variables, $Dummy(Underpricing)_{f,t-1}$ (takes a value of one if the $Overpricing_{f,t-1}$ is in the bottom decile across all funds in that year and zero otherwise) and $Dummy(Overpricing)_{f,t-1}$ (takes a value of one if the $Overpricing_{f,t-1}$ is in the top decile across all funds in that year and zero otherwise). Appendix A provides detailed definitions for each variable. Numbers with “*”, “**”, and “***” are significant at the 10%, 5%, and 1% levels, respectively.

	Fund Flow (in %) Regressed on Lagged Overpricing					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	3.131*** (3.90)	4.442*** (6.79)	2.235** (2.44)	3.505*** (4.34)	5.566*** (6.10)	6.939*** (8.36)
Overpricing	2.783*** (2.83)		3.145*** (2.87)		3.602*** (3.24)	
Dummy (Underpricing)		-0.159** (-2.07)		-0.116 (-1.41)		-0.194** (-2.31)
Dummy (Overpricing)		0.086 (0.89)		0.111 (1.09)		0.123 (1.18)
Sentiment					0.533 (1.17)	-0.465*** (-4.81)
Overpricing × Sentiment					-2.255** (-2.18)	
Dummy (Underpricing) × Sentiment						0.408*** (3.39)
Dummy (Overpricing) × Sentiment						-0.094 (-0.77)
Active Share			0.659* (1.68)	0.833** (2.17)	0.660* (1.69)	0.813** (2.11)
TR ²			0.080*** (2.73)	0.085*** (2.87)	0.087*** (2.92)	0.090*** (3.04)
ICI			-1.249 (-1.34)	-1.066 (-1.15)	-1.214 (-1.30)	-1.020 (-1.10)
Return Gap			-0.029 (-0.42)	-0.016 (-0.23)	-0.024 (-0.34)	-0.009 (-0.13)
Tracking Error			-0.016 (-0.53)	-0.015 (-0.51)	-0.007 (-0.22)	-0.011 (-0.35)
Fund Return _{t-1}	0.529*** (20.53)	0.520*** (20.71)	0.574*** (20.77)	0.564*** (21.03)	0.569*** (20.70)	0.558*** (20.96)
Fund Return _{t-2}	0.513*** (21.51)	0.512*** (21.54)	0.526*** (21.06)	0.525*** (21.09)	0.527*** (21.05)	0.524*** (21.05)
Log (Fund TNA)	-1.060*** (-22.11)	-1.057*** (-22.12)	-1.106*** (-20.53)	-1.098*** (-20.55)	-1.105*** (-20.51)	-1.096*** (-20.56)
Expense Ratio	-0.064 (-0.40)	-0.059 (-0.37)	-0.118 (-0.68)	-0.117 (-0.67)	-0.123 (-0.70)	-0.125 (-0.71)
Turnover	0.047 (0.71)	0.048 (0.72)	-0.022 (-0.34)	-0.019 (-0.29)	-0.018 (-0.27)	-0.014 (-0.21)
Log (Fund Age)	-0.759*** (-5.96)	-0.756*** (-5.93)	-0.732*** (-5.25)	-0.724*** (-5.19)	-0.742*** (-5.29)	-0.736*** (-5.25)
Log (Manager Tenure)	0.102** (2.39)	0.103** (2.42)	0.081* (1.80)	0.079* (1.77)	0.081* (1.80)	0.081* (1.80)
R-squared	0.219	0.219	0.239	0.239	0.239	0.239
Obs	19,949	19,949	16,801	16,801	16,801	16,801