THREE ESSAYS ON COST AND BENEFIT OF PUBLIC DISCLOSURE IN ASSET MANAGEMENT INDUSTRY

XENOMORPH STIG

PhD

THE HONG KONG POLYTECHNIC UNIVERSITY

2020

The Hong Kong Polytechnic University

School of Accounting and Finance

THREE ESSAYS ON COST AND BENEFIT OF PUBLIC DISCLOSURE IN ASSET MANAGEMENT INDUSTRY

XENOMORPH STIG

A thesis submitted in partial fulfillment of
the requirements for the degree of

Doctor of Philosophy

March 2020

CERTIFICATE OF ORIGINALITY

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it reproduces no material previously published or written, nor material that has been accepted for the award of any other degree or diploma, except where due acknowledgement has been made in the text.

_____ (Signed)

XENOMORPH STIG (Name of student)

DEDICATION

This thesis is dedicated to my mother and father who provided both emotional and financial support

ABSTRACT

This thesis consists of three essays. The commonality of the essays is that I investigate the cost and benefit of public disclosure in the asset management industry. In the first essay, I examine how investors react to the public disclosure of the SEC comment letters. The second essay studies the impact of regulatory oversight on mutual fund risk-taking behaviors. In the third essay, we investigate whether mandatory portfolio disclosure enables investors to better evaluate and select hedge fund managers.

For the first essay, I find that underlying mutual funds experience significantly lower net flow post-disclosure if the comment letters disclosed by the fund management company are requested more by investors. In addition, funds with higher investor attention underperform subsequently. Taken together, my findings suggest that the SEC review process can help investor make better investment decision. Taking advantage of the unique disclosure structure of the SEC comment letter, I document that underlying mutual funds experience lower net flow during the non-public pre-disclosure period, but not after the public disclosure. Given the usefulness of the SEC comment letter and the flow reaction during the pre-disclosure period, I argue that the SEC may want to consider a timelier manner in disclosing the comment letters.

In the second essay, I find that during the SEC review process, underlying mutual funds do not change their risk-taking behaviors; after resolution of the review process, however, underlying mutual funds take more risks. In addition, the shift in risk-taking behaviors after resolution does not produce superior fund returns. A further investigation reveals that the topic of the comment letters also matters. Specifically, funds that receive non-risk-related comment letters reduce risk-taking during the review process but increase risk-taking after resolution of the review process; on the other hand, funds that receive risk-related comment letters do not drastically change their risk-taking behaviors. Overall, the first two chapters

document the cost and benefit of regulatory oversight and public disclosure of comment letters

In the third essay, we provide causal evidence that mandatory hedge fund portfolio disclosure helps investors evaluate and select managers. We study investor purchasing and selling decisions, captured by hedge fund flows. After a fund begins filing Form 13F with the Securities and Exchange Commission, we find that investor flows are better able to predict fund performance (i.e., money becomes "smarter"). We analyze cross-sectional differences in the precision, usefulness, and access of information, and find evidence that the increase in smart money is driven by the information channel. In addition, using a subset of funds of hedge funds ("FoFs") for which we have holdings data, we find that FoFs earn superior returns on their portfolios of 13F-filing hedge funds (relative to their positions in non-filing hedge funds). These results help contribute to the cost-benefit analysis of mandatory portfolio disclosure.

Although the three essays are independent, they all investigate the cost and benefit of public disclosure in asset management industry. By showing the evidence, my essays provide policy makers with a more balanced understanding of the impact of public disclosure.

ACKNOWLEDGMENT

First and foremost, I am greatly indebted to my chief supervisor, Dr. Byoung Uk Kang, for his guidance, encouragement, and support during my Ph.D. journey. I would also like to thank my co-supervisors, Prof. Vikas Agarwal, Dr. Gang Hu, and Dr. Yue Cheong Chan. This thesis would be impossible without their invaluable instructions.

I am grateful to faculty members and doctoral students from School of Accounting and Finance, The Hong Kong Polytechnic University for their addition of companion and inspiration to my doctoral journey. Thanks to the school and university for the generous financial support for my study. I also wish to thank faculty and students from Department of Finance, Georgia State University for their hospitality and support.

Last but not least, I would like to express my gratitude to my parents. Their love supports me and accompanies me in my life.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Chapter One

DO INVESTORS CARE ABOUT SEC COMMENT LETTERS? EVIDENCE FROM MUTUAL FUNDS

1.1 INTRODUCTION

Researchers have been studying how mutual fund investors make their investment decisions for decades, both past fund performance and fund characteristics (e.g., fund size, fund age, fees, etc.) have been found to be associated with fund flows (Chevalier and Ellison, 1997; Sirri and Tufano, 1998; Barber, Odean, and Zheng, 2005; Huang, Wei, and Yan, 2007). Investors are also found to have behavioral bias: they punish fund managers with foreign-sounding names by investing less (withdrawing more) following good (bad) fund performance (Kumar, Niessen-Ruenzi, and Spalt, 2015); they chase past stock performance of the funds' management companies even though past stock performance does not predict future performance of the affiliated funds (Sialm and Tham, 2016); there is a "trust premium" among fund investors and they are willing to withdraw money if the management company is acquired by another company (Gennaioli, Shleifer, and Vishny, 2015; Kostovetsky, 2016). In this paper, I study mutual fund investor behaviors by examining how mutual fund investors react to regula-

tory oversight and whether regulatory oversight can help investor make better investment decision.

After the Sarbanes-Oxley Act of 2002 (SOX), the U.S. Securities and Exchange Commission ("SEC") is required to periodically review all registrants' filings at least once every three years. When the review identifies potentially deficient disclosures or accounting treatment, the SEC issues a comment letter to the company, and the company is required to respond in a timely manner (usually within 10 working days).[1.1] After receiving the response from the company, the SEC decides whether it is satisfied with the response, including the actions taken or to be taken by the company. If the SEC is satisfied, then a final letter ("no further comment" letter) is issued to the company concluding the review process; if the SEC is not satisfied or has further comments, a follow-up comment letter is issued to the company, and the company again has to respond; the process continues until the SEC is satisfied and a final letter is issued to conclude the entire review process. Prior studies have examined many aspects of the SEC review process, including determinants of receiving a letter, insider trading activity, and subsequent changes in disclosures or accounting policies (Cassell, Dreher, and Myers, 2013; Dechow, Lawrence, and Ryans, 2016; Kubick, Lynch, Mayberry, and Omer, 2016; Li and Liu, 2017). However, very few studies have directly examined whether investors, or other stakeholders, find the comment letter process to be useful. One recent paper (Cunningham, Schmardebeck, and Wang, 2017) studies whether private lenders, namely banks, respond to a company's receipt of a 10-K comment letter by charging higher interest rates on new loans. Since the SEC also reviews filings of investment companies and issues comment letters to them, I can study how investor directly reacts to the SEC comment letter by examining flows of underlying mutual funds after the fund management company's disclosure of the SEC comment letters.

There are several distinctive features that distinguish common listed companies from

[1.1] The initial (and any follow-up) comment letter from the SEC has the form type of "UPLOAD" in EDGAR and the response by firm has the form type of "CORRESP".

mutual fund companies regarding the review process. First, mutual fund investor can often invest in or withdraw from mutual funds freely as mutual funds are required to provide daily liquidity to their investors.[1.2] If an investor regards fund company's receipt of the SEC comment letter as a bad signal or simply thinks the fund is now riskier, she may want to withdraw her funds if she's already a shareholder or choose not to invest in this fund if she's looking for investment opportunities. This makes mutual fund industry an ideal laboratory to study investor behavior (and direct reaction). Second, fund investor gets rewarded in the form of fund returns which is largely determined by fund manager; whereas stock investor gets rewarded in the form of stock returns (and sometimes dividends) which can be determined by many other exogenous factors. Stock price may be easily affected by the disclosure of comment letter,[1.3] but fund manager skill is unlikely to be affected by the same event. Therefore, fund investor should not suffer too much post-disclosure; on the other hand, however, if the comment letter points out some inherent operational risk that may lead the fund to fail, investor should get out as soon as possible. Third, listed companies and fund companies file different sets of forms to the SEC and the review processes are handled by two different divisions within the SEC.[1.4] The focus of the review and the content of comment letters may be very different. Although the SEC is required to review every registrant's filings at least once every three years, investment companies are less likely to get reviewed by the SEC. According to the SEC annual report, in 2017, 56% of public companies' filings were reviewed by the SEC whereas only 35% of investment companies' filings were reviewed.[1.5] Fourth, comment letter is sent to, corresponded with, and disclosed

[1.2] Although some funds do charge front- and/or rear-load fees, the stock investor may face liquidity issue and may have to bear some premium when buying and selling stocks.

[1.3] This is especially true if the comment letter is about some key accounting figures, which will affect the fundamental valuation of the firm. In fact, Dechow et al. (2016) finds a small negative return at the comment letter release date and a negative drift in returns of 1 to 5 percent over the next 50 days following the release.

[1.4] The Division of Corporation Finance is in charge of reviewing filings of listed companies and the Division of Investment Management is in charge of reviewing filings of fund companies.

[1.5] During the past 5 years, in general, more than half of the listed firms were reviewed each year whereas only one third of the investment companies were reviewed each year. For detailed statistics in 2017, see: https://www.sec.gov/files/sec-2017-agency-financial-report.pdf; for statistics of other years, visit https://www.sec.gov/reports?field_article_sub_type_secart_value=Reports+and+Publications-AnnualReports and check

at firm level. For multi-fund company, a single comment letter may affect investor decision on several funds if investor is inattention and does not distinguish among underlying funds.[1.6] Fifth, it seems that the review process of investment companies is somewhat less formal compared to that of public listed companies. The initial comment letter is often not written but rather conducted through telephone or email. In fact, there are many concluded review processes without the initial comment letter (form "UPLOAD") disclosed in the Electronic Data Gathering, Analysis, and Retrieval ("EDGAR") system.

When the entire set of comment letters is disclosed to the public, there are some potential cost and benefit. In theory, the disclosure provides fund investors with additional and potentially material information. Rational and sophisticated investors should be able to benefit from the disclosure and make better investment decision. On the other hand, because of the existence of irrational and unsophisticated investors, the overall effect of public disclosure is uncertain.[1.7] In fact, if the SEC review process and comment letters stay private and confidential indefinitely, the sophisticated investors may have incentives to perform their own due diligence and conduct similar review process. Therefore, it is interesting and important to examine how investors react to such public disclosure and whether they can benefit from it.

To study how investor reacts to public disclosure of the SEC comment letter sent to and corresponded with mutual fund company, I construct a monthly panel dataset containing fund net flows, comment letter disclosure dummy and a battery of control variables from May 2005 to December 2016. The comment letter dataset have been used in previous studies (Cassell et al., 2013; Dechow et al., 2016; Kubick et al., 2016; Li and Liu, 2017; Cunningham et al., 2017). I merge fund names from the SEC with CRSP Mutual Fund Database and Morningstar Mutual Fund Database to get all the control variables. I restricted the sample

for "Agency Financial Report" in each year.

[1.6] In the reminder of the paper, the term "comment-letter-disclosed fund" refers to a fund belonging to the fund company who has disclosed at least one comment letter.

[1.7] There are also potential cost and benefit from the perspective of fund managers, Chapter Two of this thesis discusses the impact of the SEC review on the fund managers' risk-taking behaviors.

to U.S. domestic actively managed equity mutual funds and the final sample contains 2,128 funds and 189,686 fund-month observations.

I start by investigating factors that affect the probability of receiving a SEC comment letter in the mutual fund industry. I find that the probability of receiving a SEC comment letter is positively associated with fund company total net assets, and turnover ratios; and negatively associated with age. However, the strongest predictor of fund company receiving a SEC comment letter is whether it has received a SEC comment letter in the previous year.

I continue my analysis by examining whether underlying mutual funds from comment-letter-disclosed fund company experience significantly lower net flow following the disclosure. I run panel regression using the full sample; specifically, I regress fund's next month net flow on the comment-letter-disclosure dummy (and separately, the number of comment letter disclosed) along with the control variables. The comment-letter-disclosure dummy equals to one if the fund company has disclosed at least one SEC comment letter in month t, and zero otherwise. The results show that comment letter disclosure (or the number of comment letter disclosed) has no impact on fund net flows. Given that there are only 6.7% cases in the sample where a fund has disclosed a comment letter, I further verify the findings by running the same regression using a propensity score matched sample and draw the same conclusion.

Perhaps this is not surprising if investor normally does not pay much attention to comment letters disclosed by mutual fund company. As the SEC states on its website: "These letters set forth staff positions and do not constitute an official expression of the SEC's views. The letters are limited to the specific facts of the filing in question and do not apply to other filings."[1.8] Therefore, investor should at least understand the comments in each comment letter before jumping to conclusion. I obtain EDGAR web traffic data from Ryans (2017) in which he carefully constructed a cleaned dataset from raw EDGAR log file.[1.9] Using his

[1.8]The full paragraph can be found here: https://www.sec.gov/fast-answers/answerscommentlettershtm.html

[1.9]The raw EDGAR log file can be found here: https://www.sec.gov/dera/data/edgar-log-file-data-set.html; The author wishes to thank James Ryans for providing the cleaned dataset. For details, please refer to Ryans (2017). The dataset can be found here: http://www.jamesryans.com/

data, I compare investor attention of comment letter of mutual fund with that of public company. Similarly to Dechow et al. (2016), the mean daily EDGAR requests for mutual fund comment letter also peaks at one day after disclosure; however, the mean number of EDGAR requests on that day is only 0.25 whereas the mean number of EDGAR requests for public company comment letter is 0.89 on the same day.[1.10] Moreover, the mean daily EDGAR requests for mutual fund comment letter never exceeds 0.1 on all other days over 60 days following disclosure. That been said, investor might react if attention were paid to these comment letters. To test this hypothesis, I regress fund's next month net flow on investor attention (measured by the natural logarithm of adjusted EDGAR downloads of the comment letters during disclosure month) along with the control variables for the subsample where the fund company did disclose at least one comment letter. The results show that higher investor attention is associated with lower fund net flows, suggesting that investor would react if attention were paid to the disclosed comment letters.

My next question addresses whether fund investor's response to disclosure of the SEC comment letter is justified. The flow reaction would be justified if the disclosure enables fund investor to make superior investment decision. I test this hypothesis by examining whether funds with high investor attention underperform subsequently and find that higher investor attention indeed predicts lower future fund performance. However, if disclosing comment letter *itself* is associated with future underperformance, fund investor should withdraw money *whenever* a fund discloses the SEC comment letter even without paying attention to the actual content of the comment letter. To address this issue, I test whether comment letter disclosure is associated with future underperformance and find that comment-letter-disclosed funds on average do not underperform non-disclosed funds. Taken together, my findings suggest that the SEC comment letter process is useful to fund investor and it could

[1.10]The mean number of EDGAR requests on disclosure day is 0.05 for mutual fund and 0.3 for public company. In addition, according to Dechow et al. (2016), the cumulated number of EDGAR requests over 50 days following disclosure for comment letters is only 1.7% of the number of requests for 10-Ks during the same period.

help investor make better decision if attention were paid to the disclosed comment letters.

A key feature of the comment letter process is that the communication between the SEC and the fund company is not disclosed to the public until the resolution of the entire review process.[1.11] In fact, several papers have examined what happens during the pre-disclosure period. Dechow et al. (2016) finds that insider trading is significantly higher than normal levels prior to the public disclosure of the SEC comment letters; Cunningham et al. (2017) documents that banks actively seek information about the SEC comment letter before public disclosure and charge higher interest rates as a result. My final analysis tests whether fund flow response exists during the non-public pre-disclosure period. Specifically, I rerun the baseline regression by using the month when the letter is actually sent instead of the month when it is disclosed to public as the event month; for example, if the SEC sends the initial comment letter in June and the review process concludes in July, but the entire review process is disclosed in September, I use June/July instead of September as the event month. To mitigate the confounding window effect, I further drop observations where the letter is sent and disclosed in the same month. The results show that these funds experience lower net flow during the pre-disclosure periods, suggesting that investors may be aware of the ongoing (but private) SEC review process even before public disclosure. To summarize, given the usefulness of the SEC comment letter and the flow reaction during the pre-disclosure period, I argue that the SEC may want to consider a timelier manner in disclosing the comment letter.

My paper contributes to several strands of literature. First, it is closely related to studies concerning mutual fund investor behaviors and mutual fund flow determinants. For example, a large body of literature has examined the impact of prior fund performance on fund flows (Chevalier and Ellison, 1997; Sirri and Tufano, 1998; Barber et al., 2005; Huang et al.,

[1.11] It is difficult to calculate the length of time between the initial comment and the final "no further comment" letter since very few number of the initial comment letters (form "UPLOAD") were disclosed in EDGAR; in Cunningham et al. (2017), they estimate that the average length is about 76 days for 10-K related comment letters.

2007). Several recent papers have studied mutual fund investor behaviors (Kumar et al., 2015; Kostovetsky, 2016; Sialm and Tham, 2016). My paper extends existing literature by examining how mutual fund investor reacts to regulatory oversight. It is also related to, but distinct from, a group of studies examining the consequences of mutual fund misconduct (Chapman-Davies, Parwada, and Tan, 2014; Charoenwong, Kwan, and Umar, 2019; Egan, Matvos, and Seru, 2019; Qian and Tanyeri, 2017; Wu, 2018). Misconduct, or scandal, is often serious and can have severe legal consequences; whereas the SEC comment letter process does not necessarily identifies material information concerning fund investors.[1.12] The SEC takes a "risk-based" approach in reviewing fund filings and sometimes may focus on regulation compliances.[1.13]

Second, my paper contributes to the literature on the SEC comment letter. Previous papers have examined the determinants and the cost of remediation of the SEC comment letter (Cassell et al., 2013; Heese, Khan, and Ramanna, 2017). Dechow et al. (2016) studies insider trading activity before public disclosure of the comment letter; Kubick et al. (2016) examines the consequences of receiving a tax-related comment letter; Li and Liu (2017) investigates how the SEC comment letter affects the price formation of initial public offerings (IPOs); Cunningham et al. (2017) studies the behaviors of the lender during the SEC comment letter process. I provide the first set of evidence on investor's direct reaction of the disclosure of the comment letter; I also show the usefulness of information revealed in the SEC comment letter process from the prospective of mutual fund investor.

Finally, my paper is complement to several recent studies using EDGAR log files. Drake, Roulstone, and Thornock (2016) investigates the usefulness of historical accounting reports; Boone, Schumann, and White (2019) studies the investor information acquisitions for foreign firms; Li and Sun (2020) examines expected return information embedded in investors'

[1.12] This is often the case for public listed firms; as an example, Cassell et al. (2013) find that only 211 of the 6,702 (i.e. about 3%) comment letter conversations in their sample resulted in a restatement.

[1.13] In one extreme case, a SEC comment letter points out that the filing was not made in the required fonts. For details of the review process, see https://www.sec.gov/investment/fund-disclosure-at-a-glance

information acquisition activity. I extend the literature to the mutual fund industry where investor can arguably get in and out more easily. In general, my findings are consistent with prior literature that investors are able to make better investment decision if they exert effort to acquire publicly available information.

My findings also have policy implications for financial regulators. The SEC review process is designed to provide investors with useful and material information about a filing registrant. In the setting of mutual fund industry, I find that (1) when fund company discloses the SEC comment letters, underlying funds experience lower net flows if the comment letters are downloaded more by investors; and (2) funds with higher investor attention underperform subsequently. Both findings generally support the notion that the SEC review process is useful to fund investors. However, information leakage may exist during the non-public pre-disclosure period, where I find that negative fund flow reaction exists. It seems that fund investors are reacting even though they are unable to see the contents of the comment letters. Given the investors' reaction during the pre-disclosure period and the overall usefulness of the information contend in the comment letters, I argue that the SEC may want to consider a timelier manner in disclosing the comment letter so that investors can acquire desired information before making investment decisions.

There are, however, some caveats of the paper. First, endogeneity may arise from the SEC's unobserved decision to review the filings of a specific fund company. Second, I cannot distinguish a fund company that is reviewed by the SEC but received no comment letter from a fund company that is not reviewed in the first place. Because my main findings come from the subsample where the comment letter *is indeed* received and disclosed, the bias should be less severe. Third, although Ryans (2017) tries the best to remove requests made by robots or automated web-crawlers from the raw EDGAR log file, the remaining requests may come from *any individual*, who is not necessarily a fund investor. On the other hand, however, since mutual fund comment letter is only available through EDGAR, requests made on these comment letters are likely to come from a specific group of individuals.

The remainder of this paper is organized as follows. Section 1.2 describes the institutional background to the SEC comment letter process and review related literature. Section 1.3 describes the data. Section 1.4 studies the determinants of receiving a SEC comment letter. Section 1.5 provides the empirical results on mutual fund flows. Section 1.6 shows evidence on future fund performance. Section 1.7 examines investor behavior during the pre-disclosure period. Section 1.8 concludes.

1.2 BACKGROUND AND RELATED LITERATURE

1.2.1 The SEC Comment Letter Review Process

The Disclosure Review and Accounting Office (DRAO) of the SEC's Division of Investment Management is responsible of reviewing the filings of investment companies registered with the SEC. Every company's filings must be reviewed at least once every three years; these filings include prospectuses, proxy statements, and shareholder reports for mutual funds, exchange traded funds (ETFs), closed-end funds, variable insurance products, unit investment trusts, and similar investment funds. The goal of the reviewing process is to ensure that the investors have the information they need to make informed investment decisions. The DRAO takes a "risk-based" approach in reviewing filings. The focus of review includes: filings by novel and complex funds; new disclosures (such as changes in response to the Commission's adoption of new rules); and disclosures that influence investment decisions, such as disclosures regarding strategies, risks, fees, and performance.

If questions arise during a review, the DRAO issues a comment letter to the reporting fund company. The letter expresses concerns of the SEC and the company has an opportunity to respond to the SEC in a timely manner. After receiving the response, the SEC evaluate the answers, including the actions taken and will be taken by the company. If the SEC is satisfied with the response, a "no further comment" letter is issued to the company signaling

the conclusion of the review process; if the SEC is not satisfied or has further questions, a subsequent comment letter is sent to the company and the review process goes on until the SEC is satisfied and a "no further comment" letter is issued to the company. Each review varies considerably by duration to resolution and the number of intermediate communication rounds between the SEC and the company. The outcome can also vary considerably. No action will be taken by the company if the SEC is satisfied with the answers provided by the company. Sometimes, however, the company may be required to file an amendment to certain filing or agree to adjust future filings. After the resolution of the review process, the SEC disseminates the set of comment letters via EDGAR, typically after a "grace period".[1.14]

Figure 1.1 illustrates the timeline of the SEC review process and how I measure certain main variables used in this study. In this sample, the initial SEC comment letter is sent to the fund company on May 4, and the entire review process concludes on June 26. Finally, the entire set of comment letters are disclosed to the public on August 8 through EDGAR. I measure the investor attention based on the number of EDGAR requests between August 8 and August 31 (as discussed in Section 1.5.2). The post-disclosure flow is measure at the beginning of September (as discussed in Section 1.5.1); whereas the pre-disclosure flow is measured at the beginning of June and July (as discussed in Section 1.7).

1.2.2 Literature Related to the SEC Review Process

Numerous papers have studied the SEC review process since the SEC decided to make its comment letters publicly available in 2004. One strand of literature examines the determinants of receiving a SEC comment letter. Cassell et al. (2013) finds that in addition to factors explicitly stated to increase SEC scrutiny in Section 408 of the Sarbanes-Oxley Act, low profitability, high complexity, engaging a small audit firm, and weaknesses in governance are positively associated with the receipt of a comment letter, the extent of comments, and

[1.14]The SEC publicly releases the comment letters and company responses no earlier than 20 days after the "no further comment" letter. For details, see: https://www.sec.gov/divisions/corpfin/cffilingreview.htm.

the cost of remediation. Heese et al. (2017) shows that firm's political connection positively predicts comment letter reviews and substantive characteristics of such reviews, including the number of issues evaluated and the seniority of SEC staff involved. Xiao (2018) documents that the initial registration statement attracts a lower extent of accounting comments from the SEC when auditor IPO expertise is higher.

Another group of studies investigate the consequences of receiving the SEC comment letters. Kubick et al. (2016) examines the tax avoidance behavior of firms prior to the issuance, and following the resolution, of SEC tax comment letters. Bozanic, Dietrich, and Johnson (2017) provides evidence that the SEC comment letter process generally enhances firms' disclosures, improves informational transparency for investors, and mitigates firms' litigation risk, but that some firms take actions that diminish these enhancements. Li and Liu (2017) investigates how regulatory oversight affects the price formation of initial public offerings and finds that IPO issuers reduce their offer price if they receive comment letters. Baugh, Kim, and Lee (2017) studies the effect of the SEC comment letters on firm's financial reporting quality; whereas Cunningham, Johnson, Johnson, and Lisic (2019) studies the effect on firm's earnings management.

The final batch of papers examines the investor reaction and usefulness of the SEC review process. Dechow et al. (2016) documents that insider trading is significantly higher than normal levels prior to the public disclosure of SEC comment letters relating to revenue recognition. Cunningham et al. (2017) investigates whether and how banks use private information about regulatory oversight of public disclosures through the SEC comment letter process. Duro, Heese, and Ormazabal (2019) analyzes the capital-market responses to firms' quarterly earnings releases following the disclosure of the comment letters; whereas Edwards, Klassen, and Pinto (2018) analyzes the investor response to tax related SEC comment letters.

A few remaining papers that study the SEC comment letter include Acito, Burks, and Johnson (2019), Cassell, Cunningham, and Lisic (2019), Ege, Glenn, and Robinson (2018), and Giamouridis, Koulikidou, and Leventis (2018). In this paper, I study the SEC comment

letter process in the mutual fund industry, which is an ideal laboratory to study investor behavior. I provide the first set of evidence on investor's direct reaction of the disclosure of the comment letter and also show the usefulness of information revealed in the SEC comment letter process from the perspective of mutual fund investors.

1.3 DATA AND SUMMARY STATISTICS

1.3.1 Sample Construction

Because comment letter is disclosed at fund company level (identified by Central Index Key, or CIK, in EDGAR), I start by constructing a list of mutual funds from SEC EDGAR using all N-SAR filings between 1993 and June 2016.[1.15] N-SAR filings are semi-annual reports for investment companies which contain fund names, fund company names, and financial statement items such as fund's TNA (total net assets) and NAV (net asset value per share). I download N-SAR filings from EDGAR and extract fund identification information for further name matching. The list of fund names (along with fund company names) is then matched with CRSP Mutual Fund Database and Morningstar. I only include actively managed domestic equity mutual funds in my final sample; this is reasonable because I ultimately want to study whether the SEC comment letter process can help investors make better investment decision, it makes little sense to include passive funds (e.g., index funds) in the sample when evaluating future fund performance. Following Parwada et al. (2018), I implement a battery of robustness checks to minimize the matching errors. The detailed matching process is described in Appendix B. Overall I am able to match around 90% of the total TNA of the entire CRSP mutual fund universe. Fund flow, my main variable of

[1.15]N-SAR filings have been utilized in numerous prior studies; for example, Almazan, Brown, Carlson, and Chapman (2004), Reuter (2006), Dass, Massa, and Patgiri (2008), Massa and Patgiri (2009), Edelen, Evans, and Kadlec (2012), Christoffersen, Evans, and Musto (2013), Aggarwal, Saffi, and Sturgess (2015), Kostovetsky (2016), Parwada, Shen, Siaw, and Tan (2018), Wu (2018)

interest, is calculated as in percentage of fund TNA as:

$$\text{Flow}_{\text{i,t}} = \frac{\text{TNA}_{\text{i,t}}/(1 + \text{R}_{\text{i,t}}) - \text{TNA}_{\text{i,t-1}}}{\text{TNA}_{\text{i,t-1}}}, \tag{1.1}$$

where *TNA* is the fund total net assets and R is the net fund return. The calculation assumes that the flow occurs at the beginning of each time period. It is appropriate since I am interested in next month's fund flow immediate after the disclosure of the SEC comment letter.[1.16] All other fund-level control variables come from CRSP and Morningstar. Detailed variable definitions are listed in Table 1.1. I winsorize the variables at the 1% and 99% levels to remove the influence of outliers.

[Table 1.1 here]

I obtain the comment letter sample from the Comment Letter Database in Audit Analytics and restrict the recipient firms to mutual fund companies that matched with CRSP and Morningstar. In my main analyses, I use the disclosure date (FILE_DIS_DATE) to construct the dummy variable *ComLet* which equals to one if the fund belongs to a fund company that has disclosed at least one SEC comment letter in month t, and zero otherwise. The final merged sample is between May 2005 and December 2016 which covers 2,128 distinct mutual funds and 189,686 fund-month observations.[1.17] Because fund flows are measured at monthly level, the results may be biased if the disclosure dates are concentrated at the end of each month and investors may not be aware of the disclosure until the first few days in the next month. To entertain this possibility, I plot calendar dates of all disclosure events. Figure 1.2 Panel A (Panel B) shows the number of comment letter disclosure on each day during a month at fund-company-level (fund-level). There is no clear evidence for concentrated disclosure.

To measure investor attention, I obtain the cleaned EDGAR log file from Ryans (2017)

[1.16] I obtain similar results by assuming that flow occurs at the end of each month. Since the correlation between the two flows is in excess of 0.99, I only report results for flow defined in the main text. Zheng (1999) also uses both definitions of fund flows and find similar results.

[1.17] The first comment letter disclosure in my sample occurs in May 2005.

and aggregate the number of downloads for each fund's comment letters during the disclosure month. I further adjusted for the number of comment letters disclosed that month; and the number of days between the date they are disclosed to the end of that month. Ryans (2017) uses a number of methods to filter the raw log data to eliminate the requests made by robots or automated web-crawlers. The cleaned EDGAR log file covers investor downloads from January 2003 to June 2016. Therefore, I end the sample in June 2016 instead of December 2016 when investigating the effects of investor attention on fund flows.

1.3.2 Summary Statistics

Table 1.2 Panel A presents the summary statistics for sample mutual funds during the sample period from May 2005 to December 2016.

[Table 1.2 here]

In summary, my sample contains 2,128 funds and 189,686 fund-month observations and covers 12,640 comment letter disclosure events, which constitutes about 6.7% of all fund-month observations. The average number of comment letter disclosed in an event is 1.64, with a median of 1.[1.18] The average net fund flow in my sample is -0.185% with a median of -0.503%. With respect to investor attention, comment letters are downloaded on average 1.44 times (median is 1) during the disclosure month. As for the disclosure date, the mean (median) is 15.84 (16), which are right in the middle of each calendar month. Panel B of Table 1.2 reports the combined Pearson and Spearman correlation matrix. There is some evidence that fund flows are positively associated with lagged fund flows, past fund returns, and negatively associated with fund age. The relation with other variables seems to be inconclusive from the correlation table.

[1.18] Ideally, one disclosure event should contain at least three comment letters (one initial comment letter from the SEC, one response form the fund company, and one final "no further comment" letter from the SEC); however, as mentioned in the paper, there are many concluded review processes without the initial comment letter disclosed in EDGAR.

1.4 DETERMINANTS OF SEC OVERSIGHT

Before investigating investor reaction of public disclosure of the SEC comment letters, I study factors that affect the probability of receiving a SEC comment letter in the mutual fund industry. Specifically, I utilize the following regression model:

$$\begin{aligned} \text{ComLet}_{i,t+1} = \beta_0 &+ \beta_1 \text{LagComLet}_{i,t} + \beta_2 \text{CumFundFlow}_{i,t} + \beta_3 \text{FundRet}_{i,t} \\ &+ \beta_4 \text{SDFundRet}_{i,t} + \beta_5 \text{Log(TNA)}_{i,t} + \beta_6 \text{Log(AGE)}_{i,t} + \beta_7 \text{LOAD}_{i,t} \\ &+ \beta_8 \text{EXP}_{i,t} + \beta_9 \text{TO}_{i,t} + \beta_{10} \text{Tenure}_{i,t} + \delta_t + \varepsilon_{i,t} \end{aligned} \tag{1.2}$$

where *ComLet* is an indicator that equals to one if the fund's management company has received at least one SEC comment letter during the calendar year, and zero otherwise; *CumFundFlow* is the cumulative net flow during this calendar year; *FundRet* and *SDFundRet* are average and standard deviation of monthly style-adjusted fund returns, respectively, during this calendar year; *Log(TNA)* is the natural logarithm of aggregated individual fund TNA in the fund company; *Log(AGE)* is the natural logarithm of number of years since fund inception; *LOAD* is the fund's total load; *EXP* is the fund's expense ratio; *TO* is the fund's turnover ratio; *Tenure* is the natural logarithm of fund manager's experience (in years) in mutual fund industry; and δ_t denotes year fixed effects. The robust t-statistics are clustered by fund company (CIK). All control variables, except for *LagComLet* and *Log(TNA)*, are TNA-weighted average of all underlying funds in the fund company. The sample consists of fund company-year observations from 2004 to 2015.

[Table 1.3 here]

Table 1.3 displays the regression results. Column (1) uses Linear Probability Model; Column (2) uses Logit regression model; and Column (3) uses Probit regression model. The results suggest that a fund company is more likely to receive a SEC comment letter if it received a comment letter last year. Fund companies with larger total net assets, higher

turnover ratios are more likely to receive a SEC comment letter; whereas fund companies that exist longer are less likely to receive a SEC comment letter.

1.5 MUTUAL FUND FLOWS

1.5.1 Baseline Regression

In this section, I investigate whether mutual funds from comment-letter-disclosed fund company experience significantly lower net flow following the comment letter disclosure. To test this hypothesis, I employ multivariate ordinary least squares (OLS) regression and control for a broad set of variables found in prior literature to be associated with fund flows. The baseline model is:

$$\begin{aligned} \text{Flow}_{i,t} = {} & \beta_0 + \beta_1 \text{ComLet}_{i,t-1} + \beta_2 \text{LagFlow}_{i,t-1} + \beta_3 \text{LagRet}_{i,t-1} \\ & + \beta_4 \text{SDLagRet}_{i,t-1} + \beta_5 \text{Log(TNA)}_{i,t-1} + \beta_6 \text{Log(AGE)}_{i,t-1} + \beta_7 \text{LOAD}_{i,t-1} \\ & + \beta_8 \text{EXP}_{i,t-1} + \beta_9 \text{TO}_{i,t-1} + \beta_{10} \text{Tenure}_{i,t-1} + \delta_t + \theta_j + \varepsilon_{i,t} \end{aligned} \tag{1.3}$$

where *LagFlow* is the fund flow in previous month; *LagRet* is the average style-adjusted fund returns of prior 12, 24, or 36 months; *SDLagRet* is the standard deviations of style-adjusted fund returns during prior 12, 24, or 36 months; *Log(TNA)* is the natural logarithm of fund total net assets (i.e., the size of the fund); *Log(AGE)* is the natural logarithm of number of years since fund inception; *LOAD* is the fund's total load; *EXP* is the fund's expense ratio; *TO* is the fund's turnover ratio; *Tenure* is the natural logarithm of fund manager's experience (in years) in mutual fund industry; and δ_t and θ_j denote time fixed effects and fund style fixed effects, respectively. Standard errors are clustered at the fund level. The main variable of interest is the dummy variable *ComLet* that equals to one if the fund's management company has disclosed at least one SEC comment letter in the previous month,

and zero otherwise.

[Table 1.4 here]

Table 1.4 reports the results from the baseline regression. Column (1) to (3) examine the impact of whether the comment letter is disclosed whereas column (4) to (6) examine the impact of how many comment letters are disclosed. Column (1) and (4) control for *LagRet* and *SDLagRet* based on prior 12 months' style-adjusted fund returns; Column (2) and (5) control for *LagRet* and *SDLagRet* based on prior 24 months' style-adjusted fund returns; Column (3) and (6) control for *LagRet* and *SDLagRet* based on prior 36 months' style-adjusted fund returns. The coefficients on *ComLet* (and # of *ComLet*) are consistently insignificant across all six model specifications, suggesting that on average there are no effects on fund flow for funds that disclosed comment letters.

Because the receipt of a comment letter is not a random event and there are only 6.7% observations in the sample that do so, I employ a propensity score matching (PSM) design to construct a matched sample of similar funds based on observable variables. Specifically, for each letter-disclosed fund-month observation, I match it with a non-letter-disclosed fund-month observation based on all fund-level control variables in the baseline regression model.[1.19] During the matching process, I also require that two observations to have the same fund style and are from the same month.

[Table 1.5 here]

Table 1.5 Panel A presents the covariate balance of the variables used to form the matched pairs, plus *Flow* and different measures of *LagRet* and *SDLagRet*. This confirms that my matched pairs are balanced, as all control variables are statistically indistinguishable between treatment and control fund-month observations. Panel B and Panel C report the distribution of the treatment and control fund-month observations by year and by fund investment style, respectively. Table 1.5 Panel D presents the regression results of baseline model using the

[1.19]For *LagRet* and *SDLagRet*, I use measures based on prior 24 months' style-adjusted fund returns in the PSM procedure. As Panel A of Table 3 shows, in the resulting matched sample, *LagRet* and *SDLagRet* based on 12 or 36 months' style-adjusted fund returns are also considered to be matched.

PSM sample. The coefficients on *ComLet* are consistently insignificant across all six model specifications.

There are several characteristics regarding the disclosure of comment letters that could explain why there is little response from mutual fund investors. As discussed in Dechow et al. (2016), comment letters are not easily accessible; they are random events; and the media attention is very low. Moreover, investor attention is also very low for comment letters, as evidenced in Dechow et al. (2016). To provide insights into how low investor attention is for comment letters in mutual fund industry, I compare investor attention of mutual fund and that of public listed companies. Figure 1.3 provides evidence that investors are not actively requesting comment letters. The greatest mean number of EDGAR requests for mutual fund comment letter is 0.25 on the day following the disclosure; the greatest mean number of EDGAR requests for firm comment letter is 0.5 on the day following the disclosure. The greatest mean number of EDGAR requests for mutual fund holdings report is 0.87 on the filing day; the greatest mean number of EDGAR requests for firm 10-K is 10.3 on the filing day. In general, investors pay less attention to mutual fund filings, and little attention to mutual fund comment letters. Perhaps it is not so surprising that fund investors do not respond to mutual fund comment letters disclosure if little attention is paid to them.

1.5.2 Investor Attention and Fund Flows

Although investors on average pay less attention to mutual fund comment letter disclosure compared to comment letter disclosure of public listed companies, they might act if attention were paid. To test this hypothesis, I rerun the baseline regression model using comment-letter-disclosed fund-month observations. I also replace the comment letter dummy (*ComLet*) with a measure of investor attention (*Attention*) in the baseline model. I measure investor attention by the number of EDGAR requests for the disclosed comment letter before the end of disclosure month; specifically, for a fund-month observation, I aggregate the

number of requests for all comment letters disclosed by the fund's management company during that month. Because the number of comment letter disclosed and the date they are disclosed are idiosyncratic across all fund companies, I further adjust the raw number of downloads in two ways:

$$\text{Attention}_1 = \log(\frac{\text{total \# requests}}{\text{\# of letters}} + 1) \tag{1.4}$$

$$\text{Attention}_2 = \log(\frac{\text{total \# requests}}{\text{\# of letters} \times \text{\# of days from disclosure to month end}} + 1) \tag{1.5}$$

The first measure adjusts for the number of comment letter disclosed during that month, since it is natural to assume that more letters attract more number of downloads. The second measure further adjusts for the length of time during which investor can download; for example, a disclosure occurs on January 5$^{\text{th}}$, there are 27 days that investor can download and process the comment letters until the end of the month; whereas a disclosure occurs on January 25$^{\text{th}}$, investor only has 7 days do to so. In some regression specifications, I further require that there are at least 10 days for investors to acquire information (e.g., if the disclosure happens in January, I only keep disclosure made on or before January 22$^{\text{nd}}$).

[Table 1.6 here]

Table 1.6 displays the regression results for the impact of investor attention on fund flow. The *LagRet* and *SDLagRet* used in the regressions are based on prior 24 months' style-adjusted fund returns. Column (1) and (2) reports results for $Attention_1$ and $Attention_2$ respectively; and column (3) and (4) further restrict the sample that there are at least 10 days between disclosure and the end of the month. As shown, the coefficients on investor attention are negative and significant at least at 10% level in all four specifications, suggesting that if more attention were paid to the comment letters disclosed by the mutual fund company, the underlying funds would experience lower net fund flows. In addition, the effects are stronger if more time is allowed for investor to download and process the comment letters,

as evidenced in column (3) and (4).

Although I am careful to include a battery of control variables in the regression model, it is possible that there could be some fund level control variables that I missed. To address this issue, I include fund fixed effects (in place of fund investment style fixed effects) in the above regression. It is also possible that there could be some omitted variables at fund company (CIK) level since the comment letter is disclosed at company level and the flow and other control variables are at individual fund level. To address this issue, I include CIK fixed effects in the above regression.

[Table 1.7 here]

Table 1.7 reports the regression results for these simple robustness checks; for brevity, I report results using investor attention measures where at least 10 days are allowed for investor to download and process the comment letters. As shown in Table 1.7, all coefficients on *Attention* continue to be negative and significant at least at 10% level. Overall, I find that investor attention on comment letters is negatively associated with fund net flows.

1.6 SUBSEQUENT FUND PERFORMANCE

So far I have shown that investors do react if attention is paid to the SEC comment letters. A natural question to ask is whether fund investor's response to disclosure of the SEC comment letter is justified. The flow reaction would be justified if the disclosure enables fund investor to make superior investment decision. To test this, I examine whether funds with high investor attention underperform subsequently; specifically I employ the following regression model:

$$\begin{aligned}\text{LeadRet}_{i,t} = {} & \beta_0 + \beta_1 \text{HiAtt}_{i,t-1} + \beta_2 \text{LagFlow}_{i,t-1} + \beta_3 \text{HiAtt}_{i,t-1} \times \text{LagFlow}_{i,t-1} \\ & + \beta_4 \text{LagRet}_{i,t-1} + \beta_5 \text{SDLagRet}_{i,t-1} + \beta_6 \text{Log(TNA)}_{i,t-1} + \beta_7 \text{Log(AGE)}_{i,t-1} \\ & + \beta_8 \text{LOAD}_{i,t-1} + \beta_9 \text{EXP}_{i,t-1} + \beta_{10} \text{TO}_{i,t-1} + \beta_{11} \text{Tenure}_{i,t-1} + \delta_t + \theta_j + \varepsilon_{i,t}\end{aligned} \tag{1.6}$$

where *HiAtt* is a dummy variable which equals to one if investor attention (measured by either $Attention_1$ or $Attention_2$ defined in previous section) to comment letters was in the top quintile, and zero otherwise; *LagFlow* is the monthly fund flows occurred immediate after the SEC comment letter disclosure; *LeadRet* is the monthly style-adjusted fund returns immediate after *LagFlow* occurs; and δ_t and θ_j denote time fixed effects and fund style fixed effects, respectively. Standard errors are clustered at the fund level.

[Table 1.8 here]

Table 1.8 shows the regression results; Column (1) to (3) utilize investor attention measured by $Attention_1$ whereas Column (4) to (6) utilize investor attention measured by $Attention_2$. There is a negative and significant association between investor attention and subsequent fund performance for all specifications; this suggests that funds that receive higher investor attention on the comment letters disclosed suffer poor future performance. Therefore, investor should, and did (as shown in Section 1.3), punish these funds by lower net fund flows. Taken together, the SEC comment letter seems to be useful to fund investor and the review process could help investor make better decision if attention were paid to the comment letter disclosure.

Table 1.8 shows that among funds that disclosed the comment letters, investor is able to make better investment decision from downloading and processing these comment letters; but what if disclosing comment letter *itself* is associated with future underperformance? In that case, fund investor should withdraw money *whenever* a fund discloses the SEC comment letter even without paying attention to the actual content of the comment letter. To address this question, I test whether comment letter disclosure *itself* is associated with future underperformance by regressing fund future performance on the comment-letter-disclosure dummy *ComLet*.

[Table 1.9 here]

Table 1.9 reports the results for both full sample and propensity score matched sample; to further control for the fact that funds can extract substantial amount of performance

by charging a higher fund fees, I also use fund gross returns as dependent variables. The results show that there is no relation between disclosing comment letter and subsequent fund performance; which in turn strengths the results found in Table 1.8. That is, the SEC comment letter process is useful to fund investor and it could help investor make better decision if attention were paid to the comment letters disclosed.

1.7 FUND FLOWS DURING THE PRE-DISCLOSURE PERIOD

A unique feature of the comment letter process is that the comment letters are not disclosed to the public until the entire review process is concluded. Two recent papers have studied specifically what happens during the pre-disclosure period (Dechow et al., 2016; Cunningham et al., 2017). If information about the receiving of a SEC comment letter is leaked, investors may react right away, even without knowing the actual content of the comment letters. In this section, I test whether flow response exists during the pre-disclosure period. Specifically, I rerun the baseline regression with a pseudo disclosure dummy; that is, I use the month in which a letter is actually sent rather than the month in which it is publicly disclosed as the event month.[1.20] For example, if comment letters and/or responses are sent in June and July, but the entire batch of comment letters is disclosed in September, I use June/July instead of September as the event months and look at flows occur at the beginning of July/August.[1.21] To mitigate the confounding window effect, I further drop observations where the letter is sent and disclosed in the same month. This helps us understand the investor behaviors during the supposedly non-public periods.

[Table 1.10 here]

Table 1.10 presents the regression results with the same set of control variables used in

[1.20] In doing so, the sample starts from September 2004 instead of May 2005; since the first comment letter conversation recorded was in September 2004, but was not publicly disclosed until May 2005.

[1.21] In Section 1.5.1, I use September as event month and examine flow occurs at the beginning of October.

Table 1.4. Column (1) to (3) examine the impact of *whether* the fund company is involved in the comment letter conversation with the SEC whereas column (4) to (6) examine the impact of *how many* comment letters are involved in such conversation. Surprisingly, I document that next month's net fund flows are significantly lower if the fund company is involved in the comment letter conversation with the SEC, although such information is not publicly available. The coefficients on the control variables are in general consistent with those found in Table 1.4. The findings suggest that investors seem to be aware of the comment letter conversation between fund company and the SEC before the entire process is concluded and publicly disclosed, and that investors punish these funds with lower net flows.

Similar to Section 1.5.1, I confirm the findings by employing a propensity score matching (PSM) design to construct a matched sample of similar funds based on observable variables. Specifically, for each pseudo-letter-disclosed fund-month observation, I match it with a non-letter-disclosed fund-month observation based on all fund-level control variables in the regression model.[1.22] During the matching process, I also require that two observations to have the same fund style and are from the same month.

[Table 1.11 here]

Table 1.11 Panel A presents the covariate balance of the variables used to form the matched pairs, plus *Flow* and different measures of *LagRet* and *SDLagRet*. This confirms that my matched pairs are balanced, as all control variables are statistically indistinguishable between treatment and control fund-month observations. Panel B and Panel C report the distribution of the treatment and control fund-month observations by year and by fund investment style, respectively. Table 1.11 Panel D presents the regression results using the PSM sample. The coefficients are consistent with those found in Table 1.10 and the results confirm the previous findings that flow response exists during the pre-disclosure period. To summarize, given the usefulness of the SEC comment letter and the flow reaction during

[1.22]For *LagRet* and *SDLagRet*, I use measures based on prior 24 months' style-adjusted fund returns in the PSM procedure. As Panel A of Table 1.10 shows, in the resulting matched sample, *LagRet* and *SDLagRet* based on 12 or 36 months' style-adjusted fund returns are also considered to be matched.

the non-public pre-disclosure period, I argue that the SEC may want to consider a timelier manner in disclosing the comment letter.

1.8 CONCLUSION

The comment letter process of investment company received little attention in the literature, even though it is an ideal laboratory to study investor's direct reaction and whether the SEC review process can help investor make better investment decision. In this paper, I examine how investor reacts to public disclosure of the SEC comment letters sent to and corresponded with mutual fund company. I document that if the comment letters disclosed by fund company receive more investor attention, underlying funds experience significantly lower net flow post-disclosure. In addition, funds with higher investor attention underperform subsequently. The SEC review process is designed to provide investors with useful and material information about a filing registrant. My findings in general support the view that the comment letter process is useful for fund investors and can help them make better investment decisions. However, information leakage may exist during the non-public pre-disclosure period, since I find that the flow reaction exists even during this period where investors are unable to see the contents of the comment letters. I argue that the SEC may want to consider a timelier manner in disclosing the comment letter so that investors can acquire desired information before making investment decisions.

Chapter Two

REGULATORY OVERSIGHT AND MUTUAL FUND RISK-TAKING BEHAVIORS

2.1 INTRODUCTION

Despite the large body of literature on mutual fund industry, the impact of regulatory oversight on mutual funds' investment decisions have never been explored. Researchers have examined many aspects that may influence mutual fund manager's risk-taking behavior. Contractual incentives (Chevalier and Ellison, 1997; Golec and Starks, 2004; Kempf, Ruenzi, and Thiele, 2009) and career concerns (Chevalier and Ellison, 1999; Menkhoff, Schmidt, and Brozynski, 2006; Hu, Kale, Pagani, and Subramanian, 2011) are often believed to be key factors in shaping mutual manager's risk-taking behavior. In this paper, I investigate how mutual fund shifts its risk-taking behavior *during* and *after resolution* of a regulatory oversight process. During the process, underlying mutual funds may not drastically change their risk-taking behaviors due to the uncertainty about the unresolved issue identified by the regulator. After resolution of the review process, underlying mutual funds may increase or decrease risk-taking, depending on the severity and consequence of the review process.

The U.S. Securities and Exchange Commission ("SEC") is required to periodically review all registrants' filings after the Sarbanes-Oxley Act of 2002 ("SOX"). In principal, any registrant's filing should be reviewed at least once every three years. When the review identifies potentially deficient disclosures or accounting treatment, the SEC issues a comment letter to the registrant, and the registrant is required to respond in a timely manner (usually within 10 working days). The comment letter acts as a communication vehicle between the SEC and the company, providing opportunity for the company to explain and clarify any misunderstandings. After receiving the response from the company, the SEC decides whether it is satisfied with the response, including the actions taken or to be taken by the company. If the SEC is satisfied, then a final letter ("no further comment" letter) is issued to the company concluding the review process; if the SEC is not satisfied or has further comments, a follow-up comment letter is issued to the company, and the company again has to respond; the process continues until the SEC is satisfied and a final letter is issued to conclude the entire review process. Recent studies have utilized the SEC review process setting after the SEC decided to publicly release all comment letter communications in 2004 (Cassell et al., 2013; Dechow et al., 2016; Heese et al., 2017; Cunningham et al., 2017). A particular relevant body of literature focuses on how corporation reacts to regulatory oversight. Upon concluding the SEC comment letter process, firms have been found to change practice in tax avoidance (Kubick et al., 2016), enhance disclosure (Bozanic et al., 2017; Baugh et al., 2017), reduce initial public offerings (IPO) price (Li and Liu, 2017), and alter earnings management behavior (Cunningham et al., 2019). Since the SEC also reviews filings made by investment companies, I can investigate how investment managers react to the regulatory oversight by studying the shift in their risk-taking behaviors.

There are several reasons that make the mutual fund industry an ideal laboratory to examine the impact of regulatory oversight on risk-taking behaviors. First, listed companies and fund companies file different sets of forms to the SEC and the review processes are

handled by two different divisions within the SEC.[2.1] The focus of the review and the content of comment letters may be very different. In fact, the SEC states that "funds make many filings and their complexity varies. For this reason, DRAO takes a "risk-based" approach in reviewing filings."[2.2] If the SEC is able to identify some risk-related regulation violations, underlying funds may alter their risk-taking behaviors. Second, fund manager solely makes a fund's investment decisions. Although corporate CEO makes most of the decisions, other parties (stakeholders, board, etc.) are often involved in the decision-making process. Third, shift in risk-taking behavior can happen relatively quickly in the mutual fund industry so the impact can be examined at a shorter horizon. In corporations, it usually takes longer to implement new strategies. Fourth, common risk-taking measures used in corporate finance literature are measured at longer horizon, or they are measures of random and discrete events; they may not be able to capture the immediate effect of regulatory oversight. For example, volatility of firm's earnings or profitability (John, Litov, and Yeung, 2008; Acharya, Amihud, and Litov, 2011; Faccio, Marchica, and Mura, 2011), capital expenditures (Bargeron, Lehn, and Zutter, 2010), merger and acquisition activities (Acharya et al., 2011; Bernile, Bhagwat, and Rau, 2017), firm's financing policy and leverage (Acharya et al., 2011; Bernile et al., 2017) have all been used to measure corporate risk-taking. Some of the proxies are measured at annually frequency (e.g., earnings, capital expenditures, leverage); whereas others are of random and discrete events (e.g., merger and acquisitions, equity and debt issuances). In the mutual fund industry, risk-taking measures can be constructed at relative shorter horizons. Fifth, the review process is conducted at fund company level; although a particular review may only focus on a single fund within the fund company, other funds in the same family may change their risk-taking based on the experience of the subject fund and try to avoid

[2.1] The Division of Corporation Finance is in charge of reviewing filings of listed companies and the Division of Investment Management is in charge of reviewing filings of fund companies.

[2.2] The Division of Investment Management's Disclosure Review and Accounting Office (DRAO) is responsible for reviewing filings such as prospectuses, proxy statements, and shareholder reports for mutual funds, exchange traded funds (ETFs), closed-end funds, variable insurance products, unit investment trusts, and similar investment funds. For details, see https://www.sec.gov/investment/fund-disclosure-at-a-glance

future regulatory oversight.

The fund manager's behavior is also related to the public disclosure of the review process and the reaction from fund investors. In fact, as shown in Chapter One of this thesis, underlying mutual funds experience significantly lower net flow post-disclosure if the comment letters are requested more by investors; more importantly, given investors' reactions during the non-public pre-disclosure period,[2.3] these reactions can affect and exacerbate behavior of fund managers. One important aspect of such behaviors is how fund managers change risk taking around the review process.

To study the impact of regulatory oversight on mutual fund risk-taking behavior, I employ a comprehensive sample of comment letter conversations between the SEC and the mutual fund companies. Because the SEC review process usually takes a few months to conclude, I am particularly interested in the shift in risk-taking behaviors both *during* and *after resolution* of the review process. The comment letter dataset have been used in previous studies (Cassell et al., 2013; Dechow et al., 2016; Kubick et al., 2016; Li and Liu, 2017; Cunningham et al., 2017). I merge fund names from the SEC EDGAR system with CRSP Mutual Fund Database and Morningstar Mutual Fund Database to get all the control variables. I further restricted the sample to U.S. domestic actively managed equity mutual funds. There are typically two ways of measuring mutual fund risk: holding-based measures (Chevalier and Ellison, 1997; Kempf et al., 2009; Huang, Sialm, and Zhang, 2011; Ma and Tang, 2019) and return-based measure (Brown, Harlow, and Starks, 1996; Koski and Pontiff, 1999; Massa and Patgiri, 2009; Shu, Sulaeman, and Yeung, 2012; Kaniel and Parham, 2017). Holding based measures utilize information about the portfolio holdings of mutual funds and focus on intended risk; it usually require a longer horizon to examine the changes in risks.[2.4] Return based measures utilize monthly (daily) fund returns and focus on realized risk; it can be estimated at shorter horizon. Since regulatory oversight is a random and discrete event and

[2.3] In Chapter One, I document that underlying mutual funds experience lower net flow during the non-public pre-disclosure period, but not after public disclosure.

[2.4] This is due to the fact that mutual fund holdings are disclosed at quarterly frequency.

I am interested in shift in risk-taking behaviors of mutual fund managers before and after (or during) the review process, I mostly use return based measures in the 3-month window before and after the review process.[2.5]

I start by investigating factors that affect the probability of receiving a SEC comment letter in the mutual fund industry. Since the SEC takes a "risk-based" approach in reviewing the filings, I am particularly interested in whether risk-taking is positively associated with the probability of regulatory oversight. Using weighted average risk-taking measures within a fund family, I do not document a significantly positive relation; however, if I use the maximum risk-taking measure within a fund family, I find significant and positive association. That is, if there is a single fund in a fund company that takes excessive risk, the fund company is more likely to be a subject of regulatory oversight. I also find that the probability of receiving a SEC comment letter is positively associated with fund company total net assets, and turnover ratios; and negatively associated with age. However, the strongest predictor of fund company receiving a SEC comment letter is whether it has received a SEC comment letter in the previous year.

Next, I investigate my main research question: what's the impact of regulatory oversight on mutual fund risk-taking behaviors. I employ propensity score matching method to match funds that receive comment letter with funds that do not, based on control variables that measured just before the review process. I use volatility and idiosyncratic volatility of daily fund returns to measure mutual fund risk-taking and compare risk-taking behaviors during and after resolution of the review process to the behaviors just before the review process. Specifically, I employ difference in differences (DID) design and regress the risk-taking measures on two dummy variables and the interaction of the two, along with a battery of control variables. The first dummy indicates whether the fund's management company is a subject of a regulatory oversight; and the second dummy indicates whether an observation is before or after (during) the review process. I find that after resolution of the review process, under-

[2.5]Nonetheless, I use holding based risk-taking measures in one of the analyses.

lying mutual funds take more risks; during the review process, however, underlying mutual funds do not shift their risk-taking behaviors. In addition, the results are robust to various fixed effects and clustering methods.

I continue my analysis by examining changes in fund holdings before and after regulatory oversight. Specifically, I study whether the shift in risk-taking behaviors are due to funds holding individual stocks with higher return volatilities after resolution of the review process. The regression result shows that there is no difference in the average excess idiosyncratic volatilities. Although I observe no difference in idiosyncratic volatilities of individual stocks in fund portfolios, fund holdings may affect fund return volatilities through portfolio diversifications. To explore this possibility, I investigate industry concertation of fund portfolios using two measures following Kacperczyk, Sialm, and Zheng (2005). Surprisingly, I find both industry Herfindahl index and industry concentration ratio are significantly lower after resolution of the review process. This suggests that fund managers try to diversify the fund holdings; however, the realized risks (fund volatilities and idiosyncratic volatilities) are higher. At this point, it is natural to test whether this shift in risk-taking behavior can benefit fund investors by providing them with superior fund returns. The results from the regression reveal that the shift in risk-taking does not produce superior style-adjust fund returns.

I corroborate my findings by investigating whether fund's risk-taking behaviors are also affected by characteristics of review process. So far I have been using the propensity score matched sample in my analyses; in this analysis, I use the full sample of the SEC comment letter conversations between the SEC and mutual fund companies. I consider the length and the complexity of a review process. Specifically, to proxy for length, I use (i) an indicator which equals to one if the review process is among the top decile in length,[2.6] and (ii) the number of rounds of communications between the SEC and the fund company; to proxy

[2.6]The length is measured in days, from the day when the initial comment letter is issued till the day when "no further comment" letter is issued.

for complexity, I use the number of topics cited in the initial comment letter. The results from regression analyses show that funds increase volatilities if the review process is longer; whereas funds increase idiosyncratic volatilities if the review process is more complex.

Because the SEC review process often identifies multiple issues in different areas, my last question addresses whether the topics of the comment letter matter to fund managers. I categorize each review process into different groups based on the topics mentioned in the initial comment letter.[2.7] I am able to identify the following five distinct categories: *RISK*, *ACCOUNTING*, *ACT1940*, *REGISTRATION*, and *MISCELLANEOUS*.[2.8] Here, I am especially interested in risk-related comment letters. Using similar regression specification, I confirm that even if a single fund in the fund company takes excessive risk, the fund company is more likely to receive a risk-related comment letter. Next, I compare shift in risk-taking behaviors for funds that receive risk-related comment letters with funds that receive non-risk-related comment letters. Specifically, I run separate regressions depending on whether the comment letter is risk related or not. The regression results show that funds that receive non-risk-related comment letters *reduce* risk-taking *during* the review process but *increase* risk-taking *after resolution* of the review process; on the other hand, funds that receive risk-related comment letters do not drastically change their risk-taking behaviors. I repeat the analysis for other topic categories but do not find similar pattern in other types of comment letters.[2.9] Overall, the results seem to suggest that for funds that receive non-risk-related comment letters, they reduce risk-taking as a precaution during the review process but increase risk-taking after resolution to catch up with their peers; for funds that receive risk-related letters, they do not change risk-taking behaviors since there are no clear benefits to do so.

My paper contributes to several strands of literature. First, it is closely related to research concerning mutual fund risk-taking. Mutual funds are professionally managed investment

[2.7] In doing so, one particular review process can be categorized into more than one groups.
[2.8] The details for categorizing SEC comment letter are described in Section 2.5
[2.9] That been said, I do find similar but inconclusive pattern for accounting-related comment letters.

vehicles that are designed to meet specific risk-return needs of investors. In theory, mutual fund managers should determine the fund's risk solely based on investors' risk preferences and return expectations. Fund shareholders, on the other hand, can design incentive contracts to encourage or discourage managers from taking excessive risks. Early studies have examined how mutual fund managers alter the riskiness of the fund when facing contractual incentives (Brown et al., 1996; Chevalier and Ellison, 1997; Golec and Starks, 2004); unsurprisingly, incentives have huge impact on fund managers' risk-taking behaviors. One possible explanation is that mutual funds exhibit tournament behaviors (Taylor, 2003; Ammann and Verhofen, 2009; Kaniel and Parham, 2017). Besides contractual incentives, career concerns are also found to have large impact on riskiness of mutual funds. For example, Chevalier and Ellison (1999) find that younger managers hold less unsystematic risk and have more conventional portfolios. Several follow-up papers also studied the impact of employment risk on mutual fund risk-taking (Menkhoff et al., 2006; Kempf et al., 2009). Recent studies extend the literature by examining how the use of derivatives (King, 2008), how local religious beliefs (Shu et al., 2012), how leverage constraints (Boguth and Simutin, 2018), and how portfolio manager ownership (i.e., skin in the game) (Ma and Tang, 2019) can affect riskiness of mutual funds. Evidence on whether risk-taking can benefit fund investors is somewhat mixed. Massa and Patgiri (2009) document that high-incentive contracts induce managers to take more risk and reduce the funds' probability of survival. Yet, funds with high-incentive contracts deliver higher risk-adjusted return, and the superior performance remains persistent. However, Huang et al. (2011) find that funds that increase risk perform worse than funds that keep stable risk levels over time, contradicting the findings by Massa and Patgiri (2009). The authors argue that risk shifting either is an indication of inferior ability or is motivated by agency issues. My paper extends the literature by investigating whether another potential channel, the regulatory oversight, affects mutual fund risk-taking. I also provide additional evidence on the unresolved debate over whether shift in risk-taking produces superior fund performance.

My paper also contributes to the literature on the SEC comment letter. Numerous papers have studied the SEC review process since the SEC decided to make its comment letters publicly available in 2004. One strand of literature examines the determinants of receiving a SEC comment letter (Cassell et al., 2013; Heese et al., 2017; Xiao, 2018). Another group of studies investigate the consequences of receiving the SEC comment letters. Kubick et al. (2016) examines the tax avoidance behavior of firms prior to the issuance, and following the resolution, of SEC tax comment letters. Bozanic et al. (2017) provides evidence that the SEC comment letter process generally enhances firms' disclosures, improves informational transparency for investors, and mitigates firms' litigation risk, but that some firms take actions that diminish these enhancements. Li and Liu (2017) investigate how regulatory oversight affects the price formation of initial public offerings and finds that IPO issuers reduce their offer price if they receive comment letters. Baugh et al. (2017) studies the effect of the SEC comment letters on firm's financial reporting quality; whereas Cunningham et al. (2019) studies the effect on firm's earnings management. The final batch of papers examines the investor reaction and usefulness of the SEC review process. Dechow et al. (2016) documents that insider trading is significantly higher than normal levels prior to the public disclosure of SEC comment letters relating to revenue recognition. Cunningham et al. (2017) investigates whether and how banks use private information about regulatory oversight of public disclosures through the SEC comment letter process. Duro et al. (2019) analyzes the capital-market responses to firms' quarterly earnings releases following the disclosure of the comment letters; whereas Edwards et al. (2018) analyzes the investor response to tax related SEC comment letters. In this paper, I present extra evidence on whether regulatory oversight affects corporation's decision making, especially at a shorter horizon. I also provide the first set of evidence on how investment managers react to the SEC comment letter process.

There are, however, some caveats of the paper. First, endogeneity may arise from the SEC's unobserved decision to review the filings of a specific fund company. Second, I cannot distinguish a fund company that is reviewed by the SEC but received no comment letter

from a fund company that is not reviewed in the first place.

The remainder of this paper is organized as follows. In Section 2.2, I provide background on the SEC comment letter process, and develop my hypotheses. I describe my data and research design in Section 2.3. Section 2.4 presents main empirical results. I provide corroborating evidence in Section 2.5 and make concluding remarks in Section 2.6.

2.2 BACKGROUND AND HYPOTHESES

2.2.1 The SEC Comment Letter Review Process

The Disclosure Review and Accounting Office (DRAO) of the SEC's Division of Investment Management is responsible of reviewing the filings of investment companies registered with the SEC. Every company's filings must be reviewed at least once every three years; these filings include prospectuses, proxy statements, and shareholder reports for mutual funds, exchange traded funds (ETFs), closed-end funds, variable insurance products, unit investment trusts, and similar investment funds. The goal of the reviewing process is to ensure that the investors have the information they need to make informed investment decisions. The DRAO takes a "risk-based" approach in reviewing filings. The focus of review includes: filings by novel and complex funds; new disclosures (such as changes in response to the Commission's adoption of new rules); and disclosures that influence investment decisions, such as disclosures regarding strategies, risks, fees, and performance.

If questions arise during a review, the DRAO issues a comment letter to the reporting fund company. The letter expresses concerns of the SEC and the company has an opportunity to respond to the SEC in a timely manner. After receiving the response, the SEC evaluate the answers, including the actions taken and will be taken by the company. If the SEC is satisfied with the response, a "no further comment" letter is issued to the company signaling the conclusion of the review process; if the SEC is not satisfied or has further questions, a

subsequent comment letter is sent to the company and the review process goes on until the SEC is satisfied and a "no further comment" letter is issued to the company. Each review varies considerably by duration to resolution and the number of intermediate communication rounds between the SEC and the company. The outcome can also vary considerably. No action will be taken by the company if the SEC is satisfied with the answers provided by the company. Sometimes, however, the company may be required to file an amendment to certain filing or agree to adjust future filings. After the resolution of the review process, the SEC disseminates the set of comment letters via EDGAR, typically after a "grace period".[2.10]

Figure 2.1 illustrates the timeline of a typical SEC review process and how I measure certain main variables used in this study. In this sample, the initial SEC comment letter is sent to the fund company on April 12, and the entire review process concludes on July 14. Finally, the entire set of comment letters are disclosed to the public on September 23 through EDGAR. I measure mutual fund risk-taking in the following months: January, February, and March (before process); May and June (during process); August, September, and October (after process). I am particularly interested in mutual fund risk-taking for months after the process (or during the process) compared to that for months before the process.

2.2.2 Hypotheses

A fundamental question in the SEC comment letter literature examines the determinants of being a subject of a regulatory oversight. Cassell et al. (2013) investigate factors that affect the probability of receiving a 10-K comment letter, the extent of comments received, and the cost of remediation. They find that in addition to factors explicitly stated to increase SEC scrutiny in Section 408 of the Sarbanes-Oxley Act, low profitability, high complexity, engaging a small audit firm, and weaknesses in governance are positively associated with the receipt of a comment letter, the extent of comments, and the cost of remediation. Several

[2.10]The SEC publicly releases the comment letters and company responses no earlier than 20 days after the "no further comment" letter. For details, see: https://www.sec.gov/divisions/corpfin/cffilingreview.htm

follow–up papers examine different aspects of the determinants. Heese et al. (2017) present new evidence that firm political connections positively predict comment letter; Xiao (2018) investigates the role of auditor IPO expertise in the review process and find that the initial registration statement attracts a lower extent of accounting comments from the SEC when auditor IPO expertise is higher.

Because the SEC states that it takes a "risk-based" approach in reviewing filings from investment management companies. I would expect to find a positive association between prior mutual fund risk-taking and subsequent probability of receiving a comment letter. However, the review process is conducted at fund company level, it is possible to underestimate or overestimate a fund company's risk-taking when aggregating fund-level risk-taking to company-level; I use the maximum risk of any fund in a fund company instead of the weighted average risk as an alternative measure of fund company's risk-taking. My main focus is to test whether risk is associated with regulatory oversight, I state my first hypothesis as follows:

H1: *The probability of receiving a SEC comment letter is positively associated with a fund company's risk-taking.*

Next, I examine the shift in mutual fund risk-taking after resolution of the review process. First, the focus and outcome of each review process varies considerably. If a particular review process concerns only about minor compliance issue, and it is quickly resolved without any action taken by the SEC and the company, underlying funds should not alter their risk-taking behaviors. However, some companies (and/or their investors) may regard receiving a comment letter as a loss of reputation, underlying funds may increase riskiness of the funds to restore reputation (and/or attract new investors). Ha and Ko (2017) find that an increase in fund risk actually increases net flows of equity funds.[2.11] Therefore, fund managers will have incentives to increase fund's risk-taking. On the other hand, it is also possible that

[2.11] I should point out that there is some debate over the relation between fund risk-taking and fund flows; for example, Spiegel and Zhang (2013) concludes that widely held belief that increasing a fund's risk will help it grow is due to misspecification error.

after resolution of a review process, underlying funds may decrease risk-taking to avoid future regulatory oversight. Second, fund risk-taking also depends on the interaction between employment risk and compensation incentives. As documented in Kempf et al. (2009), when employment risk is more important than compensation incentives, fund managers tend to decrease risk; when employment risk is low, compensation incentives become more relevant and fund managers increase risk. The importance of career concerns vs. contractual incentives may differ across different review processes, different fund managers, and different fund companies; therefore, funds may increase or decrease risk-taking. Third, fund manager solely decides the riskiness of a fund; Bernile et al. (2017) show that CEOs who experience fatal disasters without extremely negative consequences lead firms to behave more aggressively, whereas CEOs who witness the extreme downside of disasters behave more conservatively. In the context of fund manager and regulatory oversight, funds may increase or decrease risk-taking, depending on the severity and consequence of the review process. Lastly, even if a fund manager attempts to reduce risk, the results may be different from her intentions. For example, if a fund manager tries to reduce risk by diversification; specifically, she adds some international securities into the portfolio; however, she lacks knowledge or expertise about the international market, the riskiness of the fund may increase as a result.

Because it remains an empirical question whether mutual funds will shift their risk-taking behaviors after resolution of the review process, I state my hypothesis in the null form:

H2: *Underlying mutual funds will not change their risk-taking behaviors after resolution of the SEC comment letter review process.*

Finally, I examine shift in mutual fund risk-taking during the review process. There are a few reasons why underlying funds may want to change their risk-taking behaviors. First, if the review is able to identify some abnormal risk-taking and the SEC has concerns over such behaviors, underlying funds may want to reduce risk to convince the SEC that changes are been made. In fact, they may state in the response to the SEC that they are actively addressing the issues identified by the review process. Second, even if the review does not

concern fund risk-taking, managers may want to reduce risks as a precaution; especially if the fund manager is risk-averse. Third, spillover effects may exist in the review process. Although a review process may concern only a subset of funds in a fund family, other funds may also change their risk-taking behaviors. Lastly, agency issue may arise after receiving the comment letter. Huang et al. (2011) suggest that an increase in risk either is an indication of inferior ability or is motivated by an agency issue. Therefore, funds may alter risk-taking accordingly.

That been said, there is one major reason why funds do not change their risk-taking during the review process the issue is unresolved. Whatever the issue may be identified by the review process, since it is not resolved, the funds have no incentives to change their riskiness. As pointed out in Bozanic et al. (2017), companies can often negotiate with the SEC and attempt to avoid making substantive disclosure changes, including by requesting that certain additional information be treated as confidential. Therefore, there is no need for funds to change risk-taking during the review process.

Because it remains an empirical question whether mutual funds will shift their risk-taking behaviors during the review process, I state my hypothesis in the null form:

H3: *Underlying mutual funds will not change their risk-taking behaviors during the SEC comment letter review process.*

2.3 METHODOLOGY

2.3.1 Sample

Because the SEC review process is conducted at fund company level (identified by Central Index Key, or CIK, in EDGAR), I start by constructing a list of mutual funds from SEC EDGAR using all N-SAR filings between 1993 and June 2016.[2.12] N-SAR filings are semi-

[2.12]N-SAR filings have been utilized in numerous prior studies; for example, Almazan et al. (2004), Massa and Patgiri (2009), Aggarwal et al. (2015), Parwada et al. (2018).

annual reports for investment companies which contain fund names, fund company names, and financial statement items such as fund's TNA (total net assets) and NAV (net asset value per share). I download N-SAR filings from EDGAR and extract fund identification information for further name matching. The list of fund names (along with fund company names) is then matched with CRSP Mutual Fund Database and Morningstar. I only include actively managed domestic equity mutual funds in my final sample; this is reasonable because passive funds (e.g., index funds) follow certain index and have different risk-taking preferences. Following Parwada et al. (2018), I implement a battery of robustness checks to minimize the matching errors. The detailed matching process is described in Appendix B. I measure mutual fund risk-taking using daily fund returns reported in CRSP MFDB. Specifically, I estimate fund return volatilities (VOL) and idiosyncratic volatilities ($IVOL$) as follows:

(i) VOL: calculated as the standard deviation of daily fund returns during a calendar month;

(ii) $IVOL$: calculated as the standard deviation of the residual terms from regressing daily fund returns during a calendar month on corresponding daily Carhart 4-factors.[2.13]

I obtain the comment letter sample from the Comment Letter Database in Audit Analytics and restrict the recipient firms to mutual fund companies that matched with CRSP and Morningstar. For each review process, Audit Analytics database records the initial letter date (FIRST_LETTER_DATE), the final letter date (LAST_LETTER_DATE), and other characteristics of the review process (the length, topics involved, etc.). I am particularly interested in the periods just before, during, and just after resolution of the review process. The overall sample starts in May 2003 and ends in November 2016. The mutual fund sample consists of 2,376 mutual funds and 871 mutual fund companies; there are 5,715 distinct comment letter conversations during that period, concerning 1,839 (618) mutual

[2.13]Carhart 4-factor model is introduced in Carhart (1997); the data can be downloaded from Kenneth French's data library website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

funds (fund companies). In other words, 22.60% (29.05%) of mutual funds (fund companies) never received a comment letter during the sample period.

2.3.2 Research Design

To test H1, regarding the relationship between risk-taking and SEC comment letter issuance, I construct fund-company-year sample and estimate the following regression (both Linear Probability Model and Logit):

$$\begin{aligned} \text{ComLet}_{i,t+1} = \beta_0 &+ \beta_1 \text{RISK}_{i,t} + \beta_2 \text{LagComLet}_{i,t} + \beta_3 \text{Log(TNA)}_{i,t} \\ &+ \beta_4 \text{Log(AGE)}_{i,t} + \beta_5 \text{EXP}_{i,t} + \beta_6 \text{TO}_{i,t} + \beta_7 \text{LOAD}_{i,t} + \beta_8 \text{Tenure}_{i,t} \\ &+ \beta_9 \text{CumFlow}_{i,t} + \beta_{10} \text{CumReturn}_{i,t} + \delta_t + \varepsilon_{i,t} \end{aligned} \tag{2.1}$$

where *ComLet* is an indicator that equals to one if the fund's management company has received at least one SEC comment letter during the calendar year, and zero otherwise; *RISK* is the measure of the fund company's risk-taking; *Log(TNA)* is the natural logarithm of aggregated individual fund TNA in the fund company; *Log(AGE)* is the natural logarithm of number of years since fund inception; *EXP* is the fund's expense ratio; *TO* is the fund's turnover ratio; *LOAD* is the fund's total load; *Tenure* is the natural logarithm of fund manager's experience (in years) in mutual fund industry; *CumFlow* is the cumulative net flow during this calendar year; *CumReturn* is the cumulative fund returns during this calendar year; and δ_t denotes year fixed effects. The robust t-statistics are clustered by fund company (CIK). All control variables, except for *LagComLet* and *Log(TNA)*, are TNA-weighted average of all underlying funds in the fund company. As discussed above, I use two measures (*VOL* and *IVOL*) for individual fund's risk-taking; to construct fund company's risk-taking measure (*RISK*), I consider the following: (i) the TNA-weighted average across all funds in the fund company; and (ii) the maximum of any individual fund's risk-taking in the fund company. In this analysis, *VOL* and *IVOL* are calculated using monthly fund returns during

a calendar year. The primary variable of interest is *RISK*; a positive coefficient on *RISK* validates the "risk-based" approach taken by the SEC.

To examine H2, on the effects of regulatory oversight on mutual fund risk-taking after resolution of the review process, I employ a propensity score matching (PSM) design. Specifically, for a given fund that receives the initial comment letter in month t, I matched it with a non-receiving fund from the same investment style, based on all the control variables used in the Equation 2.2 described below. The matching uses control variables measured at the end of month $t-1$, I ensure exact matching on investment style and month and use nearest-neighbor matching on all other covariates without replacement. Because I use a difference-in-differences design, I require each fund to have at least one valid observation before and after the review process. Using this matched sample of treatment and control funds, I estimate the following ordinary least squares (OLS) regression:

$$\begin{aligned} \text{RISK}_{i,t} = {} & \beta_0 + \beta_1 \text{ComLet}_i + \beta_2 \text{PostResolution}_{i,t} + \beta_3 \text{ComLet}_i \times \text{PostResolution}_{i,t} \\ & + \beta_4 \text{Log(TNA)}_{i,t} + \beta_5 \text{Log(AGE)}_{i,t} + \beta_6 \text{EXP}_{i,t} + \beta_7 \text{TO}_{i,t} + \beta_8 \text{LOAD}_{i,t} \\ & + \beta_9 \text{TeamManaged}_{i,t} + \beta_{10} \text{Tenure}_{i,t} + \alpha^l \text{Style} \times \text{Month}_{l,i,t} + \varepsilon_{i,t} \end{aligned} \tag{2.2}$$

The dependent variable, *RISK*, is the fund risk-taking measure (*VOL* or *IVOL*) defined previously. *ComLet* is an indicator that equals to one if the fund's management company is involved a review process, and zero otherwise (i.e., the treatment dummy); *PostResolution* is a dummy variable equals to one if it is within the 3-month window after an SEC review process, and equals to zero if it is within the 3-month window before an SEC review process; *Log(TNA)* is the natural logarithm of aggregated individual fund TNA in the fund company; *Log(AGE)* is the natural logarithm of number of years since fund inception; *EXP* is the fund's expense ratio; *TO* is the fund's turnover ratio; *LOAD* is the fund's total load; *TeamManaged* is dummy variable equals to one if Morningstar reports the fund as being team managed or if there are multiple managers in charge of the fund; *Tenure* is the natural logarithm

of fund manager's experience (in years) in mutual fund industry. Finally, I include style-month fixed effects to control for potential heterogeneity in risk-taking behaviors across fund objectives and over time. The robust t-statistics is clustered in several ways: (i) clustered by fund; (ii) two-way clustered by fund and month; and (iii) clustered by fund×month. I am particularly interested in the coefficient on the interaction term *ComLet*×*PostResolution*, which represents the effect of resolving a comment letter on fund's risk-taking, controlling for the level of risk-taking before receiving the comment letter.

To examine H3, on the effects of regulatory oversight on mutual fund risk-taking during the review process, I utilize the same (PSM) matched sample used to test H2 and estimate the following ordinary least squares (OLS) regression:

$$\begin{aligned} \text{RISK}_{i,t} = {} & \beta_0 + \beta_1 \text{ComLet}_i + \beta_2 \text{DuringProcess}_{i,t} + \beta_3 \text{ComLet}_i \times \text{DuringProcess}_{i,t} \\ & + \beta_4 \text{Log(TNA)}_{i,t} + \beta_5 \text{Log(AGE)}_{i,t} + \beta_6 \text{EXP}_{i,t} + \beta_7 \text{TO}_{i,t} + \beta_8 \text{LOAD}_{i,t} \\ & + \beta_9 \text{TeamManaged}_{i,t} + \beta_{10} \text{Tenure}_{i,t} + \alpha^l \text{Style} \times \text{Month}_{l,i,t} + \varepsilon_{i,t} \end{aligned} \tag{2.3}$$

The dependent variable, *RISK*, is the fund risk-taking measure (*VOL* or *IVOL*) defined previously. *ComLet* is an indicator that equals to one if the fund's management company is involved a review process, and zero otherwise (i.e., the treatment dummy); *PostResolution* is a dummy variable equals to one if it is within the 3-month window after an SEC review process, and equals to zero if it is within the 3-month window before an SEC review process; *Log(TNA)* is the natural logarithm of aggregated individual fund TNA in the fund company; *Log(AGE)* is the natural logarithm of number of years since fund inception; *EXP* is the fund's expense ratio; *TO* is the fund's turnover ratio; *LOAD* is the fund's total load; *TeamManaged* is dummy variable equals to one if Morningstar reports the fund as being team managed or if there are multiple managers in charge of the fund; *Tenure* is the natural logarithm of fund manager's experience (in years) in mutual fund industry. Finally, I include style-month fixed effects to control for potential heterogeneity in risk-taking behaviors across fund

objectives and over time. The robust t-statistics is clustered in several ways: (i) clustered by fund; (ii) two-way clustered by fund and month; and (iii) clustered by fund×month. I am particularly interested in the coefficient on the interaction term *ComLet*×*DuringProcess*, which represents the effect of receiving a comment letter (while still unresolved) on fund's risk-taking, controlling for the level of risk-taking before receiving the comment letter.

Detailed definition of variables is reported in Table 2.1.

[Table 2.1 here]

2.4 MAIN RESULTS

2.4.1 Risk-Taking and Probability of Receiving SEC Comment Letter

I present the summary statistics for the fund-company-year sample that used to test H1 in Panel A of Table 2.2.

[Table 2.2 here]

The variables, except *MAX_VOL*, *MAX_IVOL*, and *Log(TNA)*, are all TNA-weighted average across all funds in a given mutual fund company. The mean AVG_VOL is 4.23%, with a median of 3.68% and the mean *AVG_IVOL* is 0.88%, with a median of 0.79%. Panel B reports the regression results using risk-taking measure based on fund return volatilities; I employ both Linear Probability Model (LPM) and Logit regressions; and Column (1) and (3) use weighted-average volatilities whereas Column (2) and (4) use maximum volatilities within a fund company. The results show that the averaged risk-taking across all funds is positive (but not significantly) associated with the probability of receiving an SEC comment letter. This is not entirely surprising since the weighted average may underestimate or overestimate the overall riskiness of the fund company; also the SEC review process is conducted at the fund company level, one review process may concern only a single fund in a fund company,

the averaged measure may not capture the focus of the review. As long as one fund stands out by taking excessive risk, the SEC will take notice and subsequently issue a comment letter to the fund company. Results in Column (2) and (4) confirm this conjecture, as evidenced by the significant and positive coefficients on MAX_VOL; that is, if a fund company has one underlying fund taking excessive risk, it is more likely to be a subject of a review process. Panel C repeats the analysis by replacing volatilities with idiosyncratic volatilities. Results presented in Panel C validate that fund risk-taking is positively associated with the probability of receiving a comment letter. Coefficients on control variables are more or less similar across Panel B and Panel C. Larger companies (measure by total net assets) and companies with higher weighted average turnover ratios are more likely to receive a comment letter whereas older companies are less likely to be a subject of the regulatory oversight. However, the strongest predictor of fund company receiving a SEC comment letter is whether it has received a SEC comment letter in the previous year.

2.4.2 Mutual Fund Risk-Taking and the SEC Review Process

Employing a propensity score matching design, I separate funds into treatment and control groups based on whether it is involved in an SEC review process. Table 2.3 presents the summary statistics of the PSM matched sample.

[Table 2.3 here]

Panel A shows distribution of matched pairs by year; I am able to match 23,848 comment letter conversations between 2003 and 2016. Panel B shows the covariate balance based on the (PSM) matched sample, where variables are measured right before the review process. This confirms that my matched pairs are balanced, as all control variables (including VOL and IVOL) are statistically indistinguishable between treatment and control fund-month observations. Panel C presents summary statistics used in the main regressions (Equation 2.2 and Equation 2.3); here, VOL and IVOL are calculated using daily fund returns during

a calendar month. The average VOL is 1.14% (median is 0.97%) whereas average IVOL is 0.20% (median is 0.18%). The combined Pearson and Spearman correlation matrix is presented in Panel D of Table 2.3.

To examine H2, I run OLS regression model specified in Equation 2.2.

[Table 2.4 here]

Table 2.4 reports results from the baseline regression, on the effects of regulatory oversight on mutual fund risk-taking after resolution of the review process. The dependent variable is either volatility or idiosyncratic volatility; I include three different sets of clustering methods: Column (1) and (2) cluster standard errors by fund; Column (3) and (4) cluster standard errors by fund and month; Column (5) and (6) cluster standard errors by fund×month. Across all specifications, the coefficients on the interaction term ComLet×PostResolution are positive and significant at least at 10% level, suggesting that after resolution of the SEC review process, underlying mutual funds take more risk. In terms of the control variables, volatility is positively associated with turnover ratio, fund load, and manager experience and negatively associated with expense ratio; whereas idiosyncratic volatility is positively associated with expense ratio and negatively associated with fund age, fund load, and team managed dummy.

To examine H3, I run OLS regression model specified in Equation 2.3.

[Table 2.5 here]

Table 2.5 reports results from the baseline regression, on the effects of regulatory oversight on mutual fund risk-taking during the review process. The dependent variable is either volatility or idiosyncratic volatility; again I include three different sets of clustering methods: Column (1) and (2) cluster standard errors by fund; Column (3) and (4) cluster standard errors by fund and month; Column (5) and (6) cluster standard errors by fund×month. Across all specifications, the coefficients on the interaction term ComLet ×DuringProcess are insignificant, suggesting that during the SEC review process, underlying mutual funds do not alter their risk-taking behaviors. In terms of the control variables, volatility is positively asso-

ciated with turnover ratio, fund load and negatively associated with team managed dummy; whereas idiosyncratic volatility is positively associated with expense ratio and negatively associated with fund load, and team managed dummy. Note that number of observations drop dramatically; this is because majority of comment letter conversations take less than 3 months to conclude and I require a fund-conversation to have at least one valid observation during the review process to be included in the regression model.[2.14]

Although I am careful to include a battery of control variables in the regression models, it is possible that there could be some fund level control variables that I missed. To address this issue, I employ fund and month fixed effects (in place of style-month fixed effects) in Equation 2.2 and Equation 2.3 and re-run the regressions. It is also possible that there could be some omitted variables at fund company (CIK) level since the SEC review process is conducted at fund company level and the dependent and other control variables are at individual fund level. To address this issue, I include CIK fixed effects in in Equation 2.2 and Equation 2.3 and re-run the regressions.

[Table 2.6 here]

Table 2.6 presents the regression results for these simple robustness checks. As shown in Table 2.6, all coefficients on ComLet×PostResolution continue to be positive and significant at least at 10% level; while all coefficients on ComLet×DuringProcess continue to be insignificant. This suggests that my results are robustness to different types of fixed effects.

2.5 CORROBORATING EVIDENCE

2.5.1 Analyses of Fund Holdings and Subsequent Performance

As previously discussed, there are in general two ways of measuring mutual fund risk-taking: return-based and holding-based. In this section, I attempt to use holding-based measure

[2.14]For example, if the initial comment letter is issued in May and the final "no further comment" letter is issued in June, there is not a single full calendar month's daily fund returns to calculate fund risk-taking measures and therefore dropped in the regression sample.

and examine the effect of regulatory oversight on mutual fund's portfolio choice (i.e., the intended risk). In the example illustrated in Figure 2.1, I use fund holdings information at the end of March and at the end of September to measure risk embedded in fund holdings. Specifically, I first test whether the shift in risk-taking behaviors can be explained by funds holding individual stocks with high return volatilities. Using daily stock returns from CRSP, I calculate individual stock idiosyncratic volatility by taking the standard deviation of the residual terms from regressing daily stock returns during a calendar month on corresponding Carhart 4-factors; then for a given fund, the dollar-weighted average idiosyncratic volatility is calculated based on actual fund holdings.

[Table 2.7 here]

I re-estimate Model 2 by replacing return based risk measure with holdings' idiosyncratic volatility and the result is reported in Column (1) of Table 2.7. I find that there is no significant change in average excess idiosyncratic volatility before and after the review process. Although I observe no difference in idiosyncratic volatilities of individual stocks in fund portfolios, fund holdings may affect fund return volatilities (and idiosyncratic volatilities) through portfolio diversification. To explore this possibility, I investigate industry concertation of fund portfolios using two measures introduced by Kacperczyk et al. (2005): the first one is industry Herfindahl index, defined as $HI_t = \sum_{i=1}^{N}(\omega_{i,t})^2$; and the second one is industry concentration ratio, defined as $ICI_t = \sum_{j=1}^{10}(\omega_{j,t} - \bar{\omega}_{j,t})^2$. The regression results are reported in Column (2) and Column (3) in Table 2.7. Surprisingly, I find both industry Herfindahl index and industry concentration ratio are significantly lower after resolution of the review process. This suggests that fund managers try to diversify the fund holdings; however, the realized risks (VOL and IVOL) are higher.

So far I have investigated several aspects of risk-taking behaviors of mutual fund in the midst of the SEC review process. However, one question remains unanswered: whether the shift in risk-taking behaviors can provide fund investor with superior fund returns. The increase in risk-taking after the review process can be justifiable if it produces better per-

formance. On the other hand, it is also possible that fund managers need to increase risk to simply catch up with others; that is, without shifting risk, funds will be even worse off. To examine this, I employ Equation 2.2 and replace the dependent variable with style-adjusted fund returns; in certain specifications, I add several additional control variables: *LagFlow* is the monthly net fund flow; *LagReturn* is the average of style-adjusted fund returns during the past 24-month period; and *SDLagReturn* is the standard deviation of past 24-month's style-adjusted returns. Because fund manager can extract large portion of returns by charging higher fees, I use both net returns and gross returns.

[Table 2.8 here]

Table 2.8 reports the regression results, Column (1) and (2) use net returns whereas Column (3) and (4) use gross returns. Similar to previous sections, I am particularly interested in the coefficient on the interaction term ComLet×PostResolution; the results show a negative but insignificant coefficient, suggesting that there is no performance differences between letter-receiving funds and non-letter-receiving funds after the resolution of the review process. Therefore, the shift in risk-taking behaviors of letter-receiving funds is likely due to the need of catching up with those non-letter-receiving funds.

2.5.2 Do Characteristics of the Review Process Matter?

Since there are considerably variations among the review processes, it is also interesting to examine how different review process characteristics affect mutual fund risk-taking. As discussed before, each review varies considerably by duration to resolution and the number of intermediate communication rounds between the SEC and the company. Moreover, since one comment letter can cite several potential issues, the complexity of the review process also varies. To test this, I construct several variables about the length and the complexity of a review process. Specifically, I use the following measure to proxy for length: (i) an

indicator which equals to one if the review process is among the top decile in length,[2.15] and (ii) the number of rounds of communications between the SEC and the fund company; and I use the number of topics cited in the initial comment letter to proxy for complexity. These measures are of course correlated in some way: lengthier process tends to be more complex, and vice versa. Empirically, I run separate regressions by adding each of the measure into my baseline model; since I use the subsample of all comment-receiving funds, the regression model is specified as follows:

$$\begin{aligned} \text{RISK}_{i,t} = \beta_0 + \beta_1 \text{PostResolution}_{i,t} + \beta_2 \text{Characteristic}_j + \beta_3 \text{Log(TNA)}_{i,t} \\ + \beta_4 \text{Log(AGE)}_{i,t} + \beta_5 \text{EXP}_{i,t} + \beta_6 \text{TO}_{i,t} + \beta_7 \text{LOAD}_{i,t} \\ + \beta_8 \text{TeamManaged}_{i,t} + \beta_9 \text{Tenure}_{i,t} + \alpha^l \text{Style} \times \text{Month}_{l,i,t} + \varepsilon_{i,t} \end{aligned} \tag{2.4}$$

The dependent variable, *RISK*, is the fund risk-taking measure (*VOL* or *IVOL*) defined previously. *PostResolution* is a dummy variable equals to one if it is within the 3-month window after an SEC review process, and equals to zero if it is within the 3-month window before an SEC review process; *Log(TNA)* is the natural logarithm of aggregated individual fund TNA in the fund company; *Log(AGE)* is the natural logarithm of number of years since fund inception; *EXP* is the fund's expense ratio; *TO* is the fund's turnover ratio; *LOAD* is the fund's total load; *TeamManaged* is dummy variable equals to one if Morningstar reports the fund as being team managed or if there are multiple managers in charge of the fund; *Tenure* is the natural logarithm of fund manager's experience (in years) in mutual fund industry. Finally, I include style-month fixed effects to control for potential heterogeneity in risk-taking behaviors across fund objectives and over time. The robust t-statistics is clustered by fund. The main variable of interest $Characteristic_j$ includes *LongConvDecile*, *# of Rounds*, and *# of Topics*, all defined previously.

[2.15] The length is measured in days, from the day when the initial comment letter is issued till the day when "no further comment" letter is issued.

[Table 2.9 here]

Table 2.9 presents the regression results; Panel A uses fund volatilities and Panel B uses fund idiosyncratic volatilities. Column (1) of both Panels seemingly confirms the main findings of H2. The overall results suggest that funds increase volatilities (VOL) if the review process becomes lengthier; whereas funds increase idiosyncratic volatilities (IVOL) if the review process becomes more complex.

2.5.3 Comment Letter Topics and Shift in Risk-Taking

The topics of each review process should also matter when considering fund manager's risk-taking behaviors. If a review process only concerns compliance regarding registration disclosure, there is little incentive for fund managers to alter risk. I collect topics of the initial comment letters from Audit Analytics and categorize them into several groups. The detailed descriptions and categorizations of topics mentioned in all initial comment letters are reported in Panel A of Table 2.10.

[Table 2.10 here]

For example, topic of "Risk Factors Disclosure" is categorized to be "*RISK*"; whereas topics of either "Investment Advisers Act of 1940 Rules and Regulations" or "Investment Company Act of 1940 Rules and Regulations" are categorized to be "*ACT1940*". From the total number of 5,715 comment letter conversations, I categorize them into five groups: *RISK*, *ACCOUNTING*, *ACT1940*, *REGISTRATION*, and *MISCELLANEOUS*. Because one review process usually include more than one topics, the categorization is not mutually exclusive (i.e., one conversation can belong to more than one groups). Panel B of Table 2.10 presents the distribution of categorized comment letter topics. For example, 1,021 conversations are considered to be risk-related and the remaining 4,694 are considered to be non-risk-related.

Before investigating the effect of comment letter topic on mutual fund risk-taking, I repeat analysis in Section 2.4.1 by replacing the dependent variable (*ComLet*) with *RiskLetter*, an

indicator that equals to one if the fund's management company has received at least one risk-related comment letter during the calendar year, and zero otherwise; I also replace one independent variable (*LagComLet*) with corresponding *LagRiskLetter*. The purpose of this analysis is to examine whether excessive risk-taking is associated with higher probability of receiving a risk-related comment letter.

[Table 2.11 here]

Table 2.11 reports the regression results, the specifications and structures are similar to those of Table 2.2. The findings are also similar; that is, although weighted average risk-taking is not associated with higher probability of risk-related regulatory oversight, as long as one fund stands out by taking excessive risk, the SEC will take notice and subsequently issue a risk-related comment letter to the fund company. As for control variables, the findings are more or less consistent with those of Table 2.2; larger companies are more likely to receive a risk-related comment letter whereas older companies are less likely to be a subject of a risk-related regulatory oversight. Once again, the strongest predictor of fund company receiving a risk-related SEC comment letter is whether it has received a risk-related SEC comment letter in the previous year.

Because the main focus of this study is to examine mutual fund's risk-taking behaviors, I am particularly interested in the difference in risk-taking behaviors between funds that received risk-related comment letters and those that received non-risk-related comment letters. I run separate regressions based on whether the comment letter is risk-related or not; I further divide the sample to look at risk-taking during as well as after resolution of the review process. The benchmark of risk-taking is volatilities or idiosyncratic volatilities measured just before receiving the comment letter, same as previous specifications.

[Table 2.12 here]

Table 2.12 presents the results from the multivariate regressions. Results show that, for funds that receive non-risk-related comment letters, they reduce risk during the review process but increase risk after resolution of the review process. One possible explanation

is that these funds try to be cautious during the review process by reducing risk-taking; after resolution, however, they increase risk-taking to restore reputation, or to catch up with others. For funds that receive risk-related comment letters, on the other hand, do not drastically change risk-taking both during and after resolution of the review process (except that they seem to increase idiosyncratic volatilities after resolution). One possible explanation is that there are no clear benefits for them to change their risk-taking behaviors since drastic changes in risk-taking may induce abnormal flow reaction. To get a better insight into the impact of regulatory review topic on mutual fund risk-taking, I repeat the analysis for other topic categories and report the results in Table 2.13.

[Table 2.13 here]

Overall, I find similar (but inconclusive) patterns when using accounting-related ("*ACCOUNTING*") comment letters but not in other categories (*ACT1940*, *REGISTRATION*, and *MISCELLANEOUS*). Results in these analyses (Table 2.12 and Table 2.13) suggest that the topic of the SEC review process matters to fund managers and they behave differently for different types of comment letter and during different periods.

2.6 CONCLUSION

Using a large sample of SEC comment letter conversations between financial regulator (the SEC) and mutual fund companies, I examine the effect of regulatory oversight on mutual fund risk-taking. First, I validate the SEC's claim of taking a "risk-based" approach when reviewing the filings; specifically, I show that mutual fund excessive risk-taking is positively associated with the probability of being a subject of regulatory oversight. Next, using propensity score matching design, I find that during the review process, underlying mutual funds do not change their risk-taking behaviors; after resolution of the review process, however, underlying mutual funds take more risks. Additional analyses reveal that such shift in risk-taking behaviors do not produce superior fund performance after resolution of

the review process. Cross-sectional tests show that funds increase volatilities if the review process is lengthier whereas funds increase idiosyncratic volatilities if the review process is more complex. Finally, I document that the topic of regulatory oversight also matters to fund managers; specifically, funds that receive non-risk-related comment letters reduce risk-taking during the review process but increase risk-taking after resolution of the review process; on the other hand, funds that receive risk-related comment letters do not drastically change their risk-taking behaviors. Overall, I document another channel, the regulatory oversight, through which affects mutual fund risk-taking behaviors. In doing so, I provide additional evidence on the unresolved debate over whether shift in risk-taking produces superior fund performance. Previous literature has documented the effects of the SEC comment letter on corporation decision making; using risk-taking measures at shorter horizons, I provide the first set of evidence on how investment managers react to the SEC comment letter review process.

Chapter Three

DOES PORTFOLIO DISCLOSURE MAKE MONEY SMARTER?[†]

3.1 INTRODUCTION

Since 1979, institutional investors have been required to publicly disclose their quarterly equity holdings via Form 13F filed with the Securities and Exchange Commission ("SEC"). This disclosure of proprietary information is of particular concern for hedge fund managers. Hedge fund strategies are ideas that cannot be patented, and mandatory disclosure leaves hedge funds vulnerable to copycat traders that mimic and front-run the positions publicly revealed in Form 13F filings (Brown and Schwarz, 2013; Cao, Du, Yang, and Zhang, 2019). The costs of this disclosure are well-documented: fund returns decrease substantially after a fund begins filing Form 13F (Shi, 2017); and human copycat traders have been shown to induce an average annual performance loss 2.56 p.p. on the disclosing fund (Cao et al., 2019).

However, both the SEC and the public have long held the view that portfolio disclosure benefits fund investors. For example, in 1979, after soliciting public feedback on the 13F filing requirement, the SEC noted that Form 13F will provide investors with "a greater

[†]This chapter is co-authored with Byong Uk Kang (School of Accounting and Finance, The Hong Kong Polytechnic University, e-mail: byoung.kang@polyu.edu.hk) and Andrew J. Sinclair (Faculty of Business and Economics, The University of Hong Kong, e-mail: andrew.sinclair@hku.hk).

basis for comparison shopping among investment managers," and that "such an evaluation is dependent upon a periodic examination of a manager's investment decisions as reflected by his holdings transactions."[3.1] That is, the SEC, based on public feedback, believed that Form 13F helps investors evaluate fund managers and make more informed (i.e., smarter) investment decisions. Indeed, the information contained in Form 13F is valuable to *the econometrician*. Agarwal, Ruenzi, and Weigert (2018) demonstrate that Form 13F helps predict hedge fund performance.[3.2] In this paper, we provide evidence that real-world investors use the information contained in 13F filings, and this information helps improve their fund selection ability.

In particular, we study how public disclosure affects aggregate investor decisions, as proxied by the quarterly net fund flows into a given hedge fund. We employ a "follow the money" approach, to see whether investments subsequently lead to good performance, and whether divestments avoid bad performance. This relationship between past fund flows and future performance (if it exists) is referred to as the "smart money" effect in the literature,[3.3] and in this paper we investigate how the smart money effect changes after a fund begins filing Form 13F.

We begin our study with a portfolio-based analysis. We double-sort hedge funds based on (1) 13F filing status (i.e., whether they have previously filed 13F or not), and (2) past fund flows. In each filing-status group, we form a long-short portfolio by longing the the high-flow funds (top quartile), and shorting the low-flow funds (bottom quartile). We consider this portfolio to be a dollar-neutral proxy for the smart money: it captures whether high flows precede future good performance, and whether low flows precede future poor performance.

[3.1] The SEC solicited public feedback after it announced the adoption of Rule 13f-1, which required quarterly reporting. The SEC received 124 letters in response. See: Securities and Exchange Act of 1934 Release No. 15461. January 5, 1979.

[3.2] Kacperczyk et al. (2005); Kacperczyk, Sialm, and Zheng (2008) and Cremers and Petajisto (2009) also demonstrates in the mutual fund market that the portfolio information contained in public disclosure predicts mutual fund returns.

[3.3] See Gruber (1996), Zheng (1999), and Sapp and Tiwari (2004) for a discussion of the smart money effect among mutual fund investors, and Baquero and Verbeek (2005), Ahoniemi and Jylhä (2014), and Ozik and Sadka (2015) for discussion of smart money in the hedge fund market.

We compare the high-low flow portfolio for filers versus non-filers, and find evidence that the smart money effect is larger among filing funds, compared to non-filers. In particular, the difference in performance spread is 29 basis points ("bps") of monthly excess returns and 25 bps of monthly Fung and Hsieh (2001) seven-factor ("FH7") alpha. Annualized, this spread is approximately 3.0 percentage points ("p.p.") of FH7 alpha. Our results provide evidence that investors make smarter allocation decisions to funds that publicly disclose their holdings.

Our portfolio analysis captures the different smart money effect between two groups, but does not reflect that these two groups may have other unobservable differences. To identify the impact of disclosure on investors' fund selection ability, we take advantage of our staggered panel data structure to estimate longitudinal changes in the smart money effect. Our variable of interest is the "smartness" of fund flows, that is, the beta coefficient on a regression of future performance on past fund flows. We are interested in how the slope of this relationship changes after a fund becomes a 13F filer. This can be thought of as a standard panel diff-in-diff where the post indicator is interacted with fund flows. In particular, our methodology has been used in a corporate finance setting to study the effect of a staggered treatment on a slope, see Gormley, Kim, and Martin (2012), Lel and Miller (2015), Edmans, Jayaraman, and Schneemeier (2017), and Jayaraman and Wu (2018).

In our regression setting, we verify that the smart money effect increases after a fund starts filing Form 13F. Using a regression discontinuity approach, we find that after a fund starts filing Form 13F, an additional 10 p.p. of fund flows predicts 1.56 p.p. higher future annualized FH7 alpha.

We supplement our fund-level flow-based analysis with an investor-level holdings-based analysis. Conceptually, our within-investor analysis controls for investor-level fixed effects. Our analysis asks, for a given investor, if their portfolio of 13F-filing hedge funds perform better than their portfolio of non-filers. Investor-level hedge fund portfolios are available for a small subset of investors, namely, we have portfolio holdings for 127 registered funds of

hedge funds ("FoFs").[3.4]

For each FoF, we form two value-weighted portfolios rebalanced quarterly, consisting of 13F-filing hedge funds and non-filing hedge funds. We find that the average FoF earns 6.49 p.p. annually on its portfolio of filers, versus 5.52 p.p. annually on its portfolio of non-filers, for a spread of 0.97 percentage points. This result provides evidence that FoFs make smarter allocations within the universe of 13F-filing hedge funds than outside. By controlling for investor specific characteristics (e.g., sophistication), this result argues against the possibility that our main results are driven by a clientele effect (e.g., smarter investors just happen to choose among 13F filers rather than 13F filings make investors smarter). Our investor-level analysis helps rule out this reverse-causality story.

Our analysis generally supports an information story. Our cross-sectional tests provide evidence that the increase in smart money is due to the information content of portfolio disclosure. We find that the smart money effect is driven by cases where: (1) the information about a fund's portfolio holdings is more precise, e.g., when the fund is the only fund in the family or when the fund is the largest one in the family; (2) information is abnormally viewed more, as measured using the number of downloads or the number of unique IP addresses making these downloads; and (3) investors have more opportunity to use the information, i.e., when the fund imposes less restrictions on redemptions and/or subscriptions. Furthermore, we estimate a placebo specification using only FoFs (which do not hold 13(f) securities) and find no evidence that the smart money effect changes after the fund's parent firm starts filing Form 13F. Taken together, these results provide evidence that investors use the information disclosed in 13F filings to evaluate fund managers, and that this improves their fund selections.

Furthermore, our results cannot be explained entirely using the price pressure chan-

[3.4]There are a small number of FoFs who are registered with the SEC, and are required to disclose their portfolio holding on a quarterly basis via SEC Form N-Q, N-CSR, and N-CSRS. See Aiken, Clifford, and Ellis (2013), Agarwal, Aragon, and Shi (2019), Gao, Haight, and Yin (2019) and Sialm, Sun, and Zheng (2019) for examples of recent work that uses portfolio data from registered FoFs.

nel. Under this mechanism, smart money manifests because inflows (outflows) lead to more (less) purchases in underlying securities, which push the price of those securities up (down). Ahoniemi and Jylhä (2014) provide evidence that the general smart money effect in the hedge fund market is primarily driven by the price pressure channel. However, price pressure fails to explain several regularities in our analysis. For one, our main effect is found in a regression discontinuity setting. This implies that the price pressure effect changes after a fund becomes a filer. While this is possible, we view it as unlikely given the lagged nature of 13F disclosure. Second, the price pressure story appears to drive returns from month t to $t+2$, whereas we find evidence of the smart money effect at longer durations (up to two quarters after the initial flows). Third, under the information story, the smart money effect is stronger for funds with low flow restrictions, whereas under the price pressure story, the smart money effect is stronger for funds with high flow restrictions. Consistent with the information story, we find the smart money effect is stronger for low flow-restriction funds. Fourth, the price pressure channel cannot explain why FoFs earn higher returns on their 13F filing hedge fund investments. While we cannot completely disentangle the price pressure and information channels, our results provide support for the information channel above and beyond what can be explained by the price pressure channel.

Our paper contributes to the cost-benefit analysis of 13F portfolio disclosure. The extant literature has largely found evidence that disclosure impairs the ability of fund managers to utilize their proprietary information,[3.5] leading to lower returns for their clients. Shi (2017) documents that hedge fund performance drops by 2.7 p.p. annually following disclosure. Brown and Schwarz (2013) and Cao et al. (2019) document evidence of copycat trading, and Cao et al. (2019) finds that the existence of one copycat decreases target fund performance by 2.56 p.p. annually. These costs represent a level-shift down in performance, whereas our benefits describe an increase in the selection ability of investors.

[3.5] Aragon, Hertzel, and Shi (2013) and Agarwal, Jiang, Tang, and Yang (2013) demonstrate that 13F filings may contain proprietary information. They demonstrate that hedge funds earn higher returns when they can avoid public disclosure.

Our results, by demonstrating that investors make smarter decisions, provide a counterbalance to the documented costs of public disclosure, and has potential general equilibrium implications.[3.6] For example, if a decrease in returns were the only effect, then we might expect to see that disclosure is negatively related to price efficiency in public markets, as it dilutes the incentives for asset managers to collect and process information. However, our documented increase in the smartness of money can potentially offset the decrease in price efficiency. Disclosure helps investors source better hedge fund managers, which implies that informed managers receive more capital. As the efficiency of asset prices is linked to the efficiency of the asset management market (Gârleanu and Pedersen, 2018), the total effect of public disclosure on price efficiency is thus ambiguous.

This cost-benefit analysis is important for understanding the effect of portfolio disclosure on economic welfare and, in particular, whether disclosure is "good for society" (Shiller, 2013; Zingales, 2015). In the hedge fund market, the client base has shifted from wealthy individuals to large institutional investors. Institutional investors now comprise about 85% of all hedge fund clients. These investors manage the pension plans, insurance claims, and endowments of a society. If regulation can help these institutional investors choose better hedge fund managers, then this is potentially a large gain to the wealth portfolio of a wide cross-section of society.

Finally, we add to the body of literature that studies the selection ability of registered FoFs. Aiken, Clifford, and Ellis (2015) and Gao et al. (2019) find evidence that FoFs exhibit skill when making investment decisions. Our results shed light a potential source of such skill by documenting that FoFs earn higher returns from their investments in 13F-filing hedge funds. Sialm et al. (2019) studies the nature of this skill and finds evidence that FoFs have an informational advantage in assessing the prospects of nearby hedge funds. In contrast, but not necessarily in conflict, to their finding we find evidence that FoFs benefit more from

[3.6] See Cochrane (2014) for a discussion of the general equilibrium challenges of drawing inferences from the cost-benefit analysis of financial regulation.

13F disclosure when assessing geographically distant hedge funds.

The remainder of the paper is structured as follows: Section 3.2 discusses the institutional details; Section 3.3 describes the data; Section 3.4 provides the portfolio sorting analysis and the difference-in-difference regression analysis; Section 3.5 presents our cross-sectional analysis of information content; Section 3.6 presents holdings-based analysis using FoFs; and Section 3.7 concludes.

3.2 INSTITUTIONAL DETAILS

3.2.1 A Brief History of Section 13(f)

In the 1960s, the public became increasingly concerned about the role of institutional investors contributing the speculative atmosphere of the securities markets.[3.7] This was in part due to the increasing presence of institutional investors in financial markets. In 1960, institutional investment managers accounted for about 20% of all trading activity on the New York Stock Exchange ("NYSE").[3.8] By 1966, this figure had more than doubled to 43%,[3.9] and by the early 1970s institutional managers accounted for an estimated 67% of all trading on the NYSE (Jensen, 1976).

In 1968, the United States Congress directed the SEC to study the effect of institutional investors on financial markets. In March 1971, the SEC published the results in its Institutional Study,[3.10] and stated that they did not find evidence that large institutional investors negatively affected financial markets. However, the SEC noted the difficulties it encountered in conducting the study, and recommended the 1934 Act be amended to give the SEC authority to require disclosure of holdings and transactions data.

[3.7] Institutional Investor Study Report, H.R. Doc. No. 64, 92d Cong., 1st Sess. XXXI-XXXIII (1971)

[3.8] See Staff of House Comm. on Energy and Commerce, 99th Cong., 2d Sess., Restructuring Financial Markets: The Major Policy Issues 269 (Comm. Print 1986)

[3.9] See Biel, Why Institutional Investors Control the Stock Market's Future Course, Comm. & Fin. July 27, 1967, at 1, 24.

[3.10] Institutional Investor Study Report, H.R. Doc. No. 64, 92d Cong., 1st Sess. XXXI-XXXIII (1971)

On June 4, 1975, Congress enacted section 13(f) as part of the Securities Act Amendments of 1975.[3.11] The legislative history of the act sheds light on the intended impact of section 13(f). When considering the proposal, the Senate noted:

> Perhaps the most important justification for the information collection program which this bill would authorize is the need to collect and disseminate to individual investors data about institutional investment managers. Many people believe that it is not possible to make informed investment decisions on a security without information related to the likely market activity and the degree of institutional concentration in the security. ... [W]hat is important is that information about the securities holdings and certain transactions of institutional managers be available to all investors - both institutional and individual - so that they can all have it, whatever its relative usefulness in making their independent judgments. Thus, with the dissemination of data about institutional managers, an institutional disclosure program should stimulate a higher degree of confidence among all investors in the integrity of our securities markets.[3.12]

While the stated intent of the disclosure requirement is to increase the transparency of large influential institutional investors, market participants quickly learned that the information reported on 13F could be used to evaluate investment managers. By 1987, various publications regularly published evaluations and ratings of managers based on data collected from 13F filings (Lemke and Lins, 1987).

3.2.2 Form 13F Filing Requirements

Currently, institutional investment managers are required to file Form 13F on a quarterly basis. The obligation to file is triggered whenever the management company has discretion

[3.11] Pub. L. No. 94-29, 89 Stat. 119 (1975)

[3.12] Report of Senate Comm. on Banking, Housing and Urban Affairs, S. Rep. No. 75, 94th Cong., 1st Sess. 85 (1975)

over assets totaling at least $100 million. Specifically, in a particular calendar year, if the assets of a management company are above the $100 million threshold as of the last trading day of any month, then the firm will be required to file Form 13F quarterly for one year starting on December 31st. The firm must file Form 13F within 45 days of each calendar quarter end, and asset positions are reported as a snapshot as of the quarter end date.[3.13]

The $100 million asset threshold described above is based on the company's holdings of section 13(f) securities.[3.14] Firms are required to report their long position of section 13(f) securities, and their option positions where the underlying security is a section 13(f) security. Generally, short equity positions and bond positions are not reported, and foreign equity positions are also not included.

The 13F filing requirement offers several features that are important for causally identifying the costs and benefits of regulation (Leuz and Wysocki, 2016). (1) The initial law requiring portfolio disclosure is plausibly exogenous to the hedge fund market. Congress enacted section 13(f) in 1975,[3.15] in order to give the SEC power to monitor the market impact of all institutional investors (e.g., banks, mutual funds, pension plans, etc.).[3.16] At the time, the hedge fund market was still in its infancy. (2) There is a threshold condition for filing 13F. A firm is required to file Form 13F once it invests more than $100 million in 13(f) securities.[3.17] This provides treatment and control groups. (3) Form 13F is filed

[3.13]The investment manager is required to report a schedule of investments, which includes: (1) the name of the issuer; (2) the title and class of the security; (3) the CUSIP number of the security; (4) the fair market value of the holding, using the value on the last trading day of the quarter; (5) the total number of shares held; (6) whether the manager has sole or shared discretion over the assets; (7) a list of the other managers that have discretion over this asset holding; and (8) whether the manager has sole, shared, or no voting authority over the shares held.

[3.14]Section 13(d)(1) describes which types of equity securities are required to be considered. However, Rule 13(f)(1) effectively limits this set to only those equities that trade on a national securities exchange or are quoted on NASDAQ.

[3.15]See: Pub. L. No. 94-29, 89 Stat. 119 (1975) available at https://www.govinfo.gov/content/pkg/STATUTE-89/pdf/STATUTE-89-Pg97.pdf#page=25.

[3.16]See Report of Senate Comm. on Banking, Housing and Urban Affairs, S. Rep. No. 75, 94th Cong., 1st Sess. 85 (1975). The Senate noted the need for regulators to monitor the influence and impact of institutional investors on the securities markets. In particular, to ensure investor confidence in equity markets.

[3.17]13(f) securities typically are equity securities registered with the SEC under Section 12 of the Securities and Exchange Act. The SEC provides a full list of all 13(f) securities every quarter to facilitate the filing of Form 13F: https://www.sec.gov/divisions/investment/13flists.htm.

at the parent company level, and a parent might have several hedge funds. Thus, for two otherwise identical funds, one might belong to a filing parent, and the other might belong to a non-filing parent. Indeed, there is a large overlap in the distribution of fund size between the control and treatment groups,[3.18] and this allows us to control for fund size. (4) The filing threshold yields a staggered panel, thus firms (and by transitivity, funds) cross the threshold at different times. This allows us to control for market-wide effects that may impact all filers.

3.3 DATA

3.3.1 Hedge Fund Sample

Our sample of hedge funds comes from the Thompson Reuters Lipper TASS database. For each listed fund, the database provides monthly net-of-fee returns and assets under management ("AUM"), a snapshot of characteristics, and the name of the parent management company. As of December 2016, TASS contains a total of 20,094 live and graveyard funds. Following prior literature, we require our sample of funds to report: monthly returns and AUM denominated in U.S. dollars, returns net-of-fees, and the fund's primary strategy/style. We also remove observations before 1994 in order to control for survivorship bias. To control for backfill bias, we further exclude the first eighteen months of returns for each fund. We also require at least twenty-four months of return observations. Next, in order to merge funds with Form 13F, we only include funds that report a management company. We then drop FoFs, as these do not hold equity positions (although, we use the FoFs subsample in a placebo test). Finally, we follow Aggarwal and Jorion (2010) and correct for master-feeder duplicates. Our final sample contains 4,398 unique hedge funds managed by 2,600 management firms.

We next identify whether a hedge fund belongs to an parent company that is subject to

[3.18] See Figure 1 in Shi (2017) for a distribution of fund size for the treatment and control groups.

13F reporting requirements. Quarterly 13F reports are filed with the SEC and are publicly available on the EDGAR system. We obtain the full list of corporate filings from the EDGAR index files as of June 2017.[3.19] We focus on the subset of companies that have filed at least one 13F report, and match them with the list of management firms in TASS.[3.20] As will be discussed below, a fund-quarter observation is defined as "filer" if investors (i.e., the public) has access to at least one 13F report at the beginning of the quarter. We first identify filers starting in 1999Q3 because the first set of 13F filings available in EDGAR discloses holdings as of the end of 1999Q1 and is filed during 1999Q2.[3.21] Following Shi (2017), we exclude observations after a fund's very last 13F report.[3.22] After this procedure, our sample contains a total of 4,269 funds from 2,534 management firms from 1999Q3 to 2016Q3, among which 1,220 funds (from 578 management firms) changed filing status from non-13F filer to 13F filer in the sample period ("switchers").[3.23]

3.3.2 Fund-of-Hedge Funds Sample

In the holdings-based analysis (section 3.6), we follow Gao et al. (2019) and use answers in Form N-SAR filings to identify potential FoFs among all registered investment companies.[3.24] This procedure yields a sample of 496 potential FoFs. Next, we use holdings data reported in forms N-CSR, N-CSRS, and N-Q to exclude funds that primarily hold assets other than hedge funds. In the process, we also drop funds that fail to raise capital (and thus report zero

[3.19] The index files can be found here: https://www.sec.gov/Archives/edgar/full-index/.

[3.20] Throughout the paper, we consider the following SEC form types to be 13F report: 13F-E, 13F-E/A, 13F-HR, 13F-HR/A, 13F-NT, 13F-NT/A, 13FCONP, and 13FCONP/A.

[3.21] On January 12, 1999, the SEC adopted a rule requiring Form 13F reports to be filed in electronic format (effective on April 1, 1999). Filers must submit Form 13F electronically, unless a hardship exemption is available. See Release No. 34-40934 (https://www.sec.gov/rules/final/34-40934.htm). This is reflected in the EDGAR index files, there are 100, 180, 2,165, and 2,346 13F reports filed during 1998Q4, 1999Q1, 1999Q2, and 1999Q3, respectively.

[3.22] In an untabulated robustness check, we repeat our analyses and find similar results.

[3.23] There are 380 funds (from 177 management firms) that were 13F filers at the start of the sample period ("always-filers"), and 2,669 funds (from 1,779 management firms) that never filed 13F at any point up to the end of the sample period ("never-filers").

[3.24] Specifically, we first identify closed-end funds using Item 27, as FoFs commonly register as closed-end funds. We then filter funds with minimum initial investment requirements using Item 61 of the filing.

holdings throughout their lifetime). Finally, we identify funds with master-feeder structures so that only master funds are included in our sample.[3.25] The final sample consists of 127 FoFs covering a sample period from 2004Q3 to 2016Q4.[3.26]

We hand collect quarterly holdings data from Form N-CSR, N-CSRS, and N-Q filings for all registered FoFs in our final sample. We then match each portfolio hedge fund with the list of hedge fund names in TASS and Form ADV.[3.27] Overall, we are able to match 79.06% of the portfolio hedge funds.[3.28] To determine whether a portfolio hedge fund-quarter observation is "filer" or "non-filer", we follow the same procedure described above.[3.29]

At the end of 2010, for example, our sample consists of 46 FoFs; the mean (median) FoF size is $392 million ($119 million). On average, a FoF holds 31 hedge funds, of which 17 are "filer" hedge funds and 9 are "non-filer" hedge funds;[3.30] and a FoF invests 65% and 23% of its total assets in 'filer" hedge funds and "non-filer" hedge funds, respectively.[3.31]

3.4 13F FILINGS AND SMART MONEY

We study the effect of portfolio disclosure on the informational content of investor flows using (1) a univariate portfolio analysis, and (2) a difference-in-differences estimation.

3.4.1 Portfolio Sorts

We first study whether investors make better decisions when investing in 13F-filing funds. We proxy for investor decisions using net fund flows at the fund level. Following the literature

[3.25] This is because that feeder funds normally invest 100% in their master funds.
[3.26] Our sample starts in 2004 because registered investment companies are required to file quarterly holdings starting from 2004.
[3.27] In Section 7.B.(1) of Form ADV, registered investment advisers are required to report all private funds that they advise.
[3.28] Among all portfolio hedge funds, 23.64% have matches in TASS and 74.96% have matches in Form ADV.
[3.29] For funds matched with Form ADV, we utilize the "legal name" reported in Item 1.A of Form ADV and check whether it is among companies that have filed at least one 13F report.
[3.30] For the remaining 5 portfolio hedge funds that cannot be matched with either TASS or Form ADV, we do not know their management firms/advisers and therefore are not categorized as either "filer" or "non-filer".
[3.31] Summary statistics of FoFs holdings are provided in Table C.1.

(Chevalier and Ellison, 1997; Sirri and Tufano, 1998), we calculate quarterly fund flow as:

$$\text{Flow}_{i,t} = \frac{\text{AUM}_{i,t} - \text{AUM}_{i,t-3}(1 + R_{i,t-3:t})}{\text{AUM}_{i,t-3}}, \tag{3.1}$$

where $\text{Flow}_{i,t}$ is the percent fund flow for fund i at time t over the past three months, $\text{AUM}_{i,t}$ is the AUM of fund i at time t, and $R_{i,t-3:t}$ is the net-of-fee return of fund i from time $t-3$ to time t.

We conjecture that high fund flows reflect investor expectations that returns will be high, and low fund flows reflect expectations that returns will be low. If investors can predict future performance, then the spread in performance between high-flow and low-flow funds will be positive. This spread captures the smart money effect.

If, on average, the spread is higher for 13F-filing funds, compared to non-13F filers, then this provides evidence that investors in aggregate have more information about 13F-filing funds compared to non-13F-filing funds.

Table 3.1 reports this portfolio-based analysis. At end of each calendar quarter q, we double-sort hedge funds based on (1) current filing status (i.e., filer or non-filer) and, (2) fund flow quartile in quarter q. We form value-weighted portfolios within each group-quartile, rebalanced every quarter. We consider three performance measures: excess return, Fung and Hsieh (2001) seven-factor alpha ("FH7"), and the alpha from the Fung and Hsieh (2001) seven-factor model extended to include the momentum factor ("FH8"). The FH8 model is an important benchmark for our smart money analysis. It controls for both common sources of hedge fund returns (see Fung and Hsieh (2001)) and also for momentum, the latter of which is particularly important because the early evidence of smart money in the mutual fund industry was driven by exposure to the momentum factor (see Zheng (1999) and Sapp and Tiwari (2004)).

[Table 3.1 here]

In each panel of Table 3.1, the first four columns report the monthly performance for the

four portfolios sorted on past fund flows. The fifth column, *High-Low*, presents the spread in average performance between the high-flow and low-flow funds. In each panel, the first row presents the portfolio returns for filing funds, the second row presents portfolio returns for non-filing funds, and the third row, *Filer-NonFiler*, presents the difference between filer and non-filer returns.

Panel A presents excess returns, Panel B reports FH7 alphas, and Panel C reports FH8 alphas. In each panel, the bottom right value represents the difference in the high-minus-low spread between filers and non-filers. The difference in the spread is positive and significant in all three specifications. Measured in terms of excess returns, FH7 alpha, and FH8 alpha, the monthly difference in spreads are 29.2 bps, 25.1 bps, and 23.3 bps, respectively. These monthly differences correspond to annual differences of about 3.5% of excess returns, 3.0% of FH7 alpha, and 2.8% of FH8 alpha.

[Figure 3.1 here]

Figure 3.1 presents the cumulative returns of the filer versus non-filer HML portfolios. When allocating among non-filers, investors do not appear to exhibit selection ability (the red dashed line), however they do when allocating among filers (the blue solid line). The spread between these two portfolios is about 3.0 percentage points of FH7 alpha per year. Given that the approximate size of the hedge fund industry is $5.2 trillion, then the dollar gain from mandatory disclosure is potentially worth upwards of $150 billion per year.

3.4.2 Difference-in-Differences Estimation - Main Regression

The portfolio analysis shows that the smart money effect is stronger among 13F-filing funds than among non-filing funds. We next provide evidence of the causal effect of portfolio disclosure on informed investing by studying whether flows become smarter after a fund becomes a filer. We employ a difference-in-differences analysis that compares the difference in the smart money effect before and after disclosure with that of a control group in the

same time period.

Conceptually, our approach regresses future performance on hedge fund flows.

$$\text{Performance}_{\text{i,q+t}} = \alpha + \beta \text{Flow}_{\text{i,q}} + \varepsilon_{i,q} \tag{3.2}$$

The smart money effect is captured by the beta in the above regression. It measures whether past investor flows are able to predict future hedge fund performance.

We study how the smart money effect (beta) changes after a hedge fund starts filing Form 13F. To study how this slope change, we employ a difference-in-differences research design based on prior literature examining changes in slope using staggered events (Gormley et al., 2012; Lel and Miller, 2015; Edmans et al., 2017).[3.32] Specifically, We use the following panel regression framework with fixed-effects:

$$\text{Performance}_{\text{i,q+t}} = \alpha_j + \alpha_q + \beta \text{Treatment}_{\text{i}} \times \text{Post}_{\text{i,q}} \times \text{Flow}_{\text{i,q}} + \varepsilon_{i,q} \tag{3.3}$$

where our treatment group are funds that will file Form 13F at some point of the sample, and our post event is whether the fund has already started filing Form 13F. We interact the treatment and post variables with past fund flows, and study whether the smart money effect (beta) between flows and future performance is different for treated funds after the event.

[3.32] In Lel and Miller (2015), they exclude countries that passed a takeover law prior to the beginning of their sample period. Our baseline results are robust after excluding always-filers in our sample.

The full regression specification is:

$$\begin{aligned}\text{Performance}_{\text{i,q+t}} = \alpha_j + \alpha_q + \beta_1 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} + \beta_2 13\text{F}_\text{i} \\ + \beta_3 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} \times \text{Flow}_{\text{i,q}} \\ + \beta_4 13\text{F}_\text{i} \times \text{Flow}_{\text{i,q}} + \beta_5 \text{Flow}_{\text{i,q}} \\ + \beta_6 \text{Post}_{\text{i,q}} \times \text{Flow}_{\text{i,q}} + \beta_7 \text{Post}_{\text{i,q}} + \varepsilon_{i,q}\end{aligned} \tag{3.4}$$

$Performance_{i,q+t}$ is the quarterly compounded performance in quarter $q+t$. Performance is measured as (1) excess returns, (2) alpha from the FH7 model, and (3) alpha from the FH8 model. $13F_i$ is an indicator for whether fund i ever files form 13F, and is equivalent to $Treatment_i$ in equation (3.3). $Post_{i,q}$ is an indicator for whether fund i has filed form 13F prior to quarter q. $Flow_{i,q}$ is the quarterly fund flow in quarter q. α_j is fund style fixed effects and control for systematic differences across different investment styles. α_q is time fixed effects and account for time-varying factors that affect all funds, such as macroeconomic trends or trends in hedge fund performance.

Several terms in this specification are redundant and will be dropped.[3.33] We can then rewrite our regression specification as:

$$\begin{aligned}\text{Performance}_{\text{i,q+t}} = \alpha_j + \alpha_q + \beta_1 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} + \beta_2 13\text{F}_\text{i} \\ + \beta_3 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} \times \text{Flow}_{\text{i,q}} \\ + \beta_4 13\text{F}_\text{i} \times \text{Flow}_{\text{i,q}} + \beta_5 \text{Flow}_{\text{i,q}} + \varepsilon_{i,q}\end{aligned} \tag{3.5}$$

This is our first baseline regression model, with standard errors clustered at the management company level (Bertrand, Duflo, and Mullainathan, 2004).

In our second baseline specification, we add a set of fund-level control variables (defined

[3.33] The variable $Post_{i,q}$ is equal to one for all quarters after fund i begins filing form 13F. That is, this variable is only equal to one for 13F filers, and is thus equal to $13F_i \times Post_{i,q}$. We thus drop terms containing the former.

below):

$$\begin{aligned}\text{Performance}_{\text{i,q+t}} = \alpha_j + \alpha_q + \beta_1 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} + \beta_2 13\text{F}_\text{i} \\ + \beta_3 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} \times \text{Flow}_{\text{i,q}} \\ + \beta_4 13\text{F}_\text{i} \times \text{Flow}_{\text{i,q}} + \beta_5 \text{Flow}_{\text{i,q}} + \gamma_1 \text{Controls}_{\text{i,q}} + \varepsilon_{i,q}\end{aligned} \tag{3.6}$$

In our next specification, we include the interaction of flow with time fixed effects, and style fixed effects to control for observable differences in flows:

$$\begin{aligned}\text{Performance}_{\text{i,q+t}} = \alpha_j + \alpha_q + \beta_1 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} + \beta_2 13\text{F}_\text{i} \\ + \beta_3 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} \times \text{Flow}_{\text{i,q}} \\ + \beta_4 13\text{F}_\text{i} \times \text{Flow}_{\text{i,q}} + \beta_5 \text{Flow}_{\text{i,q}} + \gamma_1 \text{Controls}_{\text{i,q}} \\ + \gamma_2 \text{Flow}_{\text{i,q}} \times \alpha_j + \gamma_3 \text{Flow}_{\text{i,q}} \times \alpha_q + \varepsilon_{i,q}\end{aligned} \tag{3.7}$$

We then further add the interaction of flow with the set of control variables:

$$\begin{aligned}\text{Performance}_{\text{i,q+t}} = \alpha_j + \alpha_q + \beta_1 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} + \beta_2 13\text{F}_\text{i} \\ + \beta_3 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} \times \text{Flow}_{\text{i,q}} \\ + \beta_4 13\text{F}_\text{i} \times \text{Flow}_{\text{i,q}} + \beta_5 \text{Flow}_{\text{i,q}} + \gamma_1 \text{Controls}_{\text{i,q}} \\ + \gamma_2 \text{Flow}_{\text{i,q}} \times \alpha_j + \gamma_3 \text{Flow}_{\text{i,q}} \times \alpha_q \\ + \gamma_4 \text{Flow}_{\text{i,q}} \times \text{Controls}_{\text{i,q}} + \varepsilon_{i,q}\end{aligned} \tag{3.8}$$

Finally, we replace the standalone style fixed effects (α_j) with fund fixed effect (α_i) to control for time-invariant omitted fund characteristics, such as manager skill. In presence of the fund fixed effects, standalone term $13F_i$ becomes redundant and therefore dropped; furthermore, time-invariant fund characteristics also become redundant; however, their interactions with flow are still included and estimated. Our last baseline specification is as

follows:

$$\begin{aligned}\text{Performance}_{\text{i,q+t}} = {} & \alpha_i + \alpha_q + \beta_1 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} \\ & + \beta_3 13\text{F}_\text{i} \times \text{Post}_{\text{i,q}} \times \text{Flow}_{\text{i,q}} \\ & + \beta_4 13\text{F}_\text{i} \times \text{Flow}_{\text{i,q}} + \beta_5 \text{Flow}_{\text{i,q}} + \gamma_1 \text{Controls}_{\text{i,q}} \\ & + \gamma_2 \text{Flow}_{\text{i,q}} \times \alpha_j + \gamma_3 \text{Flow}_{\text{i,q}} \times \alpha_q \\ & + \gamma_4 \text{Flow}_{\text{i,q}} \times \text{Controls}_{\text{i,q}} + \varepsilon_{i,q}\end{aligned} \tag{3.9}$$

Specifications (3.5) to (3.9) form our baseline regression models, allowing us to study how the smart-money effect changes after a fund becomes a filer (captured by β_3), controlling for the fact that the smart money effect might be different for filers compared to non-filers.

We evaluate hedge fund performance using monthly net-of-fee returns reported in TASS. In our main regression analysis, we consider three performance measures: excess return, FH7 alpha, and FH8 alpha. Following Carhart (1997), we first calculate monthly alphas. Specifically, at the end of each month, we first estimate factor loadings using return observations from the past 24 months (i.e., month $t-23$ to t) and the following factor model:

$$\text{r}_{i,t} - \text{r}_{f,t} = \alpha_i + \sum_{k=1}^{K} \beta_i^k \text{F}_t^k + \varepsilon_{i,t} \tag{3.10}$$

where $r_{i,t}$ is the return of fund i in month t, $r_{f,t}$ is the risk-free rate in month t, α_i is the performance measure of fund i over the regression period, β_i^k is the factor loading of the returns of fund i on factor k during the regression period, F_t^k is the return for factor k in month t , and $\varepsilon_{i,t}$ is the error term of fund i in month t. Then we calculate alpha based on the loadings for month $t+1$. Finally we compound monthly alphas to get quarterly alpha. The Fung and Hsieh (2001) seven factors are: (1) S&P 500 returns minus the risk-free rate (S&P 500); (2) Wilshire small-cap 1,750 returns minus Wilshire large-cap 750 returns (SC-LC); (3) changes in the constant maturity yield of the ten-year Treasury bond; (4) changes in

the spread of Moody's Baa minus the ten- year Treasury bond; (5) the bond trend–following factor (PTFSBD); (6) the currency trend–following factor (PTFSFX); and (7) the commodity trend–following factor (PTFSCOM).[3.34] In the case of FH8 alpha, we obtain the momentum factor from Kenneth R. French's website.[3.35] As an untabulated robustness check, we also use alternative performance measures, including the market model (CAPM), the Fama and French (1992) three-factor model (FF3), and the Carhart (1997) four-factor model.

In some specifications, we include a set of fund-level control variables. The time-variant controls include: *LogSize*, the logarithm of AUM at the end of $q-4$;[3.36] *LogAge*, the logarithm of fund age in months (at the end of q); *LagFlow*, the average fund flows in quarter $q-1$, $q-2$, and $q-3$; *LagRet*, the average excess returns in quarter q, $q-1$, $q-2$, and $q-3$; and *Volatility*, the volatility of past 12 month returns. The time-invariant controls include: redemption notice period, measured in units of 30 days (*RedemptionNotice*); lockup period (*LockUp*); management fee (*ManagementFee*); incentive fee (*IncentiveFee*); the log of one plus minimum investment (*MinInvestment*); indicator variables for: whether personal capital is committed (*PersonalCapital*); whether there is a high water mark provision (*HighWaterMark*); whether the fund uses leverage (*Leveraged*); and whether the fund is offshore (*Offshore*). Throughout our regression analyses, all time-variant variables (including quarterly fund flow) are winsorized at 1% and 99% level to remove the influence of outliers.

Table 3.2 presents the summary statistics of our baseline regression sample of hedge funds between 1999Q3 and 2016Q3. Panel A reports the baseline regression sample, Panel B reports the switchers sample, Panel C reports the always-filers sample, and Panel D reports the never-filers sample.

[Table 3.2 here]

[3.34]The bond, currency, and commodity trend–following factors are directly downloaded from David A. Hsieh's data library: https://faculty.fuqua.duke.edu/~dah7/HFRFData.htm. The other four factors are constructed following the methods in Fung and Hsieh (2001).

[3.35]See: http://mba.tuck.dartmouth.edu/pages/Faculty/ken.french/data_library.html.

[3.36]To remove the mechanical correlation between these two variables (lagged fund return and lagged fund flows) and lagged fund size, we use the fund size at the end of the period before the lagged fund flow and lagged fund return are measured.

Flow is the quarterly flow during each calendar quarter. *Excess Return*, *FH7 Alpha*, and *FH8 Alpha* are quarterly compounded performance measures. *Fund Size* is the fund AUM at each quarter end. *Fund Age* is the number of months since fund inception. *Return Volatility* is the return volatility using fund returns between month $t-11$ and t. Other variables are defined in section 3.4.2. Across all funds and all quarters (Panel A), the mean (median) fund flow is 1.062% (-0.006%) with a standard deviation of 20.685%; the mean (median) FH7 alpha is 0.736% (0.518%) with a standard deviation of 9.09%; the mean (median) fund size is $174.35 million ($49 million) with a standard deviation of $369.1 million; the mean (median) fund age is 88 months (74 months) with a standard deviation of 55.98 months; and the mean (median) return volatility is 3.72% (2.82%) with a standard deviation of 3.15%.

To study the smart money effect, we estimate our baseline regression specifications (3.5) to (3.9).

[Table 3.3 here]

Table 3.3 reports the regression results using performance measures in quarter $q+1$. The dependent variable is excess returns in Panel A; FH7 alpha is Panel B; and FH8 alpha in Panel C. In each case, the coefficient on our variable of interest, i.e., the beta on $13F \times Post \times Flow$, is positive and significant at the 10% level. After a fund starts filing Form 13F, the increase in the smart money effect is 0.019, 0.013, and 0.017 in the excess return, FH7 alpha, and FH8 alpha specifications, respectively. The interquartile range of flows (from Table 3.2) is 9.58, thus the impact on annual performance for an interquartile increase in flows for filers vs. non-filers is 73 bps, 50 bps, and 65 bps for excess returns, FH7 alpha, and FH8 alpha respectively.

3.4.3 Parallel Assumption and Dynamic Effects

An assumption in the difference-in-difference estimation is that the treatment and control group of funds follow similar patterns prior to the event (i.e., the filing status change from

non-13F filer to 13F filer). Similar to Bertrand and Mullainathan (2003) and Edmans et al. (2017), we create a new indicator *Before0*, which equals one in the last quarter before *Post* switches to 1 and zero in other quarters. For example, "Zebra Capital Management LLC" starts filing 13F report during 2005Q1 (thus *Post* will become 1 for 2005Q2 for the first time), this variable is one only in 2005Q1. We also create similar variables *Before1*, which equals one two quarters before the switch (in 2004Q4, in the above example); *Before2*, which equals one three quarters before the switch (in 2004Q3, in the above example); *Before3*, which equals one four quarters before the switch (in 2004Q2, in the above example). We then examine the validity of this parallel trends assumption by adding the new interactions $13F \times Flow \times Before3$, $13F \times Flow \times Before2$, $13F \times Flow \times Before1$, and $13F \times Flow \times Before0$.

[Table 3.4 here]

Column 1 of Table 3.4 presents the regression results using extended baseline model (3.9) and FH8 alpha. The new interactions are individually insignificant, suggesting that switchers did not have different flow-performance predictability to other funds in each of the four quarters prior to the filing status change. They are also insignificantly different from each other, suggesting that their flow-performance predictability were not trending prior to 13F-filing differentially from other funds. The coefficient on $13F \times Post \times Flow$ is positive and significant at the 5% level.

In column 2 to 4, we investigate how long it takes for 13F-filing to affect flow-performance predictability. We define the new indicator *After1*, which equals one in the first quarter after *Post* switches to 1 (2005Q2, in the Zebra Capital Management LLC example) and zero in other quarters.[3.37] We also create *After2*, which equals one two quarters after the switch (2005Q3, in the above example); *After3*, which equals one three quarters after the switch (2005Q4, in the above example); and *After4+*, which equals one four quarters after the switch and in all future quarters (2006Q1 and onwards, in the above example). Column 2

[3.37]This variable contrasts *Post*, which equals one in *all* quarters after *Post* switches to 1.

decompose "Post" period into 4 segments: *After1*, *After2*, *After3*, and *After4+*. In column 3, we further decompose *After4+* into *After4* and *After5+*; in column 4, we further decompose *After5+* into *After5* and *After6+*. From the regression results, we find that the coefficient on *After5* becomes significantly positive at the 1% level. This suggests that it takes 5 quarters (1.25 years) for the effect of 13F-filing on flow-performance predictability to have its full impact, which is consistent with investors requiring multiple filings to reconcile a fund's performance with the changes in its portfolio holdings. In column 5 to 7, we combine the two tests and find similar results.

3.4.4 Difference-in-Differences Estimation - RDD

The diff-in-diff analysis of the previous section uses the entire (cleaned) time-series of data available for each fund. One issue is that funds above the threshold might simply be better funds. For example, they might be more forthcoming with information, which helps investors make better decisions. Funds far from the cutoff may be materially different from funds close to the cutoff, and this difference may not be fully captured by covariates.

We use a regression discontinuity design (RDD) to limit the unintended effect of these large management companies. To ensure that we are not simply capturing the effect of total value of 13(f) securities at the management company (as opposed to the effect of mandatory portfolio disclosure), we repeat our baseline regression using only funds managed by management companies around the $100 million threshold. Since we cannot observe the value of 13(f) securities for non-filers, we use the following two methods to restrict our sample: (i) for funds that experience a filing status switch (i.e., from non-filing to filing), we restrict the sample to those fund-quarter observations around the filing status change. In practice, we restrict the sample to the four-year window centered around its first ever 13F filing; in doing so, the total value of 13(f) securities should be around $100 million.[3.38] and

[3.38]Note that since we only use funds that have ever changed filing status, the term $13F$ would always be 1, therefore $13F \times Flow$ would take the same value as $Flow$. In light of this, we drop the term $13F \times Flow$

(ii) following Shi (2017), we restrict the sample based on the fund company AUM reported in TASS. Specifically, for our full regression sample, we only keep fund-quarter observations where the TASS company AUMs are between 50 million and 300 million.

[Table 3.5 here]

Table 3.5 reports the RDD analysis. We repeat the baseline regression analysis (equation 3.9) for subsamples (i) and (ii). Subsample (i) is reported in Columns 1, 2, and 3, and subsample (ii) is reported in Columns 4, 5, and 6. Here we find that our coefficient of interest increases in the RDD analysis across all specifications. For example, Panel C Column 5 of Table 3.3 corresponds to Column 6 of Table 3.5. Here we see the coefficient increases from 0.017 to 0.036. In terms of economic magnitude, an interquartile increase in flows leads to a 138 bps increase in FH8 alpha (for filers vs. non-filers), this compares to 65 bps increase reported in the baseline specification.

3.4.5 Difference-in-Differences Estimation - Persistence

Our results provide evidence that the smartness of money increases after a fund starts filing Form 13F. However, our outcome variable so far is short-term – it is only one quarter into the future. The average redemption period for a hedge fund is about 100 days (Liang, Schwarz, Getmansky Sherman, and Wermers, 2019), which is longer than a quarter. In this section, we test the persistence of the smart money effect, to see whether the effect reverses before investors can redeem.

[Table 3.6 here]

We repeat the baseline specification but replace performance one quarter into the future with performance up to eight quarters (i.e., two years) into the future. The results are presented in Table 3.6. Here, we find some evidence that smart money is persistent. In particular, it seems the 13F-induced smart money effect is persistent at a horizon of three quarters when performance is measured in terms of excess returns, and at a horizon of

when reporting the regression results.

two quarters when performance is measured in terms of FH7 alpha and FH8 alpha. More importantly, we do not find evidence that the 13F-induced smart money effect reverses in the two years following the investment decision.

3.5 CROSS-SECTIONAL ANALYSIS

To shed light on the economic mechanisms that drive our results, we next explore the rich cross-sectional heterogeneity among sample hedge funds. We look at how variation in the informational content and usefulness of 13F filings relates to the smart money effect. We find that the smart money effect increases when information is more precise, when it can be used more freely, and when investors pay more attention to it.

These results also provide evidence against the alternative story that there exists a smarter set of investors who are restricted to investing only in 13F-filing funds. If this were the case, then we should expect to see an increase in smart money, even when 13F filings do not provide much incremental information.

3.5.1 Disclosure Fraction

Our first set of tests study the informational content of 13F filings. Form 13F is filed at the company level. It reports the aggregate long-positions of all the firm's hedge fund and mutual fund products. Our analysis, however, is conducted at the fund level. For a given fund, if it is the only fund offered by its management company, then the company's 13F filing will reveal the fund's entire long position. If, on the other hand, the fund belongs to a mutli-fund company, then the fund's long positions will be obfuscated with those of its sibling funds. Thus, we expect the informational content of a 13F filing should be higher when the fund comes from a single-fund family, as opposed to a mutli-fund family.

We expect to find stronger results if investors have more precise information. We split the sample in the following three ways: (i) based on whether the fund is from a single-fund

company or a multi-fund company; (ii) based on whether a fund is the largest fund within a fund company; and (iii) based on whether the proportion of its portfolio revealed in 13F is above or below the cross-sectional median.[3.39]

[Table 3.7 here]

Table 3.7 reports the results of these cross-sectional tests. The dependent variable (performance) is measured as the quarterly FH8 alpha. Columns 1 and 2 report the results of method (i); Columns 3 and 4 report the results of method (ii); and Columns 5 and 6 report the results of method (iii). Here, we see that the effect is driven by the funds with more precise information in 13F. In each of the odd-numbered columns, the coefficient on the triple interaction term is positive and significant; in each of the even-numbered columns, the coefficient is positive but insignificant. These results demonstrate that the smart money effect is stronger when investors have more precise information.

Another issue with our identification strategy is that better firms may endogenously cross the threshold. Better firms attract more capital, and will be more likely to cross the threshold. Even in the RDD setting, we still might have a difference in quality in firms above and below the threshold.

We address this issue by conducting a placebo test. We redo the main analysis using only FoFs. FoFs are hedge funds that invest in other hedge funds. They typically do not invest in 13(f) securities, and as such, the information revealed on their parent company's 13F filing should be minimal.

[Table 3.8 here]

Table 3.8 reports the estimates of the placebo regressions. This repeats the analysis presented in Table 3.3, except only using FoFs.[3.40] Here, the coefficient on our variable of interest ($13F \times Post \times Flow$) is sometimes positive, sometimes negative, but never significantly different from zero. Thus, this provides us with evidence that our results are results

[3.39] Specifically, for each quarter, we split the sample based on the ratio of fund assets to the total assets of its management company (i.e., fund AUM divided by company AUM).

[3.40] For brevity, we only report results based on baseline specifications (3.5) and (3.9)

are not spurious.

3.5.2 Investor Attention

We next investigate cross-sectional differences in how investors access information. We conjecture that when more investors view 13F filings, the smart money effect will be stronger. We use the EDGAR log files to measure when potential investors access 13F filings.[3.41] One caveat is that this measure will also pick up the activity of copycat traders. This introduces noise to our measure, but because copycat trading is not related to the smart money effect, this noise should bias us away from finding a relationship between attention and smart money.

We split the sample based on company-level "abnormal investor attention", which is calculated as follows. Using company-quarter observations (from always-filers and switchers) after 2003,[3.42] we follow similar procedure used in Li and Sun (2020) and first run cross-sectional regression each quarter and define quarterly "abnormal EDGAR downloads" as the residual for each company-quarter. Specifically, we run the following contemporaneous cross-sectional model:[3.43]

$$\begin{aligned}\text{Log(EDGAR}+1)_{\text{i,q}} = \beta_1 \#\text{ of Forms}_{\text{i,q}} + \beta_2 \#\text{ of Funds}_{\text{i,q}} + \beta_3 \text{Size}_{\text{i,q}} + \beta_4 \text{Age}_{\text{i,q}} \\ + \beta_5 \text{Flow}_{\text{i,q}} + \beta_6 \text{Return}_{\text{i,q}} + \beta_7 \text{Volatility}_{\text{i,q}} + \varepsilon_{i,q}\end{aligned} \tag{3.11}$$

where *EDGAR* is either # of Downloads or unique # of IP addresses accessing 13F reports during q,[3.44] *# of Forms* is the logarithm of # of 13F reports filed by company i before the

[3.41] Numerous studies have used this data set to measure investor attention; for example, see: Drake, Roulstone, and Thornock (2015), Lee, Ma, and Wang (2015), and Li and Sun (2020). The EDGAR log files data set can be found here: https://www.sec.gov/dera/data/edgar-log-file-data-set.html.

[3.42] The EDGAR log files are available starting in 2003.

[3.43] Our results are robust when using lagged controls.

[3.44] We follow the literature to identify and drop "robot" downloads from the raw EDGAR log file. Specifically, we follow the procedure described in Li and Sun (2020): First, following Lee et al. (2015), we exclude the searching records of those users who download more than 50 unique firms' filings in one day. The user is identified by their unique IP address. Second, following Ryans (2017) and Drake et al. (2015), we remove

end of q, *# of Funds* is the logarithm of # of funds managed by company i, *Size* is the logarithm of company AUM, *Age* is the logarithm of company age in months,[3.45] *Flow* is the average of fund-level flows,[3.46] *Return* is the average of fund-level returns,[3.47] and *Volatility* is the average of fund-level return volatility.[3.48] The residual term $\varepsilon_{i,q}$ is the abnormal investor attention measure for a given company-quarter. Our abnormal investor attention measure controls for other fund and company characteristics that may affect investor's information acquisition activities.

Next, for each company, we use time-series average of the residuals to get a company-level "abnormal EDGAR downloads". Finally, we split the sample based on this measure and run baseline smart money regression.[3.49]

[Table 3.9 here]

Table 3.9 reports the results of the investor attention tests. The dependent variable (performance) is measured as the quarterly FH8 alpha. Panel A reports the subsample regression results when using number of downloads in our first-stage regression. In Panel B, we use number of unique IP addresses as dependent variable in the first-stage regression.

Across both panels, the coefficient of interest (on $13F \times Post \times Flow$) is positive and significant for the high investor attention subsample (the odd-numbered columns). For the low investor attention subsample is positive but not significant. These results provide evidence that there is investor-relevant information contained in 13F filings, and that when

log records that reference an index (i.e, $idx = 1$), as index pages only provide the links to filings rather than the actual filing data. Third, following Ryans (2017), we keep the request records with successful document delivery (i.e., $code = 200$). We then further exclude the search records of users who make more than 25 filing requests per minute or more than 500 requests per day, or with more than three unique CIKs searching per minute. Finally, we only keep one search record for a specific filing (unique accession number) to each user in a given day.

[3.45] Company inception date is defined as the earliest inception date of any fund, dead or alive, in that company

[3.46] Fund-level flow is the average quarterly flow during the past 4 quarters

[3.47] Fund-level return is the average quarterly excess return during the past 4 quarters

[3.48] Fund-level volatility is the volatility of past 12 month returns

[3.49] Because "Non-filers" will automatically have zero downloads, we only include switchers in our second-stage regression. Our results are robust if we use both always-filers and switchers in our second-stage regression.

investors in aggregate access this information they make more informed investment decisions.

3.5.3 Mobility of Capital

Our next set of tests study whether the smart money effect is related to the ease of which an investor can get in and out of a fund. The information contained in Form 13F is only of value if investors can actually use it. If there are restrictions on redemptions or subscriptions, then we expect the information will be less useful. That is, we expect the smart money effect will increase by more when money can freely enter or exit a fund.

To investigate this, we split the sample based on the following fund characteristics: (i) whether a fund has lock-up provision; (ii) total redemption period (defined as redemption notice period *plus* redemption frequency, following Liang et al. (2019)); (iii) the subscription frequency; and (iv) overall ow restriction based on (i)-(iii).[3.50]

[Table 3.10 here]

Table 3.10 reports the results of the mobility of capital tests. The dependent variable (performance) is measured as the quarterly FH8 alpha. Columns 1 and 2 report the results of method (i); Columns 3 and 4 report the results of method (ii); Columns 5 and 6 report the results of method (iii); and Columns 7 and 8 report the results of method (iv). The odd-numbered columns represent the subsample of firms with less restrictions on the movement of investor capital. The coefficient on the triple interaction term is positive and significant across all the odd-numbered columns, while sometimes positive and sometimes negative, but never significantly different from zero across the even-numbered columns (those with more restrictions on investor capital). These results demonstrate that money is smarter when information can be used more freely.

Our three sets of tests demonstrate that the smart money effect is stronger when investors have more precise information, when investors abnormally access information, and when they are less restricted in using this information. This is consistent with investors using portfolio

[3.50]For (i)-(iii), we split every quarter based on the cross-sectional median of fund characteristics in question.

disclosure to make more informed allocation decisions. It is inconsistent with the story that smarter investors choose 13F-filing funds, because then cross-sectional differences in information should not matter.

3.6 HOLDINGS-BASED ANALYSIS

One concern is that our findings may be driven by 13F-filing funds having a different, more sophisticated investor clientele than that of non-filing funds. To ensure that our results are not due to smart investors purchasing and selling 13F-filing funds, rather than 13F filings making investors smart, we employ investor-level, hedge fund portfolios, available for registered FoFs, to explore the investment decisions of a given investor within the universe of 13F-filing versus non-filing hedge funds. Conceptually, this analysis can be viewed as comparing the smart money effect for 13F-filing versus non-filing hedge funds—after controlling for investor fixed effects.

Following Aiken et al. (2013), we use the following formula to generate quarterly hedge fund returns:

$$\text{Fund Return}_{\text{i,t}} = \frac{\text{Value}_{\text{i,t}} - \text{Change in Cost}_{\text{i,(t-1,t)}}}{\text{Value}_{\text{i,t-1}}} - 1, \tag{3.12}$$

where *Value* is the current value of the underlying hedge fund i, and *Change in Cost* is the change in cost basis in the underlying hedge fund i between two adjacent quarter-ends. In this analysis, we focus exclusively on those returns in which cost basis does not change.[3.51] Multiple FoFs may hold the same underlying hedge fund at the same quarter-end. In case we cannot calculate return for a given hedge fund position (due to change in cost basis, or cost is missing), we use the cross-sectional average returns of the same hedge fund held by all other FoFs in the same quarter, as long as the spread between the minimum and maximum

[3.51] As noted in Aiken et al. (2013), there are discrepancies in how each FoF reports changes in cost. Moreover, changes in cost require placing strong assumptions on the timing of cost changes throughout the quarter.

returns is no more than 1%.[3.52] Finally, all returns are winsorized at 1% and 99% level to remove the influence of outliers.

3.6.1 Holdings-Based Analysis: Full Sample

Our holdings-based analysis is inspired by the prior literature (Coval and Moskowitz, 2001; Cohen, Frazzini, and Malloy, 2008), but we look at the performance of FoFs' 13F-filing hedge fund holdings (rather than local or connected holdings) compared to their non-filing hedge fund holdings. Specifically, at the end of each calendar quarter, we assign hedge funds in each FoF's portfolio to one of two portfolios: 13F-filing or non-filing. We then compute the quarterly returns on 13F-filing and non-filing holdings over the next quarter, assuming that FoFs did not change their holdings between quarter-ends. Portfolios are rebalanced every calendar quarter, and within a given FoF-quarter, hedge funds are value-weighted by their value at the end of the previous quarter (i.e., 13F-filing hedge funds are value-weighted in the FoF's 13F-filing portfolio, and non-filing hedge funds are value-weighted in the FoF's non-filing portfolio); we then calculate the spread between the two value-weighted returns. Finally, we average calendar time portfolios across FoFs and quarters, with standard errors clustered at various levels.[3.53] For a given FoF-quarter observation to be included in the analysis, we require that (1) at least 50% of its holdings can be matched with TASS or Form ADV (and therefore we can determine their filing statuses), (2) its 13F-filing portfolio contains at least one 13F-filing hedge fund with valid returns, and (3) its non-filing portfolio contains at least one non-filing hedge fund with valid returns. The final sample consists of 2,084 FoF-quarter observations from 117 FoFs, spanning 49 quarters.

In addition to examining portfolios of the FoF's holdings, we also compute returns on the 13F-filing hedge funds that FoFs choose not to hold. Using the similar portfolio construction approach as before, we compute equal-weighted returns on portfolios of 13F-filing hedge

[3.52] We use the matches with TASS and Form ADV to track the same hedge fund across different FoFs.

[3.53] We use the following clustering methods: (1) no clustering; (2) clustered by quarter; (3) clustered by FoF; and (4) double-clustered by FoF and quarter.

funds that FoFs choose not to hold.[3.54] For a given FoF-quarter observation to be included in the analysis, we impose the same requirement as the previous 13F-filing portfolio vs non-filing portfolio analysis, except for (3) where we now require its 13F-filing not held portfolio contains at least one 13-filing hedge fund with valid returns. The final sample consists of 2,355 FoF-quarter observations from 122 FoFs, spanning 49 quarters.

[Table 3.11 here]

Table 3.11 reports our holdings-based results using entire sample of hedge funds. Panel A presents the comparison between 13F-filing portfolio and non-filing portfolio. On average, a FoF holds 11.2 "filer" hedge funds and 5.3 "non-filer" hedge funds. The results show that 13F-filing holdings earn 1.59% per quarter in raw returns and non-filing holdings earn 1.35% per quarter in raw returns. The spread of the long-short portfolio is 0.23% per quarter (or 0.92% per year), and is statistically significant at 10% level even with standard errors double-clustered by FoF and quarter. Panel B presents the comparison between 13F-filing held portfolio and 13F-filing not held portfolio. 13F-filing held portfolio earn 1.46% per quarter in raw returns and 13F-filing not held portfolio earn 1.25% per quarter in raw returns. The spread of the long-short portfolio is 0.21% per quarter (or 0.84% per year), and is statistically significant at 5% level even with standard errors double-clustered by FoF and quarter. Our results lend support to the hypothesis that investors have comparative advantages in selecting 13F-filing hedge funds.

3.6.2 Holdings-Based Analysis: Non-Local Funds

To further shed light on the role of 13F filings on investor's investment decision, we look at how variation in the informational advantages relates to the smart money effect. Prior research suggests that professional money managers have local preference and local informational advantages (Coval and Moskowitz, 2001; Teo, 2009; Sialm et al., 2019). Since geographic proximity facilitates the information production, the monitoring, and the access

[3.54] We use equal-weighted here because we do not observe AUMs of underlying hedge funds.

to fund managers, 13F reports should be more valuable to hedge fund investors (e.g., FoFs) when choosing among non-local hedge funds. Therefore, we expect to find more pronounced results when using a subset of hedge funds that are non-local to the FoFs. Following Sialm et al. (2019), we define a fund's location as the Metropolitan Statistical Area (MSA). We first obtain FoF's zip code and state information from header information reported in Form N-CSR, N-CSRS, and N-Q filings. Using the state/zip code information, we then merge it with the Metropolitan Areas and Components data defined by the Office of Management and Budget (OMB) as of 2013.[3.55] For each underlying hedge fund that is matched with TASS or Form ADV, we obtain zip code and state information from TASS (zip code and state of its management firm) and Form ADV (zip code and state reported in Item 1.F.1) and merge it with MSA data from OMB. An underlying hedge fund is defined as non-local if its MSA is different from that of the FoF.[3.56] We then repeat our holdings-based analysis using the subset of the non-local hedge funds. The inclusion requirement is similar. For example, in the 13F-filing portfolio versus non-filing portfolio analysis, we require a FoF-quarter to have (1) at least 50% of its holdings can be matched with TASS or Form ADV (and therefore we can determine their filing statuses and geographical information), (2) its 13F-filing portfolio contains at least one non-local 13F-filing hedge fund with valid returns, and (3) its non-filing portfolio contains at least one non-local non-filing hedge fund with valid returns.

[Table 3.12 here]

Table 3.12 reports our holdings-based results using the subset of non-local portfolio hedge funds. Panel A presents the comparison between 13F-filing portfolio and non-filing portfolio. The final sample consists of 1,952 FoF-quarter observations from 116 FoFs, spanning 49 quarters. On average, a FoF holds 8.6 non-local "filer" hedge funds and 4.6 non-local "non-filer" hedge funds. The results show that 13F-filing holdings earn 1.52% per quarter in

[3.55]The Metropolitan Areas and Components data is updated every 10 years, and the 2013 version is the latest release at the time of our study.

[3.56]All the FoFs in our sample are located in the U.S., however, some portfolio hedge funds are located outside the U.S.; we categorize all non-U.S. portfolio hedge funds as non-local.

raw returns and non-filing holdings earn 1.17% per quarter in raw returns. The spread of the long-short portfolio is 0.35% per quarter (or 1.4% per year), and is statistically significant at 5% level even with standard errors double-clustered by FoF and quarter. Panel B presents the comparison between non-local 13F-filing held portfolio and non-local 13F-filing not held portfolio. The final sample consists of 2,308 FoF-quarter observations from 122 FoFs, spanning 49 quarters. 13F-filing held portfolio earn 1.45% per quarter in raw returns and 13F-filing not held portfolio earn 1.2% per quarter in raw returns. The spread of the long-short portfolio is 0.25% per quarter (or 1% per year), and is statistically significant at 1% level even with standard errors double-clustered by FoF and quarter. The magnitude from both tests are larger than the results in section 3.6.1. The results suggest that 13F reports are more useful when investor's informational advantage regarding the underlying hedge fund is comparatively weak. Overall, our holdings-based analysis addresses the concern that our results are driven by funds with different filing statuses having different investor clienteles.

3.7 CONCLUSION

Hedge fund manager actions are largely opaque. A large information asymmetry exists between investors and fund managers. The Rule 13(f)-1 filing requirement divulges funds' proprietary holdings to the public, and while this has been shown to negatively impact fund returns, we study whether it also allows investors to better evaluate and select hedge funds.

We examine whether investors' purchasing and selling decisions, captured by hedge fund flows, are better able to predict hedge funds' future performance (i.e., whether the smart money effect is stronger) for 13F-filing hedge funds than for non-filing hedge funds. We find evidence that investor flows are indeed smarter for 13F-filing funds. In particular, we investigate cross-sectional differences in the precision, usefulness, and access of information, and provide evidence that the information contained in Form 13F improves investor selection

ability. Finally, we use quarterly FoFs' holdings and show that hedge fund investors' holdings of 13F-filers outperform their non-filer holdings.

By providing comprehensive evidence that portfolio disclosure makes investors smarter in selecting money managers, in a setting where managers' actions are otherwise hard to monitor, we highlight the benefits of mandatory portfolio disclosure and thus provide policy makers with a more balanced understanding of the impact of Form 13F disclosure.

FIGURES AND TABLES

Figure 1.1 Example of a Comment Letter Review Process

This figure illustrates a comment letter review process. The initial SEC comment letter is sent to the fund company on May 4 and the entire review process concludes on June 26. Finally, the entire set of comment letters are disclosed to the public on August 8 through EDGAR. In this sample, I measure the investor attention based on the number of EDGAR requests between August 8 and August 31. The post-disclosure flow is measured at the beginning of September; whereas the pre-disclosure flow is measured at the beginning of June and July.

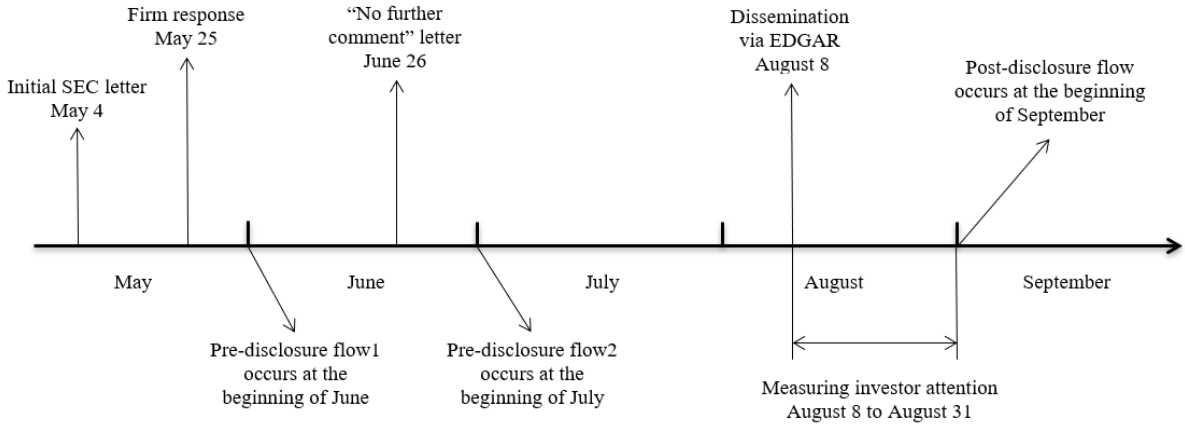
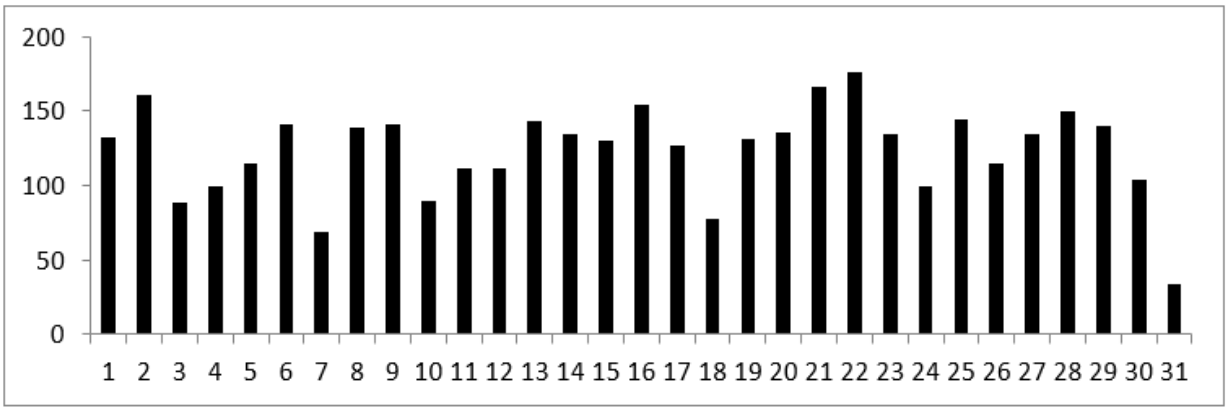
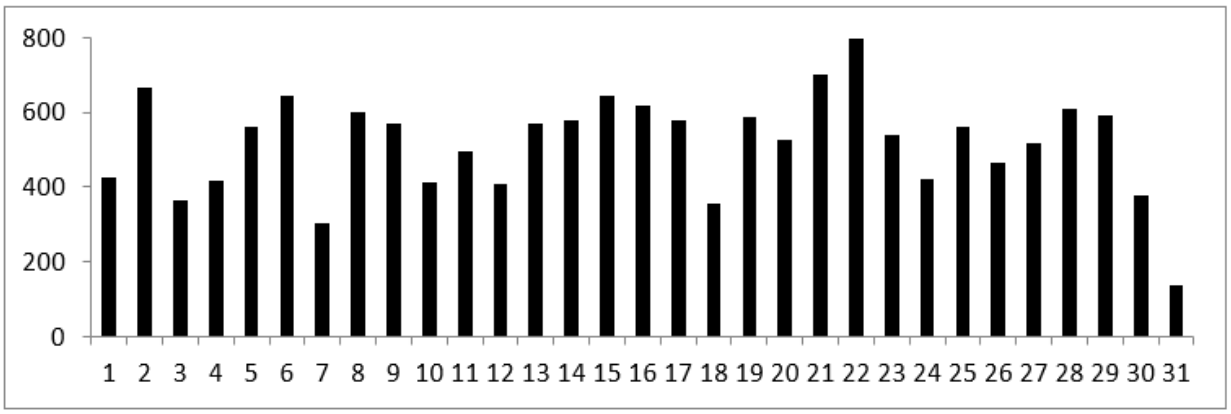


Figure 1.2 Distribution of Comment Letter Disclosure Date during a Calendar Month

This figure illustrates the distribution of comment letter disclosure date during a calendar month. Panel A shows the distribution at the fund company level and Panel B shows the distribution at the fund level. In general, the disclosures are not concentrated at the end of each month, giving investor plenty of time to download and process the comment letters once disclosed.



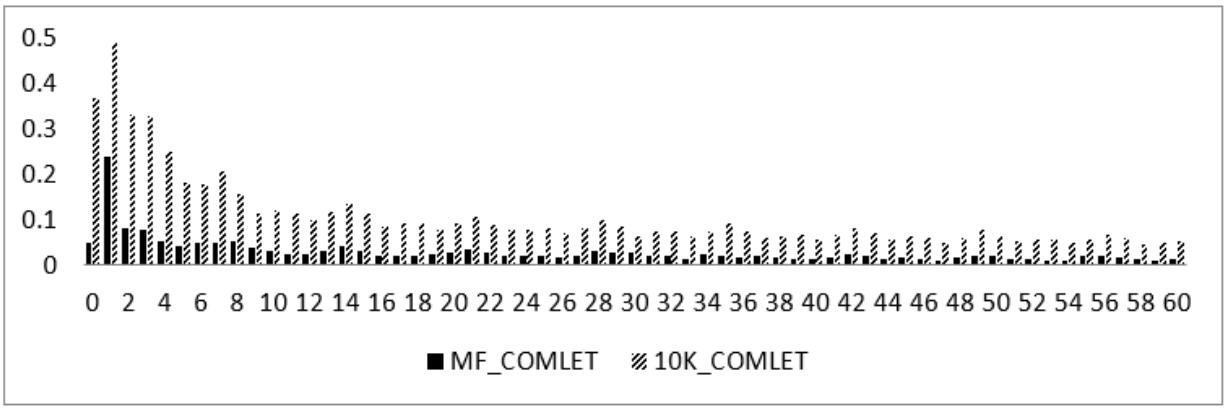
Panel A: Distribution of Comment Letter Disclosure Date (CIK-level)



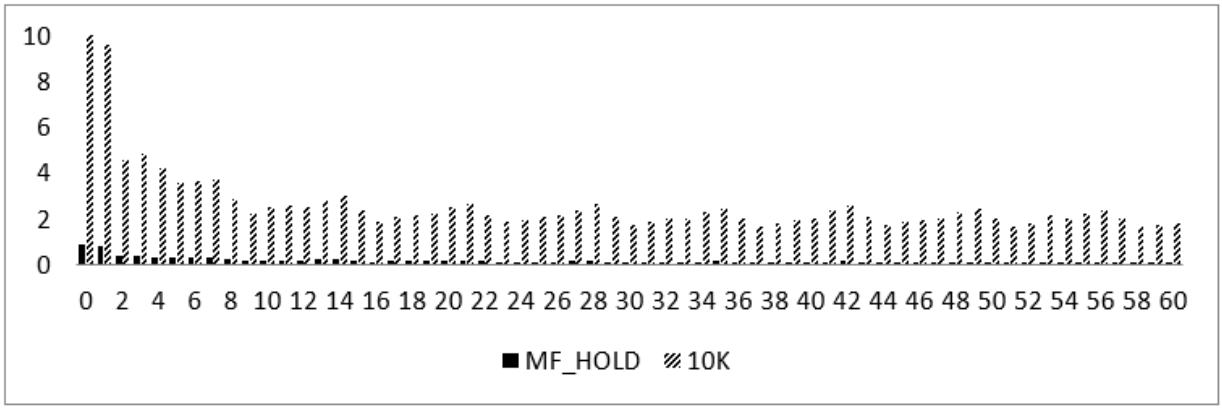
Panel B: Distribution of Comment Letter Disclosure Date (Fund-level)

Figure 1.3 Comparison of Investor Attention: Mutual Funds vs Listed Firms

This figure illustrates the comparison of investor attention between mutual fund and public listed companies. Panel A displays the mean daily EDGAR requests for comment letter disclosed between 2005 and 2016; Panel B displays the mean daily EDGAR requests for mutual fund holdings reports and firm 10-Ks between 2005 and 2016. The greatest mean number of EDGAR requests for mutual fund comment letter is 0.25 on the day following the disclosure; the greatest mean number of EDGAR requests for firm comment letter is 0.5 on the day following the disclosure. The greatest mean number of EDGAR requests for mutual fund holdings report is 0.87 on the filing day; the greatest mean number of EDGAR requests for firm 10-K is 10.3 on the filing day.



Panel A: Investor Attention of Mutual Fund and Firm Comment Letter



Panel B: Investor Attention of Mutual Fund Holdings Reports and Firm 10-Ks

Figure 2.1 Example of a Comment Letter Review Process

This figure illustrates a comment letter review process. The initial SEC comment letter is sent to the fund company on April 12 and the entire review process concludes on July 14. Finally, the entire set of comment letters are disclosed to the public on September 23 through EDGAR. In this sample, I measure mutual fund risk-taking in the following windows: (1) risk-taking before the review process: January, February, and March (denoted by the subscript b); (2) risk-taking during the review process: May and June (denoted by the subscript d); (3) risk-taking after the resolution of the review process: August, September, and October (denoted by the subscript a). The risk-taking is measured using daily mutual funds returns during each calendar month.

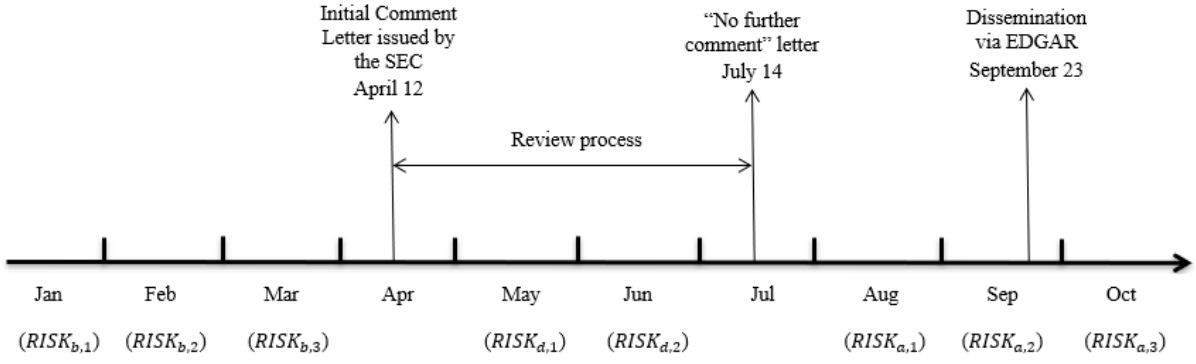


Figure 3.1 Performance of the Filer and Non-Filer HML Portfolios

This figure plots the monthly returns for the portfolios of 13F-filing hedge funds and non-13F-filing hedge funds. Within each group, we sort fund by capital flows into quartiles, and build value-weighted high-minus-low ("HML") portfolios of the high-flow funds minus the low-flow funds. The red dashed line presents the cumulative monthly returns for the non-filing HML portfolio, and the blue solid line presents the cumulative monthly returns for the filing HML portfolio.

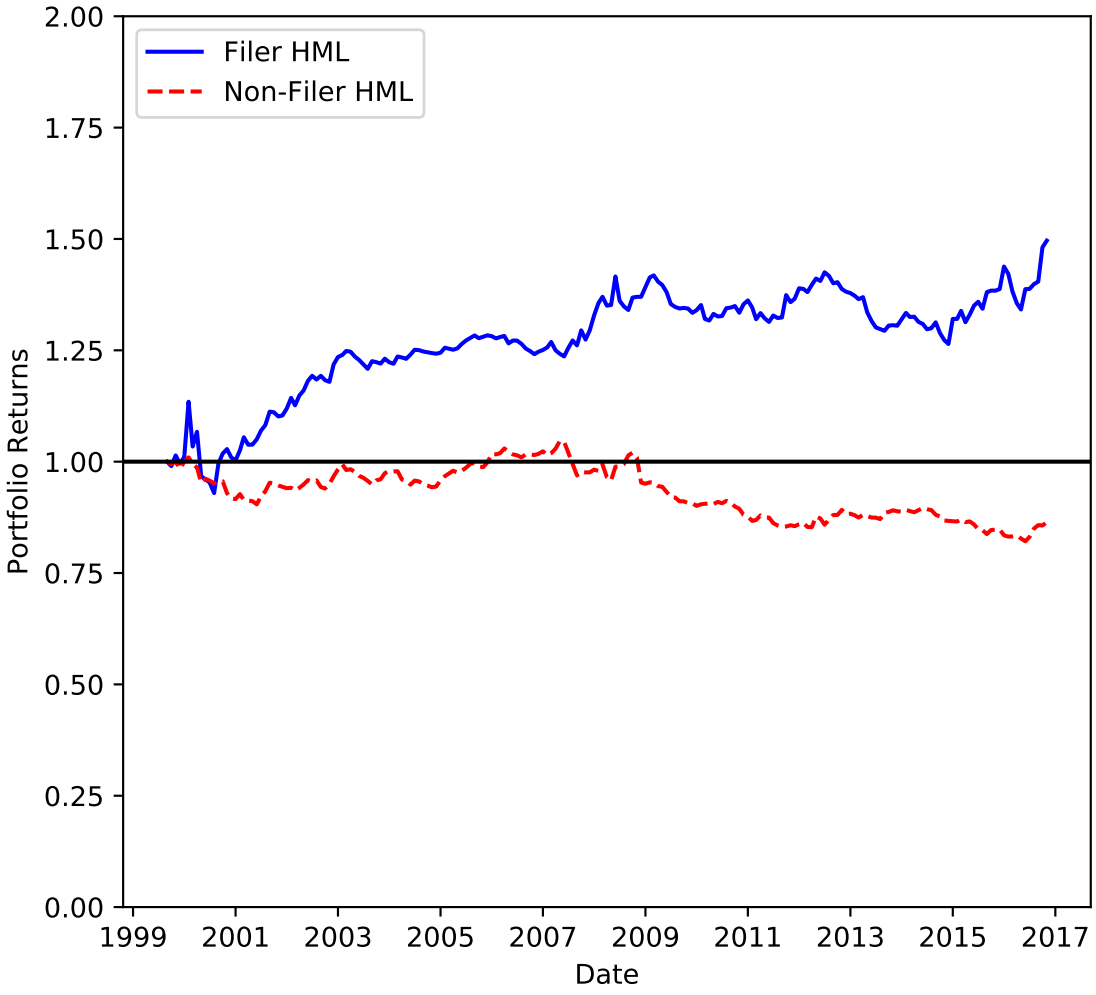


Table 1.1 Variable Definitions

Variable	Description
Main Variables:	
ComLet	A dummy variable equals to one if the management company of a fund has disclosed at least one SEC comment letter (UPLOAD and/or CORRESP) in EDGAR during the month; and zero otherwise. Source: Audit Analytics
Attention	The number of downloads for a fund's comment letter during disclosure month, further adjusted for the number of comment letters disclosed that month; and the number of days from the date they are disclosed to the end of that month. Source: SEC EDGAR log file
Flow	Monthly mutual fund net flow, calculated in percentage to fund TNA: $[TNA_t/(1+R_t) - TNA_{t-1}]/TNA_{t-1}$. Source: CRSP MFDB.
Fund Control Variables:	
LagRet	Past fund returns, calculated as the average style-adjusted fund returns over the prior 12, 24, or 36 months. Source: CRSP MFDB.
LagFlow	Lagged monthly mutual fund flow. Source: CRSP MFDB.
LeadRet	Monthly style-adjusted fund returns post-disclosure. Source: CRSP MFDB.
SDLagRet	Standard deviation of past fund returns, defined as the time-series standard deviation of the style-adjusted fund returns over the prior 12, 24, or 36 months. Source: CRSP MFDB.
Log(TNA)	The natural logarithm of the amount of total net assets under management, i.e., the size of the fund. Source: CRSP MFDB.
Log(AGE)	The natural logarithm of number of years since fund inception. Source: CRSP MFDB.
LOAD	The sum of the maximum front- and back-end loads. Source: CRSP MFDB.
EXP	Fund expense ratio. Source: CRSP MFDB.
TO	The minimum of the fund's dollar purchases or dollar sales for the year divided by the monthly average value of the portfolio. Source: CRSP MFDB.
Tenure	For individually managed funds, we subtract from the current year the earliest start date for a given manager with any fund in the Morningstar database. For multi-manger funds, we average the individual measure over the managers in charge of the fund. If multi-manager fund does not report its managers' names, we assign zero value. The final value is set to be the natural logarithm of the number plus one. Source: Morningstar.
Fund Style	A fund's investment objective as identified by Morningstar. They include: Large-Blend (LB), Large-Growth (LG), Large-Value (LV), Mid-Blend (MB), Mid-Growth (MG), Mid-Value (MV), Small-Blend (SB), Small-Growth (SG), and Small-Value (SV). All remaining funds are grouped into one category (Other). Source: Morningstar.

Table 1.2 Summary Statistics

This Table displays the summary statistics for the main variables for the sample period between May 2005 and December 2016. All fund level variables are winsorized at the 1% and 99% levels. For the number of EDGAR requests, the sample ends in June 2016. Panel A presents the summary statistics and Panel B presents the combined Pearson and Spearman correlation matrix. In total, there are 12,640 comment letter disclosure events by mutual fund companies between 2005 and 2016.

Panel A: Summary Statistics

	N	Mean	StdDev	Min	Q1	Median	Q3	Max
Flow	189,686	-0.00185	0.04616	-0.45816	-0.01566	-0.00503	0.00661	0.93340
ComLet	189,686	0.06664	0.24939	0	0	0	0	1
LagFlow	189,686	-0.00141	0.04625	-0.45816	-0.01550	-0.00492	0.00679	0.93340
LagRet1	189,686	-0.00009	0.00458	-0.04690	-0.00247	-0.00002	0.00231	0.03548
LagRet2	187,309	-0.00002	0.00320	-0.03203	-0.00179	0.00004	0.00178	0.02080
LagRet3	183,177	0.00004	0.00264	-0.02776	-0.00147	0.00008	0.00155	0.01820
SDLagRet1	189,686	0.01234	0.00665	0.00130	0.00777	0.01077	0.01514	0.07819
SDLagRet2	187,309	0.01268	0.00612	0.00202	0.00839	0.01128	0.01547	0.06064
SDLagRet3	183,177	0.01300	0.00585	0.00241	0.00885	0.01176	0.01586	0.05243
Log(TNA)	189,686	5.45792	1.85699	0.18232	4.15732	5.44415	6.81300	9.96294
Log(AGE)	189,686	2.42667	0.60164	0.21186	2.06842	2.48466	2.82525	3.89010
LOAD	189,686	0.04266	0.04157	0	0	0.02000	0.07750	0.11000
EXP	189,686	0.01212	0.00372	0.00172	0.00979	0.01180	0.01413	0.03290
TO	189,686	0.77663	0.62988	0.01000	0.34000	0.62000	1.01000	5.04000
Tenure	189,686	2.29769	0.54498	0	2.01509	2.36421	2.66413	3.45843
# of ComLet	12,640	1.63964	1.42673	1	1	1	2	30
# of View	12,260	1.43605	2.42803	0	0	1	2	30
Disc. Day	12,640	15.83549	8.28469	1	9	16	22.5	31

Panel B: Correlation Matrix

	Flow	ComLet	Lag Flow	Lag Ret1	Lag Ret2	Lag Ret3	SD LagRet1	SD LagRet2	SD LagRet3	Log (TNA)	Log (AGE)	LOAD	EXP	TO	Tenure
Flow	1	-0.01	0.55	0.30	0.33	0.34	-0.03	-0.02	-0.01	0.01	-0.13	-0.06	-0.06	-0.08	0.01
ComLet	-0.01	1	-0.01	0.01	0.02	0.02	-0.05	-0.06	-0.04	0.04	0.04	0.01	-0.05	-0.02	0.05
LagFlow	0.36	-0.01	1	0.28	0.32	0.34	-0.03	-0.02	-0.01	0.03	-0.14	-0.06	-0.07	-0.08	0.01
LagRet1	0.23	0.01	0.22	1	0.69	0.55	-0.03	-0.04	-0.03	0.08	0.01	-0.01	-0.08	-0.02	0.00
LagRet2	0.24	0.01	0.24	0.71	1	0.79	-0.03	-0.03	-0.03	0.13	0.01	-0.02	-0.11	-0.06	0.01
LagRet3	0.26	0.01	0.25	0.58	0.81	1	-0.02	-0.01	0.00	0.17	0.00	-0.03	-0.12	-0.08	0.02
SDLagRet1	0.00	-0.05	0.00	-0.01	-0.03	-0.03	1	0.87	0.79	-0.23	-0.09	-0.03	0.29	0.09	-0.02
SDLagRet2	0.01	-0.06	0.01	-0.02	-0.02	-0.01	0.88	1	0.93	-0.25	-0.10	-0.04	0.32	0.10	-0.02
SDLagRet3	0.02	-0.04	0.02	-0.03	-0.03	0.01	0.78	0.93	1	-0.25	-0.10	-0.04	0.34	0.09	-0.02
Log(TNA)	-0.01	0.04	0.01	0.08	0.13	0.18	-0.23	-0.25	-0.25	1	0.32	0.15	-0.37	-0.14	0.16
Log(AGE)	-0.11	0.04	-0.12	0.01	0.00	-0.01	-0.09	-0.09	-0.09	0.34	1	0.03	-0.08	-0.07	0.22
LOAD	-0.02	0.00	-0.02	-0.01	-0.02	-0.03	-0.07	-0.08	-0.09	0.16	0.04	1	0.29	0.07	-0.09
EXP	-0.01	-0.05	-0.01	-0.09	-0.12	-0.14	0.27	0.31	0.34	-0.40	-0.08	0.24	1	0.10	-0.08
TO	-0.02	-0.03	-0.03	-0.05	-0.07	-0.08	0.15	0.18	0.18	-0.17	-0.07	0.04	0.14	1	-0.22
Tenure	0.00	0.06	0.00	0.00	0.02	0.03	-0.01	0.00	0.00	0.16	0.20	-0.08	-0.07	-0.17	1

Table 1.3 Determinants of Regulatory Oversight

This table shows the determinants of receiving the SEC comment letter in the mutual funds industry. The sample consists of fund company-year observations from 2004 to 2015. The dependent variable is an indicator that equals to one if the fund company has received at least one SEC comment letter during this calendar year, and zero otherwise. The explanatory variables include *LagComLet*, a lagged value of the dependent variable; *CumFundFlow*, the cumulative net flow during this calendar year; *FundRet* and *SDFundRet*, are average and standard deviation of monthly style-adjusted fund returns, respectively, during this calendar year. Detailed definitions of other control variables are provided in Table 1.1. All control variables, except for *LagComLet* and *Log(TNA)*, are TNA-weighted average of all underlying funds in the fund company. *Log(TNA)* is the natural logarithm of aggregated individual fund TNA in the fund company. Column (1) uses Linear Probability Model (LPM); Column (2) uses Logit regression model; and Column (3) uses Probit regression model. All regressions include year fixed effects. The robust t-statistics are clustered by fund company (CIK) and are reported in parentheses. The R^2 for LPM is adjusted R^2, while the R^2 for Logit and Probit model are pseudo R^2. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1) LPM	(2) Logit	(3) Probit
LagComLet	0.171***	0.786***	0.479***
	(10.69)	(10.49)	(10.67)
CumFundFlow	-0.003	-0.008	-0.005
	(-0.52)	(-0.21)	(-0.22)
FundRet	-1.008	-4.631	-2.429
	(-0.83)	(-0.75)	(-0.65)
SDFundRet	-0.177	-1.512	-0.978
	(-0.16)	(-0.26)	(-0.28)
Log(TNA)	0.037***	0.194***	0.115***
	(9.31)	(9.06)	(9.07)
Log(AGE)	-0.080***	-0.437***	-0.256***
	(-6.37)	(-6.12)	(-6.15)
LOAD	-0.122	-0.652	-0.469
	(-0.70)	(-0.71)	(-0.86)
EXP	1.186	6.880	3.713
	(0.65)	(0.66)	(0.61)
TO	0.024**	0.128**	0.073**
	(2.45)	(2.38)	(2.29)
Tenure	0.001	0.005	0.005
	(0.05)	(0.07)	(0.13)
Year FE	Yes	Yes	Yes
Observations	6,734	6,734	6,734
Adjusted/Pseudo R^2	0.209	0.171	0.171

Table 1.4 Do Investors Care about SEC Comment Letters?

This table provides ordinary least squares (OLS) regression results of monthly fund net flows on mutual fund comment letter disclosure. The sample consists of fund-month observations from 2005 to 2016. The dependent variable is fund's next month net flows. The main explanatory variables are *ComLet* and *# of ComLet*. *ComLet* is a dummy variable that equals to one if the fund's management company has disclosed at least one SEC comment letter in the previous month, and zero otherwise. *# of ComLet* is the natural logarithm of the number of comment letters disclosed during that month. Column (1) and (4) control for *LagRet* and *SDLagRet* based on prior 12 months' style-adjusted fund returns; Column (2) and (5) control for *LagRet* and *SDLagRet* based on prior 24 months' style-adjusted fund returns; Column (3) and (6) control for *LagRet* and *SDLagRet* based on prior 36 months' style-adjusted fund returns. Detailed definitions of other control variables are provided in Table 1.1. All regressions include time and fund investment style fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	12M	24M	36M	12M	24M	36M
ComLet	-0.000	-0.000	0.000			
	(-0.32)	(-0.10)	(0.17)			
# of ComLet				-0.000	-0.000	0.000
				(-0.56)	(-0.32)	(0.22)
LagFlow	0.313***	0.309***	0.301***	0.313***	0.309***	0.301***
	(37.09)	(37.05)	(35.13)	(37.09)	(37.05)	(35.13)
LagRet	1.577***	2.432***	3.157***	1.577***	2.433***	3.157***
	(32.06)	(30.76)	(27.96)	(32.06)	(30.76)	(27.96)
SDLagRet	0.051*	0.069*	-0.037	0.051*	0.069*	-0.037
	(1.65)	(1.91)	(-0.90)	(1.65)	(1.91)	(-0.90)
Log(TNA)	-0.000**	-0.000***	-0.001***	-0.000**	-0.000***	-0.001***
	(-2.55)	(-4.69)	(-7.31)	(-2.55)	(-4.69)	(-7.31)
Log(AGE)	-0.008***	-0.006***	-0.005***	-0.008***	-0.006***	-0.005***
	(-20.60)	(-18.15)	(-14.18)	(-20.60)	(-18.16)	(-14.18)
LOAD	-0.007*	-0.005	-0.004	-0.007*	-0.005	-0.004
	(-1.70)	(-1.25)	(-0.88)	(-1.69)	(-1.24)	(-0.88)
EXP	0.020	0.032	0.065	0.019	0.032	0.065
	(0.34)	(0.56)	(1.10)	(0.34)	(0.56)	(1.10)
TO	-0.001***	-0.001***	-0.001**	-0.001***	-0.001***	-0.001**
	(-4.43)	(-3.29)	(-2.35)	(-4.43)	(-3.29)	(-2.35)
Tenure	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(3.52)	(3.45)	(3.43)	(3.52)	(3.45)	(3.43)
Style FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	189,686	187,309	183,177	189,686	187,309	183,177
Adjusted R^2	0.175	0.176	0.175	0.175	0.176	0.175

Table 1.5 Do Investors Care about SEC Comment Letters? PSM Analysis

This table provides the baseline regression results using a Propensity Score Matched sample. For each letter-disclosed fund-month observation, I match it with a non-letter-disclosed fund-month observation based on all fund-level control variables in the baseline regression model. During the matching process, I also require that two observations to have the same fund style and are from the same month. Panel A presents the covariate balance of the variables used to form the matched pairs. Panel B and Panel C report the distribution of the treatment and control fund-month observations by year and by fund investment style, respectively. Panel D presents the regression results. Column (1) and (4) control for *LagRet* and *SDLagRet* based on prior 12 months' style-adjusted fund returns; Column (2) and (5) control for *LagRet* and *SDLagRet* based on prior 24 months' style-adjusted fund returns; Column (3) and (6) control for *LagRet* and *SDLagRet* based on prior 36 months' style-adjusted fund returns. The dependent variable is fund's next month net flows. Detailed definitions of other control variables are provided in Table 1.1. All regressions include time and fund investment style fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Covariate Balance

	ComLet=0	Obs	ComLet=1	Obs	Diff.	T-stat
FLOW	-0.0043	12,194	-0.0042	12,194	-0.0001	-0.1595
LagFLow	-0.0039	12,194	-0.0040	12,194	0.0001	0.1716
LagRet2	0.0001	12,194	0.0001	12,194	0.0000	0.4072
SDLagRet2	0.0113	12,194	0.0113	12,194	0.0000	0.3893
Log(TNA)	5.7319	12,194	5.7516	12,194	-0.0197	-0.8635
Log(AGE)	2.5446	12,194	2.5495	12,194	-0.0049	-0.8098
LOAD	0.0431	12,194	0.0431	12,194	-0.0000	-0.0075
EXP	0.0114	12,194	0.0114	12,194	-0.0001	-1.3311
TO	0.7172	12,194	0.7136	12,194	0.0035	0.4971
Tenure	2.4154	12,194	2.4190	12,194	-0.0036	-0.6100
LagRet1	-0.0000	12,194	-0.0000	12,194	-0.0000	-0.1467
SDLagRet1	0.0111	12,194	0.0110	12,194	0.0001	0.7090
LagRet3	0.0002	12,133	0.0002	12,131	0.0000	0.6138
SDLagRet3	0.0121	12,133	0.0120	12,131	0.0001	0.8408

Panel B: Distribution of Matched Pairs by Year

Year	ComLet=0	ComLet=1	Total
2005	134	134	268
2006	1	1	2
2007	58	58	116
2008	292	292	584
2009	553	553	1,106
2010	171	171	342
2011	2,179	2,179	4,358
2012	2,728	2,728	5,456
2013	2,026	2,026	4,052
2014	1,721	1,721	3,442
2015	1,485	1,485	2,970
2016	846	846	1,692

Panel C: Distribution of Matched Pairs by Style

Style	ComLet=0	ComLet=1	Total
LB	1,857	1,857	3,714
LG	2,612	2,612	5,224
LV	1,857	1,857	3,714
MB	592	592	1,184
MG	1,222	1,222	2,444
MV	651	651	1,302
SB	1,283	1,283	2,566
SG	1,454	1,454	2,908
SV	666	666	1,332

Panel D: PSM Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
	12M	24M	36M	12M	24M	36M
ComLet	0.000	0.000	0.000			
	(0.19)	(0.29)	(0.40)			
# of ComLet				0.000	0.000	0.000
				(0.00)	(0.02)	(0.45)
LagFlow	0.343***	0.339***	0.339***	0.343***	0.339***	0.339***
	(21.10)	(20.59)	(20.77)	(21.10)	(20.59)	(20.77)
LagRet	1.704***	2.399***	2.986***	1.704***	2.399***	2.986***
	(19.14)	(17.77)	(19.23)	(19.13)	(17.77)	(19.24)
SDLagRet	0.021	0.005	-0.129**	0.021	0.005	-0.129**
	(0.36)	(0.07)	(-1.98)	(0.36)	(0.07)	(-1.98)
Log(TNA)	0.000	-0.000	-0.000**	0.000	-0.000	-0.000**
	(0.26)	(-0.55)	(-2.03)	(0.26)	(-0.55)	(-2.03)
Log(AGE)	-0.004***	-0.004***	-0.003***	-0.004***	-0.004***	-0.003***
	(-6.22)	(-6.07)	(-5.27)	(-6.21)	(-6.06)	(-5.25)
LOAD	0.000	0.001	-0.001	0.000	0.001	-0.001
	(0.05)	(0.13)	(-0.08)	(0.05)	(0.13)	(-0.08)
EXP	0.300***	0.309***	0.320***	0.301***	0.309***	0.320***
	(2.59)	(2.66)	(2.76)	(2.59)	(2.66)	(2.76)
TO	-0.002***	-0.002***	-0.001**	-0.002***	-0.002***	-0.001**
	(-3.16)	(-2.79)	(-2.01)	(-3.16)	(-2.79)	(-2.01)
Tenure	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.03)	(-0.04)	(-0.16)	(-0.03)	(-0.04)	(-0.16)
Style FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	24,388	24,388	24,264	24,388	24,388	24,264
Adjusted R^2	0.187	0.187	0.191	0.187	0.187	0.191

Table 1.6 Investor Attention and Fund Flow

This table reports regression results of monthly fund net flows on investor attention of the disclosed comment letters. The sample consists of underlying mutual funds from fund company that disclosed comment letters. The dependent variable is fund's next month net flows immediate following the disclosure. The main explanatory variable is investor attention (*Attention*), calculated using the number of downloads for a fund's comment letter during disclosure month, further adjusted for the number of comment letters disclosed that month; and the number of days between the date they are disclosed to the end of that month. Column (3) and (4) further restrict the sample that there are at least 10 days between disclosure date and the end of the month. *LagRet* and *SDLagRet* used in the models are based on prior 24 months' style-adjusted fund returns. Detailed definitions of other control variables are provided in Table 1.1. All regressions include time and fund investment style fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1) ATT1	(2) ATT2	(3) ATT1 (10d)	(4) ATT2 (10d)
Attention	-0.002**	-0.007*	-0.002**	-0.016***
	(-2.25)	(-1.91)	(-2.30)	(-2.73)
LagFlow	0.323***	0.323***	0.339***	0.339***
	(12.54)	(12.54)	(10.48)	(10.49)
LagRet	2.532***	2.528***	2.603***	2.603***
	(13.34)	(13.32)	(11.85)	(11.86)
SDLagRet	0.034	0.034	0.182	0.183
	(0.36)	(0.37)	(1.59)	(1.60)
Log(TNA)	-0.000	-0.000	-0.001**	-0.001**
	(-1.56)	(-1.51)	(-2.11)	(-2.10)
Log(AGE)	-0.005***	-0.005***	-0.004***	-0.004***
	(-5.19)	(-5.16)	(-3.83)	(-3.80)
LOAD	0.003	0.003	0.000	0.000
	(0.28)	(0.25)	(0.01)	(0.00)
EXP	0.194	0.196	0.108	0.103
	(1.21)	(1.22)	(0.59)	(0.56)
TO	-0.001	-0.001	-0.001	-0.001
	(-1.04)	(-1.04)	(-0.98)	(-0.97)
Tenure	-0.000	-0.000	0.000	0.000
	(-0.27)	(-0.27)	(0.11)	(0.10)
Style FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Observations	12,233	12,233	8,894	8,894
Adjusted R^2	0.183	0.183	0.192	0.192

Table 1.7 Investor Attention and Fund Flow - Robustness

This table reports the robustness checks for relation of monthly fund net flows on investor attention of the disclosed comment letters. The sample consists of underlying mutual funds from fund company that disclosed comment letters. The dependent variable is fund's next month net flows immediate following the disclosure. The main explanatory variable is investor attention (*Attention*), calculated using the number of downloads for a fund's comment letter during disclosure month, further adjusted for the number of comment letters disclosed that month; and the number of days between the date they are disclosed to the end of that month. For brevity, I report results using investor attention measures where at least 10 days are allowed for investor to download and process the comment letters. *LagRet* and *SDLagRet* used in the models are based on prior 24 months' style-adjusted fund returns. Detailed definitions of other control variables are provided in Table 1.1. Column (1) and (3) add fund fixed effects (in place of fund style fixed effects); Column (2) and (4) add fund company (CIK) fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	ATT1 (10d)	ATT1 (10d)	ATT2 (10d)	ATT2 (10d)
Attention	-0.002**	-0.002*	-0.017***	-0.013**
	(-2.22)	(-1.80)	(-2.68)	(-2.05)
LagFlow	0.248***	0.307***	0.248***	0.307***
	(6.72)	(8.91)	(6.72)	(8.91)
LagRet	2.493***	2.804***	2.489***	2.804***
	(8.87)	(12.10)	(8.87)	(12.10)
SDLagRet	0.419**	0.148	0.416**	0.147
	(2.12)	(1.19)	(2.11)	(1.17)
Log(TNA)	-0.009***	-0.001**	-0.009***	-0.001**
	(-3.19)	(-2.11)	(-3.19)	(-2.11)
Log(AGE)	-0.006	-0.006***	-0.006	-0.006***
	(-1.03)	(-4.49)	(-1.06)	(-4.48)
LOAD	0.077	-0.005	0.076	-0.005
	(1.61)	(-0.24)	(1.58)	(-0.25)
EXP	-0.441	-0.122	-0.414	-0.120
	(-0.56)	(-0.42)	(-0.53)	(-0.41)
TO	0.003	-0.000	0.003	-0.000
	(1.42)	(-0.03)	(1.45)	(-0.03)
Tenure	0.002	-0.001	0.002	-0.001
	(0.69)	(-0.58)	(0.69)	(-0.58)
Style FE	No	Yes	No	Yes
Fund FE	Yes	No	Yes	No
CIK FE	No	Yes	No	Yes
Time FE	Yes	Yes	Yes	Yes
Observations	8,685	8,822	8,685	8,822
Adjusted R^2	0.247	0.221	0.247	0.221

Table 1.8 Investor Attention and Subsequent Fund Performance

This table reports the regression results of subsequent monthly fund returns on investor attention of the disclosed comment letters. The sample consists of underlying mutual funds from fund company that disclosed comment letters. The dependent variable is fund's next month style-adjusted returns. The main explanatory variable is a dummy variable (*HiAtt*) that equals to one if investor attention (measured by either $Attention_1$ or $Attention_2$) to disclosed comment letters was in the top quintile, and zero otherwise. *LagRet* and *SDLagRet* used in the models are based on prior 24 months' style-adjusted fund returns. Detailed definitions of other control variables are provided in Table 1.1. All regressions include time and fund investment style fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	$Attention_1$	$Attention_1$	$Attention_1$	$Attention_2$	$Attention_2$	$Attention_2$
HiAtt	-0.001*	-0.001*	-0.001*	-0.001**	-0.001**	-0.001**
	(-1.68)	(-1.78)	(-1.89)	(-2.08)	(-2.14)	(-2.17)
LagFlow			0.008**			0.007*
			(2.07)			(1.77)
HiAtt × LagFlow			-0.010			-0.004
			(-1.32)			(-0.55)
LagRet		0.022	-0.003		0.023	-0.001
		(0.37)	(-0.06)		(0.39)	(-0.01)
SDLagRet		-0.044	-0.044		-0.042	-0.042
		(-1.17)	(-1.19)		(-1.11)	(-1.13)
Log(TNA)		-0.000	-0.000		-0.000	-0.000
		(-1.15)	(-1.25)		(-1.12)	(-1.21)
Log(AGE)		0.000	0.000		0.000	0.000
		(1.04)	(1.24)		(1.03)	(1.23)
LOAD		0.009***	0.009***		0.009***	0.009***
		(2.90)	(2.96)		(2.87)	(2.92)
EXP		-0.234***	-0.239***		-0.234***	-0.238***
		(-5.03)	(-5.14)		(-5.04)	(-5.14)
TO		-0.000	-0.000		-0.000	-0.000
		(-1.46)	(-1.43)		(-1.46)	(-1.43)
Tenure		0.001**	0.001**		0.001**	0.001**
		(2.53)	(2.57)		(2.52)	(2.56)
Style FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,014	11,990	11,990	12,014	11,990	11,990
Adjusted R^2	0.022	0.026	0.026	0.022	0.026	0.026

Table 1.9 Is Comment Letter Disclosure Associated with Poor Future Performance?

This table provides ordinary least squares (OLS) regression results of subsequent monthly fund returns on mutual fund comment letter disclosure. The sample consists of fund-month observations from 2005 to 2016. The dependent variable is fund's next month style-adjusted fund returns. The main explanatory variable is a dummy variable (*ComLet*) that equals to one if the fund's management company has disclosed at least one SEC comment letter in the previous month, and zero otherwise. Panel A reports the results using full sample; Panel B reports the results using the same propensity matched sample as in Table3. *LagRet* and *SDLagRet* used in the models are based on prior 24 months' style-adjusted fund returns. Detailed definitions of other control variables are provided in Table 1.1. All regressions include time and fund investment style fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Panel A: Full Sample		Panel B: PSM Sample	
	NetRet	GrossRet	NetRet	GrossRet
ComLet	0.000	0.000	0.000	0.000
	(1.01)	(1.02)	(0.10)	(0.10)
LagFlow	0.002**	0.002**	0.005**	0.005**
	(2.04)	(2.21)	(1.97)	(2.01)
LagRet	0.083***	0.078***	-0.065	-0.065
	(5.01)	(5.05)	(-1.32)	(-1.31)
SDLagRet	-0.019**	-0.017*	-0.021	-0.021
	(-1.97)	(-1.79)	(-0.76)	(-0.76)
Log(TNA)	-0.000	-0.000	-0.000	-0.000
	(-1.26)	(-1.52)	(-1.29)	(-1.35)
Log(AGE)	0.000**	0.000***	0.000*	0.000*
	(2.45)	(2.92)	(1.74)	(1.83)
LOAD	0.001	0.001	0.006***	0.006***
	(1.57)	(1.47)	(2.73)	(2.75)
EXP	-0.103***	-0.017	-0.207***	-0.126***
	(-8.31)	(-1.42)	(-5.84)	(-3.53)
TO	0.000	0.000	-0.000	-0.000
	(0.02)	(0.04)	(-0.79)	(-0.78)
Tenure	-0.000	-0.000	0.000	0.000
	(-1.03)	(-1.03)	(0.71)	(0.72)
Style FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Observations	199,770	199,770	24,118	24,118
Adjusted R^2	0.010	0.010	0.018	0.016

Table 1.10 Fund Flow during the Pre-disclosure Period

This table provides ordinary least squares (OLS) regression results of monthly fund net flows on pseudo mutual fund comment letter disclosure events. The sample consists of fund-month observations from 2004 to 2016. The dependent variable is fund's next month net flows. The main explanatory variables are *ComLet* and *# of ComLet*. *ComLet* is a dummy variable based on the month when the letter is actually sent rather than the month in which it is publicly disclosed. *of ComLet* is the natural logarithm of the number of comment letters sent during that month. To mitigate the confounding window effect, I further drop observations where the letter is sent and disclosed in the same month. Column (1) and (4) control for *LagRet* and *SDLagRet* based on prior 12 months' style-adjusted fund returns; Column (2) and (5) control for *LagRet* and *SDLagRet* based on prior 24 months' style-adjusted fund returns; Column (3) and (6) control for *LagRet* and *SDLagRet* based on prior 36 months' style-adjusted fund returns. Detailed definitions of other control variables are provided in Table 1.1. All regressions include time and fund investment style fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	12M	24M	36M	12M	24M	36M
ComLet	-0.001***	-0.001***	-0.001**			
	(-3.23)	(-2.82)	(-2.40)			
# of ComLet				-0.001***	-0.001***	-0.001**
				(-3.27)	(-2.91)	(-2.51)
LagFlow	0.318***	0.314***	0.306***	0.318***	0.314***	0.306***
	(38.21)	(38.35)	(36.13)	(38.21)	(38.35)	(36.13)
LagRet	1.622***	2.375***	3.111***	1.622***	2.375***	3.111***
	(33.54)	(30.73)	(28.15)	(33.54)	(30.73)	(28.15)
SDLagRet	0.045	0.027	-0.065	0.045	0.027	-0.065
	(1.48)	(0.75)	(-1.62)	(1.48)	(0.75)	(-1.62)
Log(TNA)	-0.000***	-0.001***	-0.001***	-0.000***	-0.001***	-0.001***
	(-3.01)	(-5.22)	(-7.84)	(-3.01)	(-5.23)	(-7.84)
Log(AGE)	-0.008***	-0.006***	-0.005***	-0.008***	-0.006***	-0.005***
	(-21.81)	(-18.90)	(-14.90)	(-21.81)	(-18.90)	(-14.91)
LOAD	-0.007	-0.004	-0.002	-0.007	-0.004	-0.002
	(-1.63)	(-1.04)	(-0.58)	(-1.63)	(-1.04)	(-0.58)
EXP	-0.007	-0.010	0.035	-0.007	-0.010	0.035
	(-0.13)	(-0.17)	(0.59)	(-0.12)	(-0.17)	(0.59)
TO	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-5.01)	(-3.90)	(-2.63)	(-5.00)	(-3.90)	(-2.63)
Tenure	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(4.11)	(3.94)	(3.61)	(4.11)	(3.93)	(3.61)
Style FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	202,432	199,667	195,072	202,432	199,667	195,072
Adjusted R^2	0.180	0.178	0.178	0.180	0.178	0.178

Table 1.11 Fund Flow during the Pre-disclosure Period - PSM Analysis

This table displays regression results using a Propensity Score Matched sample. For each pseudo letter-disclosed fund-month observation, I match it with a non-letter-disclosed fund-month observation based on all fund-level control variables in the baseline regression model. During the matching process, I also require that two observations to have the same fund style and are from the same month. Panel A presents the covariate balance of the variables used to form the matched pairs. Panel B and Panel C report the distribution of the treatment and control fund-month observations by year and by fund investment style, respectively. Panel D presents the regression results. Column (1) and (4) control for *LagRet* and *SDLagRet* based on prior 12 months' style-adjusted fund returns; Column (2) and (5) control for *LagRet* and *SDLagRet* based on prior 24 months' style-adjusted fund returns; Column (3) and (6) control for *LagRet* and *SDLagRet* based on prior 36 months' style-adjusted fund returns. Detailed definitions of other control variables are provided in Table 1.1. All regressions include time and fund investment style fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Covariate Balance

	ComLet=0	**Obs**	**ComLet=1**	**Obs**	**Diff.**	**T-stat**
FLOW	-0.0025	16,659	-0.0033	16,659	**0.0008***	**1.7832**
LagFLow	-0.0029	16,659	-0.0028	16,659	-0.0001	-0.3058
LagRet2	0.0001	16,659	0.0001	16,659	-0.0000	-0.4247
SDLagRet2	0.0126	16,659	0.0126	16,659	0.0000	0.1960
Log(TNA)	5.6401	16,659	5.6199	16,659	0.0202	1.0361
Log(AGE)	2.4419	16,659	2.4427	16,659	-0.0008	-0.1351
LOAD	0.0452	16,659	0.0451	16,659	0.0001	0.2381
EXP	0.0116	16,659	0.0117	16,659	-0.0000	-0.5577
TO	0.7697	16,659	0.7645	16,659	0.0051	0.7742
Tenure	2.3404	16,659	2.3411	16,659	-0.0007	-0.1223
LagRet1	-0.0000	16,659	-0.0000	16,659	0.0000	0.0841
SDLagRet1	0.0119	16,659	0.0119	16,659	-0.0000	-0.1177
LagRet3	0.0001	16,417	0.0002	16,432	-0.0000	-0.6010
SDLagRet3	0.0130	16,417	0.0130	16,432	0.0000	0.2554

Panel B: Distribution of Matched Pairs by Year

Year	**ComLet=0**	**ComLet=1**	**Total**
2004	143	143	286
2005	342	342	684
2006	682	682	1,364
2007	658	658	1,316
2008	962	962	1,924
2009	1,563	1,563	3,126
2010	2,552	2,552	5,104
2011	2,058	2,058	4,116
2012	2,015	2,015	4,030
2013	1,749	1,749	3,498
2014	1,821	1,821	3,642
2015	1,349	1,349	2,698
2016	765	765	1,530

Panel C: Distribution of Matched Pairs by Style

Style	ComLet=0	ComLet=1	Total
LB	2,465	2,465	4,930
LG	3,635	3,635	7,270
LV	2,568	2,568	5,136
MB	782	782	1,564
MG	1,728	1,728	3,456
MV	888	888	1,776
SB	1,663	1,663	3,326
SG	2,004	2,004	4,008
SV	926	926	1,852

Panel D: PSM Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
	12M	24M	36M	12M	24M	36M
ComLet	-0.001*	-0.001**	-0.001*			
	(-1.94)	(-2.03)	(-1.92)			
# of ComLet				-0.001**	-0.001**	-0.001**
				(-2.05)	(-2.10)	(-2.00)
LagFlow	0.321***	0.313***	0.306***	0.321***	0.313***	0.306***
	(25.26)	(24.77)	(24.04)	(25.26)	(24.77)	(24.03)
LagRet	1.571***	2.448***	3.287***	1.571***	2.448***	3.286***
	(21.28)	(22.89)	(23.62)	(21.28)	(22.88)	(23.61)
SDLagRet	0.085	0.095	0.055	0.086	0.096	0.056
	(1.41)	(1.54)	(0.88)	(1.41)	(1.55)	(0.88)
Log(TNA)	-0.000	-0.000*	-0.001***	-0.000	-0.000*	-0.001***
	(-0.58)	(-1.72)	(-3.54)	(-0.59)	(-1.72)	(-3.54)
Log(AGE)	-0.005***	-0.005***	-0.004***	-0.005***	-0.005***	-0.004***
	(-8.87)	(-8.70)	(-7.06)	(-8.88)	(-8.71)	(-7.07)
LOAD	-0.017**	-0.014**	-0.009	-0.017**	-0.014**	-0.009
	(-2.35)	(-2.02)	(-1.25)	(-2.35)	(-2.02)	(-1.25)
EXP	0.164*	0.181*	0.140	0.166*	0.182*	0.142
	(1.66)	(1.84)	(1.42)	(1.67)	(1.85)	(1.43)
TO	-0.001***	-0.001*	-0.001	-0.001***	-0.001	-0.001
	(-2.85)	(-1.65)	(-1.51)	(-2.85)	(-1.64)	(-1.51)
Tenure	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.83)	(-0.77)	(-0.67)	(-0.84)	(-0.77)	(-0.67)
Style FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	33,318	33,318	32,849	33,318	33,318	32,849
Adjusted R^2	0.179	0.184	0.184	0.179	0.184	0.184

Table 2.1 Variable Definitions

Variable	Description
Main Variables:	
ComLet	A dummy variable equals to one if the management company of a fund is involved in an SEC review process; and zero otherwise. Source: Audit Analytics.
PostResolution	A dummy variable equals to one if it is within the 3-month window after an SEC review process; and equals to zero if it is within the 3-month window before an SEC review process. Source: Audit Analytics.
DuringProcess	A dummy variable equals to one if it is within the 3-month window after receiving but before resolving a comment letter; and equals to zero if it is within the 3-month window before an SEC review process. Source: Audit Analytics.
VOL	A measure of mutual risk-taking, calculated as the standard deviation of daily fund returns during a calendar month. Source: CRSP MFDB.
IVOL	A measure of mutual risk-taking, calculated as the standard deviation of the residual terms from regressing daily fund returns during a calendar month on corresponding daily Carhart 4-factors. Source: CRSP MFDB.
Fund Control Variables:	
Log(TNA)	The natural logarithm of the amount of total net assets under management, i.e., the size of the fund. Source: CRSP MFDB.
Log(AGE)	The natural logarithm of number of years since fund inception. Source: CRSP MFDB.
LOAD	The sum of the maximum front- and back-end loads. Source: CRSP MFDB.
EXP	Fund expense ratio. Source: CRSP MFDB.
TO	The minimum of the fund's dollar purchases or dollar sales for the year divided by the monthly average value of the portfolio. Source: CRSP MFDB.
TeamManaged	A dummy variable equals to one if Morningstar reports the fund as being team managed or if there are multiple managers in charge of the fund. Source: Morningstar.
Tenure	For individually managed funds, we subtract from the current year the earliest start date for a given manager with any fund in the Morningstar database. For multi-manger funds, we average the individual measure over the managers in charge of the fund. If multi-manager fund does not report its managers' names, we assign zero value. The final value is set to be the natural logarithm of the number plus one. Source: Morningstar.
Fund Style	A fund's investment objective as identified by Morningstar. They include: Large-Blend (LB), Large-Growth (LG), Large-Value (LV), Mid-Blend (MB), Mid-Growth (MG), Mid-Value (MV), Small-Blend (SB), Small-Growth (SG), and Small-Value (SV). All remaining funds are grouped into one category (Other). Source: Morningstar.

Table 2.2 Mutual Fund Risk-Taking and Probability of Receiving SEC Comment Letter

This table displays the summary statistics and determinants of receiving the SEC comment letter in the mutual fund industry. The sample consists of fund company-year observations from 2004 to 2015. Panel A presents the summary statistics. Panel B and Panel C report regression results based on fund volatilities and idiosyncratic volatilities, respectively. The dependent variable is an indicator that equals to one if the fund company has received at least one SEC comment letter during this calendar year, and zero otherwise. The explanatory variables include LagComLet, a lagged value of the dependent variable; CumFlow, the cumulative net flow during this calendar year; CumReturn, the cumulative fund return during this calendar year. All control variables, except for LagComLet and Log(TNA), are TNA-weighted average of all underlying funds in the fund company. Log(TNA) is the natural logarithm of aggregated individual fund TNA in the fund company. AVG_VOL is the TNA-weighted average fund volatility (VOL) of all underlying funds in the fund family; MAX_VOL is the maximum value of fund volatility (VOL) in the fund family; AVG_IVOL is the TNA-weighted average fund idiosyncratic volatility (IVOL) of all underlying funds in the fund family; MAX_IVOL is the maximum value of fund idiosyncratic volatility (IVOL) in the fund family. Detailed definitions of other control variables are provided in Table 2.1. Column (1) and (2) use Linear Probability Model; Column (3) and (4) use Logit regression model. All regressions include year fixed effects. The robust t-statistics are clustered by fund company (CIK) and are reported in parentheses. The R^2 for LPM is adjusted R^2, while the R^2 for Logit model is pseudo R^2. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Summary Statistics - Fund Company

	N	Mean	StdDev	Min	Q1	Median	Q3	Max
AVG_VOL (%)	6,674	4.2271	1.7703	1.2044	2.8539	3.6751	5.5458	10.3584
MAX_VOL (%)	6,674	4.6366	1.9500	1.2044	3.1872	4.1191	5.9154	11.1132
AVG_IVOL (%)	6,674	0.8814	0.4373	0.1815	0.5816	0.7911	1.0761	3.2787
MAX_IVOL (%)	6,674	1.0593	0.5298	0.1815	0.6757	0.9641	1.3239	3.8006
Log(TNA)	6,674	6.2525	2.1248	0.5306	4.7265	6.4060	7.8993	10.3809
Log(AGE)	6,674	2.5712	0.5724	0.6640	2.2354	2.5953	2.9259	3.8677
EXP	6,674	0.0126	0.0041	0.0024	0.0100	0.0121	0.0148	0.0320
TO	6,674	0.7116	0.5976	0.02	0.3100	0.5623	0.9216	4.6400
LOAD	6,674	0.0420	0.0405	0	0	0.0200	0.0775	0.1100
Tenure	6,674	2.2940	0.5546	0	2.0219	2.3726	2.6566	3.4291
CumFlow	6,674	0.1167	0.7152	-0.6248	-0.1332	-0.0330	0.1233	12.2155
CumReturn	6,674	0.0962	0.1926	-0.5388	0.0286	0.1149	0.1861	0.7091

Panel B: Volatility

	LPM		Logit	
	(1) AVG_VOL	(2) MAX_VOL	(3) AVG_VOL	(4) MAX_VOL
RISK	0.011	0.039***	0.060	0.214***
	(1.53)	(6.76)	(1.64)	(6.73)
LagComLet	0.169***	0.161***	0.779***	0.738***
	(10.58)	(10.17)	(10.38)	(9.91)
Log(TNA)	0.035***	0.029***	0.185***	0.151***
	(8.84)	(7.20)	(8.64)	(7.10)
Log(AGE)	-0.081***	-0.072***	-0.444***	-0.400***
	(-6.40)	(-5.71)	(-6.17)	(-5.55)
EXP	0.473	-1.083	2.410	-6.337
	(0.27)	(-0.62)	(0.25)	(-0.64)
TO	0.023**	0.015	0.120**	0.084
	(2.27)	(1.52)	(2.21)	(1.53)
LOAD	-0.077	-0.015	-0.382	-0.042
	(-0.44)	(-0.09)	(-0.42)	(-0.05)
Tenure	0.000	0.000	0.002	-0.001
	(0.03)	(0.02)	(0.03)	(-0.01)
CumFlow	-0.004	-0.002	-0.011	0.001
	(-0.61)	(-0.26)	(-0.29)	(0.03)
CumReturn	-0.025	-0.016	-0.109	-0.044
	(-0.29)	(-0.19)	(-0.25)	(-0.10)
Fixed Effect	Year	Year	Year	Year
Clustering	CIK	CIK	CIK	CIK
Observations	6,674	6,674	6,674	6,674
Adjusted/Pseudo R^2	0.209	0.214	0.171	0.176

Panel C: Idiosyncratic Volatility

	LPM		Logit	
	(1) AVG_IVOL	(2) MAX_IVOL	(3) AVG_IVOL	(4) MAX_IVOL
RISK	0.009	0.075***	0.033	0.376***
	(0.56)	(5.48)	(0.41)	(5.24)
LagComLet	0.169***	0.162***	0.781***	0.750***
	(10.60)	(10.26)	(10.40)	(10.08)
Log(TNA)	0.036***	0.031***	0.188***	0.162***
	(8.95)	(7.74)	(8.73)	(7.55)
Log(AGE)	-0.081***	-0.074***	-0.440***	-0.407***
	(-6.38)	(-5.82)	(-6.14)	(-5.60)
EXP	0.580	-2.268	3.476	-11.867
	(0.31)	(-1.23)	(0.34)	(-1.14)
TO	0.024**	0.018*	0.128**	0.097*
	(2.40)	(1.73)	(2.34)	(1.71)
LOAD	-0.080	0.041	-0.418	0.225
	(-0.46)	(0.24)	(-0.46)	(0.25)
Tenure	-0.000	-0.003	0.002	-0.013
	(-0.00)	(-0.24)	(0.03)	(-0.19)
CumFlow	-0.005	-0.005	-0.016	-0.017
	(-0.71)	(-0.75)	(-0.39)	(-0.44)
CumReturn	-0.025	-0.020	-0.116	-0.062
	(-0.30)	(-0.24)	(-0.26)	(-0.14)
Fixed Effect	Year	Year	Year	Year
Clustering	CIK	CIK	CIK	CIK
Observations	6,674	6,674	6,674	6,674
Adjusted/Pseudo R^2	0.209	0.213	0.171	0.175

Table 2.3 Summary of Propensity Score Matched Sample

This table presents the summary statistics of the propensity score matched sample. For a given fund that receives the initial comment letter in month t, it is matched to a non-comment-letter-receiving fund from the same investment style, based on all the control variables used in the Model 2. The matching uses control variables measured at the end of month t-1, I ensure exact matching on investment style and month and use nearest-neighbor matching on all other covariates without replacement. Panel A displays distribution of matched pairs by year; Panel B displays the covariate balance. In total, I am able to match 23,848 comment letter conversations between 2003 and 2016. Panel C reports the summary statistics of the PSM matched sample whereas Panel D reports the combined Pearson and Spearman correlation matrix.

Panel A: Distribution of Matched Pairs by Year

Year	ComLet=0	ComLet=1	Total
2003	5	5	10
2004	235	235	470
2005	406	406	812
2006	933	933	1,866
2007	909	909	1,818
2008	1,178	1,178	2,356
2009	2,714	2,714	5,428
2010	3,357	3,357	6,714
2011	3,024	3,024	6,048
2012	2,869	2,869	5,738
2013	2,660	2,660	5,320
2014	2,430	2,430	4,860
2015	1,912	1,912	3,824
2016	1,216	1,216	2,432

Panel B: Covariate Balance

	ComLet=0	Obs	ComLet=1	Obs	Diff.	T-stat
VOL (%)	1.1175	23,848	1.1214	23,848	-0.0039	-0.6661
IVOL (%)	0.2018	23,848	0.2007	23,847	0.0010	1.1035
Log(TNA)	5.5844	23,848	5.5607	23,848	0.0237	1.4448
Log(AGE)	2.4257	23,848	2.4283	23,848	-0.0026	-0.5288
EXP	0.0116	23,848	0.0116	23,848	-0.0000	-1.0051
TO	0.7744	23,848	0.7691	23,848	0.0053	0.9210
LOAD	0.0447	23,848	0.0441	23,848	0.0005	1.3649
TeamManaged	0.7584	23,848	0.7562	23,848	0.0022	0.5554
Tenure	2.3212	23,848	2.3242	23,848	-0.0030	-0.6487

Panel C: Summary Statistics

	N	Mean	StdDev	Min	Q1	Median	Q3	Max
VOL (%)	279,287	1.1379	0.6631	0.2271	0.7253	0.9706	1.2927	6.2415
IVOL (%)	279,287	0.2027	0.1049	0.0434	0.1327	0.1798	0.2449	2.1104
Log(TNA)	279,287	5.5860	1.7887	0.2624	4.3438	5.6146	6.9183	9.8920
Log(AGE)	279,287	2.4398	0.5284	0.5217	2.1185	2.4924	2.8018	3.8091
EXP	279,287	0.0117	0.0033	0.0027	0.0096	0.0114	0.0136	0.0326
TO	279,287	0.7707	0.6022	0.0200	0.3600	0.6200	1.0100	5.0000
LOAD	279,287	0.0438	0.0412	0	0	0.0475	0.0775	0.1175
TeamManaged	279,287	0.7560	0.4295	0	1	1	1	1
Tenure	279,287	2.3343	0.4881	0	2.0752	2.3875	2.6629	3.4097

Panel D: Correlation Matrix

	VOL (%)	IVOL (%)	Log(TNA)	Log(AGE)	EXP	TO	LOAD	TeamManaged	Tenure
VOL (%)	1	0.4190	-0.1053	-0.0888	0.0901	0.1554	0.0195	-0.0046	-0.0853
IVOL (%)	0.4911	1	-0.1574	-0.0933	0.2856	0.0816	0.0028	-0.0690	-0.0353
Log(TNA)	-0.1132	-0.1736	1	0.3311	-0.3786	-0.1477	0.1761	0.0407	0.1762
Log(AGE)	-0.1034	-0.1151	0.3654	1	-0.0447	-0.0437	0.1344	-0.0125	0.1565
EXP	0.0638	0.2619	-0.3852	-0.0661	1	0.1035	0.2667	-0.0658	-0.0893
TO	0.1136	0.1069	-0.1757	-0.0536	0.1422	1	0.0362	-0.0095	-0.2097
LOAD	0.0163	-0.0289	0.1955	0.1429	0.2253	0.0170	1	0.0347	-0.0419
TeamManaged	-0.0149	-0.0816	0.0417	-0.0086	-0.0757	-0.0674	0.0410	1	-0.1181
Tenure	-0.0655	-0.0540	0.1831	0.1673	-0.0927	-0.1742	-0.0316	-0.0759	1

Table 2.4 Mutual Fund Risk-Taking Behavior *after Resolution* of the Review Process

This table provides ordinary least squares (OLS) regression results for the shift in fund risk-taking behaviors after resolution of the review process. The dependent variable is the fund risk-taking measure (VOL or IVOL) calculated using daily fund returns. ComLet is an indicator that equals to one if the fund's management company is involved a review process, and zero otherwise (i.e., the treatment dummy); PostResolution is a dummy variable equals to one if it is within the 3-month window after an SEC review process, and equals to zero if it is within the 3-month window before an SEC review process. The variable of interest is the interaction term ComLet × PostResolution. Detailed definitions of other control variables are provided in Appendix A. Column (1), (3) and (5) use fund's volatilities whereas Column (2), (4) and (6) use fund's idiosyncratic volatilities. All regressions include style-month fixed effects. The robust t-statistics are clustered in three ways: (i) clustered by fund (Column (1) and (2)); (ii) two-way clustered by fund and month (Column (3) and (4)); and (iii) clustered by fund × month (Column (5) and (6)); they are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1) VOL	(2) IVOL	(3) VOL	(4) IVOL	(5) VOL	(6) IVOL
ComLet	0.001	-0.001	0.001	-0.001	0.001	-0.001
	(0.42)	(-0.46)	(0.42)	(-0.46)	(1.13)	(-1.41)
PostResolution	-0.001	-0.000	-0.001	-0.000	-0.001	-0.000
	(-1.41)	(-0.29)	(-1.55)	(-0.52)	(-1.33)	(-0.22)
ComLet × PostResolution	0.002*	0.001***	0.002*	0.001**	0.002*	0.001**
	(1.91)	(2.80)	(1.94)	(2.03)	(1.79)	(2.12)
Log(TNA)	-0.001	-0.001	-0.001	-0.001	-0.001***	-0.001***
	(-0.66)	(-1.11)	(-0.67)	(-1.10)	(-3.19)	(-5.94)
Log(AGE)	0.004	-0.007**	0.004	-0.007**	0.004***	-0.007***
	(0.81)	(-2.21)	(0.81)	(-2.22)	(3.72)	(-11.51)
EXP	-2.603***	5.947***	-2.603***	5.947***	-2.603***	5.947***
	(-2.87)	(11.03)	(-2.70)	(10.56)	(-12.96)	(58.85)
TO	0.041***	-0.001	0.041***	-0.001	0.041***	-0.001*
	(10.42)	(-0.42)	(8.68)	(-0.41)	(38.92)	(-1.87)
LOAD	0.182***	-0.177***	0.182***	-0.177***	0.182***	-0.177***
	(2.90)	(-5.09)	(2.81)	(-5.05)	(13.80)	(-27.45)
TeamManaged	-0.005	-0.013***	-0.005	-0.013***	-0.005***	-0.013***
	(-0.88)	(-4.18)	(-0.88)	(-4.15)	(-3.95)	(-20.90)
Tenure	0.010*	0.004	0.010*	0.004	0.010***	0.004***
	(1.94)	(1.17)	(1.93)	(1.17)	(8.32)	(6.01)
Fixed Effect	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund and Month	Fund and Month	Fund-Month	Fund-Month
Observations	272,171	272,165	272,171	272,165	272,171	272,165
Adjusted R^2	0.944	0.454	0.944	0.454	0.944	0.454

Table 2.5 Mutual Fund Risk-Taking Behavior *during* of the Review Process

This table provides ordinary least squares (OLS) regression results for the shift in fund risk-taking behaviors during the review process. The dependent variable is the fund risk-taking measure (VOL or IVOL) calculated using daily fund returns. ComLet is an indicator that equals to one if the fund's management company is involved a review process, and zero otherwise (i.e., the treatment dummy); DuringProcess is a dummy variable equals to one if it is within the 3-month window after receiving but before resolving a comment letter, and equals to zero if it is within the 3-month window before an SEC review process;. The variable of interest is the interaction term ComLet × DuringProcess. Detailed definitions of other control variables are provided in Appendix A. Column (1), (3) and (5) use fund's volatilities whereas Column (2), (4) and (6) use fund's idiosyncratic volatilities. All regressions include style-month fixed effects. The robust t-statistics are clustered in three ways: (i) clustered by fund (Column (1) and (2)); (ii) two-way clustered by fund and month (Column (3) and (4)); and (iii) clustered by fund × month (Column (5) and (6)); they are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	VOL	IVOL	VOL	IVOL	VOL	IVOL
ComLet	0.005	-0.000	0.005	-0.000	0.005**	-0.000
	(0.98)	(-0.06)	(0.95)	(-0.06)	(2.03)	(-0.13)
DuringProcess	-0.001	-0.000	-0.001	-0.000	-0.001	-0.000
	(-0.49)	(-0.37)	(-0.54)	(-0.38)	(-0.46)	(-0.31)
ComLet × DuringProcess	-0.002	-0.000	-0.002	-0.000	-0.002	-0.000
	(-0.50)	(-0.15)	(-0.40)	(-0.15)	(-0.45)	(-0.12)
Log(TNA)	-0.000	-0.001	-0.000	-0.001	-0.000	-0.001***
	(-0.03)	(-1.08)	(-0.03)	(-1.10)	(-0.09)	(-3.39)
Log(AGE)	0.004	-0.005	0.004	-0.005	0.004	-0.005***
	(0.51)	(-1.31)	(0.54)	(-1.34)	(1.39)	(-4.12)
EXP	-0.856	4.798***	-0.856	4.798***	-0.856*	4.798***
	(-0.70)	(8.34)	(-0.71)	(8.56)	(-1.84)	(23.41)
TO	0.044***	-0.001	0.044***	-0.001	0.044***	-0.001
	(8.61)	(-0.38)	(7.39)	(-0.38)	(19.26)	(-0.90)
LOAD	0.171**	-0.121***	0.171**	-0.121***	0.171***	-0.121***
	(2.16)	(-2.83)	(2.11)	(-2.90)	(5.93)	(-8.54)
TeamManaged	-0.015*	-0.011**	-0.015*	-0.011***	-0.015***	-0.011***
	(-1.93)	(-2.57)	(-1.95)	(-2.64)	(-5.30)	(-7.79)
Tenure	0.010	0.005	0.010	0.005	0.010***	0.005***
	(1.62)	(1.10)	(1.61)	(1.13)	(3.93)	(3.40)
Fixed Effect	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund and Month	Fund and Month	Fund-Month	Fund-Month
Observations	21,064	21,064	21,064	21,064	21,064	21,064
Adjusted R^2	0.942	0.405	0.942	0.405	0.942	0.405

Table 2.6 Regulatory Oversight and Mutual Fund Risk-Taking - Robustness Check

This table reports the robustness checks for impact of regulatory oversight on mutual fund risk-taking behaviors. The dependent variable is the fund risk-taking measure (VOL or IVOL) calculated using daily fund returns. Panel A presents robustness check for after resolution of the review process; and Panel B presents robustness check for during the review process. The dependent variable is the fund risk-taking measure (VOL or IVOL) calculated using daily fund returns. Detailed definitions of the control variables are provided in Appendix A. Column (1) and (2) add fund company (CIK) fixed effects (in addition to style-month fixed effects) whereas Column (3) and (4) include fund and month fixed effects (in place of style-month fixed effects). The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Mutual Fund Risk-Taking Behavior *after resolution* of the Review Process

	(1) VOL	(2) IVOL	(3) VOL	(4) IVOL
ComLet	-0.003**	-0.002***	-0.004**	-0.001***
	(-2.24)	(-2.70)	(-2.38)	(-2.75)
PostResolution	-0.001	-0.000	-0.001	-0.000
	(-1.12)	(-0.55)	(-0.86)	(-0.69)
ComLet × PostResolution	0.003**	0.001***	0.003*	0.001***
	(2.12)	(2.69)	(1.90)	(2.64)
Log(TNA)	-0.005**	0.001	0.005**	-0.002**
	(-2.54)	(0.92)	(2.02)	(-2.16)
Log(AGE)	0.011*	-0.009***	-0.001	-0.004
	(1.66)	(-2.75)	(-0.06)	(-0.98)
EXP	1.583	4.404***	1.224	0.853
	(1.38)	(6.64)	(0.94)	(1.49)
TO	0.029***	0.005**	0.012***	0.003**
	(7.02)	(2.34)	(3.12)	(1.97)
LOAD	0.065	0.034	0.003	-0.046
	(0.60)	(0.68)	(0.02)	(-1.20)
TeamManaged	-0.010	-0.015***	-0.015***	-0.004
	(-1.50)	(-4.32)	(-2.90)	(-1.62)
Tenure	0.011**	0.000	0.013***	0.004**
	(2.29)	(0.14)	(2.61)	(2.04)
Fixed Effect	Style-Month and CIK	Style-Month and CIK	Fund and Month	Fund and Month
Clustering	Fund	Fund	Fund	Fund
Observations	272,171	272,165	272,171	272,165
Adjusted R^2	0.954	0.587	0.948	0.699

Panel B: Mutual Fund Risk-Taking Behavior *during* the Review Process

	(1) VOL	(2) IVOL	(3) VOL	(4) IVOL
ComLet	-0.009*	-0.001	-0.003	0.001
	(-1.85)	(-0.55)	(-0.50)	(0.45)
DuringProcess	-0.001	-0.001	-0.000	-0.001
	(-0.28)	(-1.13)	(-0.06)	(-0.84)
ComLet × DuringProcess	0.002	-0.001	0.002	-0.001
	(0.55)	(-0.37)	(0.55)	(-0.64)
Log(TNA)	-0.006**	0.001	0.013***	-0.001
	(-2.27)	(0.76)	(2.60)	(-0.34)
Log(AGE)	0.012	-0.010**	-0.011	-0.007
	(1.37)	(-2.08)	(-0.51)	(-1.03)
EXP	1.234	3.451***	4.544**	0.774
	(0.79)	(4.47)	(2.10)	(0.72)
TO	0.029***	-0.000	0.017**	0.003
	(4.77)	(-0.03)	(2.43)	(1.04)
LOAD	0.044	0.092	-0.005	-0.045
	(0.32)	(1.05)	(-0.02)	(-0.57)
TeamManaged	-0.020**	-0.019***	-0.026**	-0.004
	(-2.14)	(-3.44)	(-2.15)	(-0.79)
Tenure	0.010	0.002	0.011	0.005
	(1.42)	(0.41)	(1.10)	(1.49)
Fixed Effect	Style-Month and CIK	Style-Month and CIK	Fund and Month	Fund and Month
Clustering	Fund	Fund	Fund	Fund
Observations	21,064	21,064	21,065	21,065
Adjusted R^2	0.955	0.551	0.950	0.699

Table 2.7 Analyses of Fund Holdings

This table reports regression results of using holding-based fund risk-taking measures when examining the effect of regulatory oversight on mutual fund's portfolio choice. The dependent variable in Column (1) is the dollar-weighted average of individual stock's idiosyncratic volatility based on actual fund holdings (STOCK_IVOL); the dependent variables in Column (2) and (3) are industry concertation measures introduced by Kacperczyk et al. (2005): the first one is industry Herfindahl index (INDUSTRY_HI), defined as $HI_t = \sum_{i=1}^{N}(\omega_{i,t})^2$; and the second one is industry concentration ratio (ICI), defined as $ICI_t = \sum_{j=1}^{10}(\omega_{j,t} - \bar{\omega}_{j,t})^2$. Detailed definitions of the control variables are provided in Table 2.1. All regressions include style-month fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1) STOCK_IVOL	(2) INDUSTRY_HI	(3) ICI
ComLet	0.000	0.001	0.001
	(0.11)	(0.36)	(0.42)
PostResolution	0.000	0.001**	0.001**
	(0.56)	(2.25)	(2.03)
ComLet × PostResolution	0.000	-0.001**	-0.001**
	(0.59)	(-2.09)	(-2.18)
Log(TNA)	0.000	0.001	0.001
	(1.16)	(0.73)	(0.98)
Log(AGE)	0.000	-0.001	-0.000
	(0.83)	(-0.49)	(-0.23)
EXP	0.083***	1.765***	1.563***
	(5.65)	(5.42)	(5.45)
TO	0.001***	-0.007***	-0.006***
	(10.62)	(-3.21)	(-2.78)
LOAD	-0.004***	-0.071***	-0.066***
	(-3.70)	(-3.07)	(-3.49)
TeamManaged	-0.000**	-0.004*	-0.002
	(-2.23)	(-1.68)	(-1.15)
Tenure	0.000	0.001	0.002
	(1.50)	(0.79)	(1.13)
Fixed Effect	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund
Observations	71,482	71,482	71,482
Adjusted R^2	0.832	0.122	0.089

Table 2.8 Is Shift in Risk-Taking Behavior Associated with Better Fund Performance?

This table reports results on whether the shift in risk-taking behaviors can provide fund investor with superior fund returns. The dependent variables are monthly style-adjusted fund returns; Column (1) and (2) use net fund returns whereas Column (3) and (4) use gross fund returns. Column (2) and (4) add following additional control variables: LagFlow is the lagged monthly net fund flow; LagReturn is the average of style-adjusted fund returns during the past 24-month period; and SDLagReturn is the standard deviation of past 24-month's style-adjusted returns. Detailed definitions of the control variables are provided in Table 2.1. All regressions include style-month fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	1-Month	1-Month	1-Month	1-Month
	Net Return	Net Return	Gross Return	Gross Return
ComLet	-0.000	0.000	0.000	0.000
	(-0.01)	(0.06)	(0.01)	(0.07)
PostResolution	0.000	0.000	0.000	0.000
	(0.15)	(0.07)	(0.11)	(0.01)
ComLet × PostResolution	-0.000	-0.000	-0.000	-0.000
	(-1.14)	(-1.23)	(-1.15)	(-1.22)
Log(TNA)	0.000**	0.000**	0.000**	0.000**
	(2.48)	(2.21)	(2.38)	(2.13)
Log(AGE)	0.000	0.000	0.000	0.000
	(1.08)	(0.91)	(1.22)	(1.06)
EXP	-0.103***	-0.096***	-0.018	-0.011
	(-5.81)	(-5.61)	(-1.02)	(-0.65)
TO	-0.000*	-0.000	-0.000*	-0.000
	(-1.72)	(-1.59)	(-1.77)	(-1.64)
LOAD	0.000	0.000	0.000	0.000
	(0.33)	(0.30)	(0.34)	(0.30)
TeamManaged	-0.000	-0.000	-0.000	-0.000
	(-0.12)	(-0.42)	(-0.17)	(-0.47)
Tenure	-0.000**	-0.000**	-0.000**	-0.000**
	(-2.16)	(-2.53)	(-2.02)	(-2.38)
LagFlow		0.041*		0.039*
		(1.80)		(1.73)
LagReturn		-0.011		-0.011
		(-0.80)		(-0.81)
SDLagReturn		-0.001		-0.001
		(-0.92)		(-0.84)
Fixed Effect	Style-Month	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund	Fund
Observations	272,127	270,035	272,170	270,069
Adjusted R^2	0.045	0.044	0.044	0.043

Table 2.9 Review Process Characteristics and Mutual Fund Risk-Taking

This table displays results on how different review process characteristics affect risk-taking. The dependent variable is the fund risk-taking measure (VOL or IVOL) calculated using daily fund returns. Panel A uses fund volatilities whereas Panel B uses fund idiosyncratic volatilities. I consider three review process characteristics: (i) LongConvDecile, an indicator which equals to one if the review process is among the top decile in length (Column (2)); (ii) # of Rounds, the number of rounds of communications between the SEC and the fund company (Column (3)); and (iii) # of Topics, the number of topics cited in the initial comment letter (Column (4)). Detailed definitions of the control variables are provided in Table 2.1. All regressions include style-month fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Volatility

	(1) VOL	(2) VOL	(3) VOL	(4) VOL
Post	0.001*	0.001*	0.001*	0.002*
	(1.69)	(1.68)	(1.70)	(1.85)
LongConvDecile		0.011***		
		(2.69)		
# of Rounds			0.004***	
			(2.67)	
# of Topics				0.001
				(0.75)
Log(TNA)	0.000	0.000	0.000	0.000
	(0.15)	(0.12)	(0.10)	(0.16)
Log(AGE)	0.001	0.001	0.001	0.001
	(0.18)	(0.19)	(0.20)	(0.20)
EXP	-1.307	-1.299	-1.414	-1.224
	(-1.20)	(-1.20)	(-1.29)	(-1.09)
TO	0.040***	0.040***	0.040***	0.039***
	(8.51)	(8.50)	(8.41)	(8.19)
LOAD	0.156**	0.155**	0.157**	0.170**
	(2.03)	(2.03)	(2.04)	(2.15)
TeamManaged	-0.003	-0.003	-0.003	-0.003
	(-0.38)	(-0.34)	(-0.40)	(-0.38)
Tenure	0.012**	0.012**	0.012**	0.011*
	(2.01)	(2.01)	(2.00)	(1.76)
Fixed Effect	Style-Month	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund	Fund
Observations	139,472	139,472	136,017	123,358
Adjusted R^2	0.945	0.945	0.944	0.945

Panel B: Idiosyncratic Volatility

	(1) IVOL	(2) IVOL	(3) IVOL	(4) IVOL
Post	0.001***	0.001***	0.001***	0.002***
	(3.68)	(3.68)	(3.80)	(3.74)
LongConvDecile		-0.001		
		(-0.40)		
# of Rounds			-0.001	
			(-0.87)	
# of Topics				0.001**
				(2.08)
Log(TNA)	-0.001	-0.001	-0.001	-0.001
	(-0.51)	(-0.51)	(-0.55)	(-0.63)
Log(AGE)	-0.009**	-0.009**	-0.009**	-0.010***
	(-2.41)	(-2.41)	(-2.46)	(-2.61)
EXP	6.319***	6.318***	6.324***	6.429***
	(7.90)	(7.90)	(7.85)	(8.25)
TO	-0.001	-0.001	-0.001	-0.001
	(-0.39)	(-0.39)	(-0.40)	(-0.39)
LOAD	-0.192***	-0.192***	-0.191***	-0.191***
	(-4.39)	(-4.40)	(-4.35)	(-4.31)
TeamManaged	-0.014***	-0.014***	-0.014***	-0.013***
	(-3.30)	(-3.32)	(-3.27)	(-2.99)
Tenure	0.004	0.004	0.004	0.004
	(1.03)	(1.03)	(0.97)	(0.96)
Fixed Effect	Style-Month	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund	Fund
Observations	139,466	139,466	136,011	123,355
Adjusted R^2	0.462	0.462	0.462	0.465

Table 2.10 Distribution of Comment Letter Topics

This table presents the detailed descriptions and categorizations of topics mentioned in all initial comment letters. The total number of comment letter conversations in my sample is 5,715, beginning in 2003 and ending in 2016. Panel A reports the list of comment letter topics and corresponding category; The comment letters are categorized into the following five groups: RISK, ACCOUNTING, ACT1940, REGISTRATION, and MISCELLANEOUS. Panel B reports the distribution of categorized comment letter topics. Because one review process usually include more than one topics, the categorization is not mutually exclusive (i.e., one conversation can belong to more than one group).

Panel A: Comment Letter Topics

Topic	Category
Risk Factors Disclosure	RISK
Accounting Rule and Accounting Disclosure Type Issues	ACCOUNTING
EITF GAAP Standard Citations	ACCOUNTING
FASB Accounting Standards Updates	ACCOUNTING
FASB Concepts Statements	ACCOUNTING
FSP (FASB Staff Position) guidance	ACCOUNTING
SAB (Staff Accounting Bulletin) guidance	ACCOUNTING
SFAS GAAP Standards	ACCOUNTING
SOP (Statement of Position) AICPA guidance	ACCOUNTING
Investment Advisers Act of 1940 Rules and Regulations	ACT1940
Investment Company Act of 1940 Rules and Regulations	ACT1940
Registration Statement Specific Comments (S-1, 2, 3, 4 etc.)	REGISTRATION
Disclosure and Internal Control Issues	MISCELLANEOUS
Event Disclosure Matters (primarily 8K, or 6K items)	MISCELLANEOUS
Exchange Act Rules and Regulations	MISCELLANEOUS
Federal Securities Statutes References	MISCELLANEOUS
Internal Ives classification	MISCELLANEOUS
Legal Matters and Supreme Court Decisions	MISCELLANEOUS
Management Discussion & Analysis Type Disclosure Issues	MISCELLANEOUS
Other Disclosure Matters	MISCELLANEOUS
Regulation S-K References	MISCELLANEOUS
Regulation S-X References	MISCELLANEOUS
SEC Releases	MISCELLANEOUS
Securities Act Rules and Regulations	MISCELLANEOUS
Tender Offer Specific Comments	MISCELLANEOUS
Whole Letter Description	MISCELLANEOUS

Panel B: Distribution of Comment Letter Topics

	Related	Non-Related
RISK	1,021	4,694
ACCOUNTING	1,828	3,887
ACT1940	1,697	4,018
REGISTRATION	1,679	4,036
MISCELLANEOUS	4,340	1,375
Unique # of Comment Letter Conversations	**5,715**	

Table 2.11 Mutual Fund Risk-Taking and Risk-Related Comment Letter

This table reports results on determinants of receiving a risk-related comment letter in the mutual fund industry. The sample consists of fund company-year observations from 2004 to 2015. Panel A and Panel B report the regression results based on fund volatilities and idiosyncratic volatilities, respectively. The dependent variable is an indicator that equals to one if the fund company has received at least one risk-related comment letter during this calendar year, and zero otherwise. The explanatory variables include LagRiskLetter, a lagged value of the dependent variable; CumFlow, the cumulative net flow during this calendar year; CumReturn, the cumulative fund return during this calendar year. All control variables, except for LagComLet and Log(TNA), are TNA-weighted average of all underlying funds in the fund company. Log(TNA) is the natural logarithm of aggregated individual fund TNA in the fund company. AVG_VOL is the TNA-weighted average fund volatility (VOL) of all underlying funds in the fund family; MAX_VOL is the maximum value of fund volatility (VOL) in the fund family; AVG_IVOL is the TNA-weighted average fund idiosyncratic volatility (IVOL) of all underlying funds in the fund family; MAX_IVOL is the maximum value of fund idiosyncratic volatility (IVOL) in the fund family. Detailed definitions of other control variables are provided in Appendix A. Column (1) and (2) use Linear Probability Model; Column (3) and (4) use Logit regression model. All regressions include year fixed effects. The robust t-statistics are clustered by fund company (CIK) and are reported in parentheses. The R^2 for LPM is adjusted R^2, while the R^2 for Logit model is pseudo R^2. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Volatility

	LPM		**Logit**	
	(1)	(2)	(3)	(4)
	AVG_VOL	MAX_VOL	AVG_VOL	MAX_VOL
RISK	0.007	0.021***	0.081	0.181***
	(1.33)	(4.94)	(1.54)	(4.23)
LagRiskLetter	0.217***	0.212***	1.400***	1.366***
	(11.09)	(10.83)	(11.74)	(11.29)
Log(TNA)	0.016***	0.012***	0.218***	0.180***
	(6.40)	(5.12)	(6.58)	(5.48)
Log(AGE)	-0.040***	-0.035***	-0.543***	-0.488***
	(-5.24)	(-4.57)	(-5.14)	(-4.54)
EXP	0.341	-0.485	3.316	-4.129
	(0.32)	(-0.46)	(0.22)	(-0.27)
TO	0.010	0.006	0.127	0.105
	(1.48)	(0.90)	(1.59)	(1.29)
LOAD	-0.065	-0.032	-0.719	-0.415
	(-0.66)	(-0.33)	(-0.58)	(-0.34)
Tenure	-0.003	-0.003	-0.068	-0.071
	(-0.42)	(-0.43)	(-0.72)	(-0.74)
CumFlow	-0.001	-0.000	-0.015	-0.003
	(-0.28)	(-0.01)	(-0.29)	(-0.06)
CumReturn	0.013	0.017	0.326	0.300
	(0.23)	(0.31)	(0.56)	(0.51)
Fixed Effect	Year	Year	Year	Year
Clustering	CIK	CIK	CIK	CIK
Observations	6,674	6,674	6,674	6,674
Adjusted/Pseudo R^2	0.156	0.160	0.218	0.221

Panel B: Idiosyncratic Volatility

	LPM		Logit	
	(1) AVG_IVOL	(2) MAX_IVOL	(3) AVG_IVOL	(4) MAX_IVOL
RISK	0.015	0.045***	0.191	0.436***
	(1.29)	(4.23)	(1.42)	(4.02)
LagRiskLetter	0.216***	0.212***	1.395***	1.362***
	(11.09)	(10.89)	(11.69)	(11.27)
Log(TNA)	0.016***	0.013***	0.220***	0.186***
	(6.52)	(5.50)	(6.67)	(5.72)
Log(AGE)	-0.040***	-0.036***	-0.541***	-0.493***
	(-5.24)	(-4.63)	(-5.15)	(-4.57)
EXP	0.072	-1.292	-0.348	-13.742
	(0.06)	(-1.16)	(-0.02)	(-0.85)
TO	0.011	0.007	0.122	0.091
	(1.53)	(1.06)	(1.51)	(1.11)
LOAD	-0.055	0.005	-0.595	0.077
	(-0.56)	(0.06)	(-0.48)	(0.06)
Tenure	-0.003	-0.005	-0.074	-0.081
	(-0.51)	(-0.70)	(-0.78)	(-0.85)
CumFlow	-0.002	-0.002	-0.024	-0.024
	(-0.39)	(-0.42)	(-0.44)	(-0.43)
CumReturn	0.011	0.015	0.304	0.292
	(0.20)	(0.27)	(0.52)	(0.51)
Fixed Effect	Year	Year	Year	Year
Clustering	CIK	CIK	CIK	CIK
Observations	6,674	6,674	6,674	6,674
Adjusted/Pseudo R^2	0.156	0.160	0.218	0.222

Table 2.12 Risk-Related Comment Letter and Mutual Fund Risk-Taking Behavior

This table reports results on whether topic of comment letter matters to fund manager's risk-taking behaviors. The dependent variable is the fund risk-taking measure (VOL or IVOL) calculated using daily fund returns. I run separate regressions based on whether the comment letter is risk-related or not; I further divide the sample to look at risk-taking during as well as after resolution of the review process. The benchmark of risk-taking is volatilities or idiosyncratic volatilities measured just before receiving the comment letter. Column (1), (2), (5), and (6) use fund volatilities whereas Column (3), (4), (7), and (8) use fund idiosyncratic volatilities. If topic of comment letter matters, fund's risk-taking behaviors should be different depending on whether a given topic is included in the review process. It is also worthwhile checking if there are differences between risk-taking during and after resolution of the review process. Detailed definitions of other control variables are provided in Table 2.1. All regressions include style-month fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	RISK=0				**RISK=1**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	VOL	VOL	IVOL	IVOL	VOL	VOL	IVOL	IVOL
DuringProcess	-0.006**		-0.003*		-0.006		-0.000	
	(-1.97)		(-1.77)		(-0.88)		(-0.12)	
PostResolution		0.002*		0.001***		0.000		0.002***
		(1.77)		(2.85)		(0.09)		(2.83)
Log(TNA)	0.000	0.001	-0.000	-0.001	0.003	-0.002	-0.003	-0.001
	(0.02)	(0.51)	(-0.00)	(-0.40)	(0.50)	(-0.69)	(-1.49)	(-0.54)
Log(AGE)	0.004	0.000	-0.009	-0.008**	0.001	0.004	-0.013*	-0.012**
	(0.34)	(0.02)	(-1.00)	(-2.18)	(0.07)	(0.43)	(-1.86)	(-2.46)
EXP	0.084	-0.909	4.798***	6.363***	6.318**	-2.735*	4.991***	6.122***
	(0.05)	(-0.87)	(5.17)	(7.48)	(2.18)	(-1.77)	(4.62)	(7.84)
TO	0.044***	0.041***	-0.007	-0.001	0.036***	0.033***	-0.003	-0.001
	(5.52)	(8.70)	(-1.43)	(-0.35)	(3.50)	(5.11)	(-0.59)	(-0.26)
LOAD	0.090	0.124	-0.160**	-0.205***	0.096	0.299***	-0.006	-0.138***
	(0.75)	(1.64)	(-2.08)	(-4.54)	(0.59)	(2.83)	(-0.08)	(-2.67)
TeamManaged	-0.012	-0.000	-0.001	-0.012***	-0.030**	-0.013	-0.018**	-0.021***
	(-1.04)	(-0.07)	(-0.12)	(-2.89)	(-2.00)	(-1.26)	(-2.42)	(-3.41)
Tenure	0.003	0.014**	0.008	0.007	0.007	0.005	0.011	-0.005
	(0.30)	(2.39)	(1.07)	(1.61)	(0.56)	(0.52)	(1.37)	(-1.12)
Fixed Effect	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund	Fund	Fund	Fund	Fund	Fund
Observations	6,921	113,160	6,921	113,154	3,551	26,233	3,551	26,233
Adjusted R^2	0.952	0.946	0.431	0.460	0.939	0.940	0.414	0.471

Table 2.13 Other Comment Letter Topics and Mutual Fund Risk-Taking Behavior

This table reports results on whether topic of comment letter matters to fund manager's risk-taking behaviors. The dependent variable is the fund risk-taking measure (VOL or IVOL) calculated using daily fund returns. I run separate regressions based on whether the comment letter includes the topic of interest; I further divide the sample to look at risk-taking during as well as after resolution of the review process. Panel A examines accounting-related comment letters; Panel B examines 1940 Act-related comment letters; Panel C examines registration-related comment letters; and Panel D examines all other types of comment letter. The benchmark of risk-taking is volatilities or idiosyncratic volatilities measured just before receiving the comment letter. Column (1), (2), (5), and (6) use fund volatilities whereas Column (3), (4), (7), and (8) use fund idiosyncratic volatilities. If topic of comment letter matters, fund's risk-taking behaviors should be different depending on whether a given topic is included in the review process. It is also worthwhile checking if there are differences between risk-taking during and after resolution of the review process. For brevity, I only report coefficients on two dummy variables of interests: DuringProcess, and PostResolution. All regressions include style-month fixed effects. The robust t-statistics clustered by fund are reported in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Accounting-Related Comment Letters

	ACCOUNTING=0				ACCOUNTING=1			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	VOL	VOL	IVOL	IVOL	VOL	VOL	IVOL	IVOL
DuringProcess	-0.004		-0.004**		-0.002		0.002	
	(-1.20)		(-2.43)		(-0.38)		(0.69)	
PostResolution		0.002**		0.001**		-0.000		0.002***
		(2.03)		(2.51)		(-0.31)		(3.28)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effect	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund	Fund	Fund	Fund	Fund	Fund
Observations	5,708	91,357	5,708	91,351	4,735	48,061	4,735	48,061
Adjusted R^2	0.956	0.940	0.437	0.457	0.939	0.949	0.412	0.470

Panel B: 1940 Act-Related Comment Letters

	ACT1940=0				ACT1940=1			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	VOL	VOL	IVOL	IVOL	VOL	VOL	IVOL	IVOL
DuringProcess	-0.001		-0.001		-0.009*		-0.001	
	(-0.18)		(-0.68)		(-1.65)		(-0.67)	
PostResolution		0.001		0.001***		0.002		0.002***
		(1.02)		(2.82)		(1.21)		(3.31)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effect	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund	Fund	Fund	Fund	Fund	Fund
Observations	5,498	98,251	5,498	98,248	4,831	41,192	4,831	41,189
Adjusted R^2	0.946	0.945	0.423	0.459	0.948	0.947	0.422	0.473

Panel C: Registration-Related Comment Letters

	REGISTRATION=0				REGISTRATION=1			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	VOL	VOL	IVOL	IVOL	VOL	VOL	IVOL	IVOL
DuringProcess	-0.006*		-0.002		0.003		0.001	
	(-1.91)		(-1.45)		(0.49)		(0.42)	
PostResolution		0.001		0.001***		0.003		0.002***
		(0.69)		(2.77)		(1.59)		(2.71)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effect	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund	Fund	Fund	Fund	Fund	Fund
Observations	6,775	97,160	6,775	97,154	3,668	42,248	3,668	42,248
Adjusted R^2	0.950	0.945	0.424	0.459	0.943	0.943	0.418	0.463

Panel D: All other types of Comment Letters

	MISCELLANEOUS=0				MISCELLANEOUS=1			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	VOL	VOL	IVOL	IVOL	VOL	VOL	IVOL	IVOL
DuringProcess	-0.006		-0.018		-0.005		-0.001	
	(-0.23)		(-1.01)		(-1.60)		(-0.51)	
PostResolution		0.001		-0.000		0.001		0.002***
		(0.33)		(-0.45)		(1.26)		(4.24)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effect	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month	Style-Month
Clustering	Fund	Fund	Fund	Fund	Fund	Fund	Fund	Fund
Observations	226	29,391	226	29,386	10,332	110,042	10,332	110,041
Adjusted R^2	0.889	0.945	0.389	0.450	0.947	0.945	0.433	0.469

Table 3.1 Portfolio Sorts

This table presents the portfolio sorting results. We perform the following (2×4) portfolio sorting analysis: at the end of every calendar quarter q, we double-sort funds based on (i) fund flows during quarter q (four quartiles, labelled Low, Q2, Q3, and High) and (ii) filing status as of quarter q (labelled Filer and NonFiler). Within each group-quartile, we form value-weighted portfolios, and rebalance quarterly. The following table reports the monthly excess returns (Panel A), FH7 alpha (Panel B), and FH8 alpha (Panel C). The first four columns report the portfolios sorted by flows, and the fifth column reports the long-short portfolio constructed as the high-flow portfolio minus the low-flow portfolio. This high-minus-low portfolio is our measure of smart money. The first row reports the filer groups, the second row reports the non-filer groups, and the third row reports the long-short portfolio constructed as the filer group minus the non-filer group. The bottom right cell reports the difference in high-minus-low portfolios for the filers compared to non-filers. This measures how the smart money effect differs between the filer and non-filer groups. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Excess Return

	Flow				
	Low	Q2	Q3	High	High-Low
Filer	0.290*	0.402**	0.366	0.513***	0.224*
	(1.89)	(2.48)	(1.44)	(3.94)	(1.91)
NonFiler	0.396***	0.287*	0.334**	0.328**	-0.068
	(2.94)	(1.78)	(2.20)	(2.43)	(-0.87)
Filer-NonFiler	-0.106	0.115	0.031	0.186**	0.292**
	(-1.02)	(1.16)	(0.20)	(2.10)	(2.32)

Panel B: FH7 Alpha

	Flow				
	Low	Q2	Q3	High	High-Low
Filer	0.111	0.195*	0.125	0.284***	0.173
	(1.29)	(1.85)	(0.64)	(2.75)	(1.52)
NonFiler	0.213**	0.067	0.133	0.135	-0.078
	(2.27)	(0.66)	(1.24)	(1.47)	(-0.99)
Filer-NonFiler	-0.102	0.127	-0.008	0.149	0.251**
	(-1.05)	(1.16)	(-0.05)	(1.46)	(2.06)

Panel C: FH8 Alpha

	Flow				
	Low	Q2	Q3	High	High-Low
Filer	0.104	0.165*	0.094	0.250**	0.146
	(1.20)	(1.80)	(0.53)	(2.58)	(1.31)
NonFiler	0.192**	0.045	0.106	0.105	-0.087
	(2.15)	(0.47)	(1.13)	(1.28)	(-1.10)
Filer-NonFiler	-0.088	0.119	-0.012	0.145	0.233*
	(-0.91)	(1.10)	(-0.08)	(1.43)	(1.91)

Table 3.2 Summary Statistics

This table presents the summary statistics of our sample of hedge funds between 1999Q3 and 2016Q3. Following Shi (2017), we exclude fund of hedge funds and observations after the last 13F in our sample. *Flow* is the percentage fund flow during each calendar quarter. *Excess Return* are quarterly compounded excess return over the risk-free rate. *FH7 Alpha* is the quarterly compounded Fung and Hsieh (2001) seven-factor alpha, *FH8 Alpha* is the quarterly compounded Fung and Hsieh (2001) plus momentum eight-factor alpha; both alpha measures are calculated following Agarwal et al. (2018). *Fund Size* is the fund's AUM at quarter-end. *Family Size* is the fund company's AUM at quarter-end. *Fund Age* is the number of months since fund inception. *Return Volatility* is the return volatility using fund returns during between month $m-11$ and m. The time-invariant fund characteristics include the following: *Redemption Notice* in days, *Lock-Up Period* in months, *Management Fees*, *Incentive Fees*, *Min Invest*: the minimum investment requirement, *Personal Capital*: an indicator whether personal capital is committed, *High Water Mark*: an indicator whether there is a high water mark provision, *Leveraged*: an indicator whether the fund uses leverage, and *Offshore*: an indicator whether the fund is offshore (*Offshore*). Panel A reports the baseline regression sample, Panel B reports the switchers sample, Panel C reports the always-filers sample, and Panel D reports the never-filers sample.

Panel A: Full Baseline Sample

Variable	N	Mean	StdDev	Q1	Median	Q3
Flow (%/quarter)	71245	1.062	20.685	-5.013	-0.006	4.567
Excess Return (%/quarter)	71245	1.368	9.270	-2.160	1.149	4.682
FH7 Alpha (%/quarter)	60064	0.736	9.090	-2.898	0.518	3.896
FH8 Alpha (%/quarter)	60064	0.716	9.093	-2.997	0.497	3.980
Fund Size (millions $)	71245	174.352	369.059	15.000	49.000	158.950
Family Size (millions $)	48491	259.430	580.006	19.105	63.529	221.000
Fund Age (months)	71202	88.089	55.984	44.000	74.000	117.000
Return Volatility (%)	65699	3.721	3.145	1.552	2.819	4.881
Redemption Notice (days)	3495	36.763	29.967	15	30	45
Lock-Up Period (months)	3495	3.755	7.123	0	0	6
Management Fees (%)	3491	1.471	0.703	1.000	1.500	2.000
Incentive Fees (%)	3487	18.421	5.487	20	20	20
Min Invest (thousands $)	3475	963.245	2802.905	100	500	1000
Personal Capital	3495	0.115	0.319	0	0	0
High Water Mark	3491	0.706	0.456	0	1	1
Leveraged	3495	0.629	0.483	0	1	1
Offshore	3495	0.559	0.497	0	1	1

Panel B: Switchers Sample

Variable	N	Mean	StdDev	Q1	Median	Q3
Flow (%/quarter)	24055	1.522	20.686	-4.903	0.062	5.623
Excess Return (%/quarter)	24055	1.609	8.008	-1.503	1.374	4.666
FH7 Alpha (%/quarter)	20513	0.881	7.674	-2.313	0.648	3.712
FH8 Alpha (%/quarter)	20513	0.889	7.650	-2.383	0.643	3.797
Fund Size (millions $)	24055	265.322	482.251	31.100	86.468	264.670
Family Size (millions $)	14612	489.564	1168.425	48.814	137.687	432.778
Fund Age (months)	24021	90.204	56.162	46.000	77.000	120.000
Return Volatility (%)	22292	3.151	2.552	1.392	2.455	4.105
Redemption Notice (days)	1055	42.555	31.146	30	30	60
Lock-Up Period (months)	1055	4.711	7.570	0	0	12
Management Fees (%)	1054	1.483	0.825	1.000	1.500	2.000
Incentive Fees (%)	1054	19.176	4.493	20	20	20
Min Invest (thousands $)	1052	1234.631	1852.992	250	1000	1000
Personal Capital	1055	0.113	0.316	0	0	0
High Water Mark	1054	0.767	0.423	1	1	1
Leveraged	1055	0.626	0.484	0	1	1
Offshore	1055	0.504	0.500	0	1	1

Panel C: Always-Filers Sample

Variable	N	Mean	StdDev	Q1	Median	Q3
Flow (%/quarter)	8034	0.256	19.495	-4.961	-0.075	3.380
Excess Return (%/quarter)	8034	1.231	8.884	-1.697	1.180	4.274
FH7 Alpha (%/quarter)	7173	0.577	7.442	-2.149	0.474	3.087
FH8 Alpha (%/quarter)	7173	0.393	7.099	-2.302	0.441	3.046
Fund Size (millions $)	8034	226.307	435.586	25.605	82.838	222.557
Family Size (millions $)	4367	479.598	1126.811	41.680	133.280	415.279
Fund Age (months)	8034	107.597	63.529	55.000	95.000	149.000
Return Volatility (%)	7612	3.257	2.864	1.337	2.337	4.251
Redemption Notice (days)	342	34.965	22.971	30	30	45
Lock-Up Period (months)	342	4.278	6.709	0	0	12
Management Fees (%)	342	1.207	0.568	1.000	1.000	1.500
Incentive Fees (%)	342	17.926	5.605	20	20	20
Min Invest (thousands $)	339	1375.563	2589.733	500	1000	1000
Personal Capital	342	0.053	0.224	0	0	0
High Water Mark	342	0.664	0.473	0	1	1
Leveraged	342	0.588	0.493	0	1	1
Offshore	342	0.409	0.492	0	0	1

Panel D: Never-Filers Sample

Variable	N	Mean	StdDev	Q1	Median	Q3
Flow (%/quarter)	39156	0.946	20.914	-5.096	-0.029	4.186
Excess Return (%/quarter)	39156	1.249	10.035	-2.723	0.994	4.807
FH7 Alpha (%/quarter)	32378	0.680	10.182	-3.543	0.430	4.304
FH8 Alpha (%/quarter)	32378	0.678	10.253	-3.699	0.383	4.410
Fund Size (millions $)	39156	107.805	236.569	9.470	30.517	97.000
Family Size (millions $)	29512	140.049	288.454	11.836	38.000	127.026
Fund Age (months)	39147	82.787	53.179	42.000	68.000	109.000
Return Volatility (%)	35795	4.174	3.450	1.758	3.212	5.544
Redemption Notice (days)	2098	34.143	29.977	14	30	45
Lock-Up Period (months)	2098	3.189	6.899	0	0	1
Management Fees (%)	2095	1.508	0.645	1.000	1.500	2.000
Incentive Fees (%)	2091	18.121	5.874	20	20	20
Min Invest (thousands $)	2084	759.180	3189.882	100	250	1000
Personal Capital	2098	0.127	0.333	0	0	0
High Water Mark	2095	0.683	0.466	0	1	1
Leveraged	2098	0.637	0.481	0	1	1
Offshore	2098	0.611	0.488	0	1	1

Table 3.3 Baseline Smart Money Analysis

This table presents the baseline smart money analysis using models (3.5) to (3.9). Fund performance is measured as excess returns, FH7 alpha, and FH8 alpha. $Flow$ is the quarterly fund flow. $13F$ is an indicator for whether fund i ever files Form 13F. $Post$ is an indicator for whether fund i has ever filed Form 13F as of quarter q. The time-variant controls include: LogSize, the logarithm of AUM at the end of $q-4$; LogAge, the logarithm of fund age in months (at the end of q); LagFlow, the average fund flows in quarter $q-1$, $q-2$, and $q-3$; LagRet, the average returns in quarter q, $q-1$, $q-2$, and $q-3$; and Volatility, the volatility of past 12 month returns. The time-invariant controls include the following: redemption notice period, measured in units of 30 days (*RedemptionNotice*); lockup period (*LockUp*); management fee (*ManagementFee*); incentive fee (*IncentiveFee*); the log of one plus minimum investment (*MinInvestment*); indicator variables for: whether personal capital is committed (*PersonalCapital*); whether there is a high water mark provision (*HighWaterMark*); whether the fund uses leverage (*Leveraged*); and whether the fund is offshore (*Offshore*). Depending on the specifications, we include time and style fixed effects, or time and fund fixed effects. In presence of fund fixed effects (Column 5 of each Panel), standalone time-invariant fund characteristics are omitted, but their interactions with flow are estimated but not reported. We cluster standard errors at the management company level. Panel A reports regression results using excess returns, Panel B reports regression results using FH7 alphas, and Panel C reports regression results using FH8 alphas. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Excess Return

	(1)	(2)	(3)	(4)	(5)
13F×Post	-0.006***	-0.005***	-0.005***	-0.005***	-0.001
	(-4.93)	(-4.58)	(-4.56)	(-4.59)	(-0.49)
13F	0.007***	0.007***	0.007***	0.007***	
	(5.81)	(6.63)	(6.61)	(6.65)	
13F×Post×Flow	0.010**	0.015***	0.015***	0.018***	0.019***
	(2.11)	(2.79)	(2.59)	(3.14)	(3.03)
13F×Flow	-0.005	-0.009*	-0.014***	-0.015***	-0.015***
	(-1.14)	(-1.74)	(-2.72)	(-2.89)	(-2.61)
Flow	0.001	-0.001	-0.043	0.032	-0.035
	(0.64)	(-0.22)	(-0.93)	(0.61)	(-0.61)
LogSize		-0.000*	-0.000*	-0.000*	-0.014***
		(-1.86)	(-1.74)	(-1.77)	(-15.93)
LogAge		-0.000	0.000	0.000	-0.012***
		(-0.02)	(0.05)	(0.22)	(-3.95)
LagFlow		0.000	-0.000	-0.000	-0.026***
		(0.11)	(-0.08)	(-0.19)	(-8.55)
LagRet		0.068***	0.065***	0.069***	-0.136***
		(5.48)	(5.23)	(5.46)	(-10.32)
Volatility		0.174***	0.176***	0.170***	0.296***
		(6.90)	(6.96)	(6.77)	(7.50)
RedemptionNotice		0.001**	0.001**	0.001**	
		(2.05)	(2.08)	(2.10)	
LockUp		0.001*	0.001*	0.001*	
		(1.88)	(1.87)	(1.87)	
ManagementFee		0.001	0.001	0.001	
		(1.56)	(1.61)	(1.58)	
IncentiveFee		0.000	0.000	0.000	
		(0.51)	(0.57)	(0.47)	
MinInvestment		0.001***	0.001***	0.001***	
		(3.13)	(3.10)	(3.11)	
PersonalCapital		0.002**	0.002**	0.002**	
		(2.07)	(2.07)	(2.11)	
HighWaterMark		0.002*	0.002*	0.002*	
		(1.74)	(1.75)	(1.73)	
Leveraged		0.000	0.000	0.000	
		(0.07)	(0.08)	(0.05)	
Offshore		-0.001	-0.001	-0.001*	
		(-1.60)	(-1.63)	(-1.68)	
Time FE×Flow	No	No	Yes	Yes	Yes
Style FE×Flow	No	No	Yes	Yes	Yes
Controls×Flow	No	No	No	Yes	Yes
Fixed Effects	Time & Style	Time & Style	Time & Style	Time & Style	Time & Fund
Observations	71245	61231	61231	61231	61128
Adjusted R^2	0.18	0.183	0.184	0.185	0.207
# of Clusters	2161	2008	2008	2008	1937
Clustered by	Company	Company	Company	Company	Company

Panel B: FH7 Alpha

	(1)	(2)	(3)	(4)	(5)
13F×Post	-0.004***	-0.004***	-0.004***	-0.004***	0.002
	(-3.13)	(-2.85)	(-2.90)	(-2.91)	(0.70)
13F	0.005***	0.003**	0.003**	0.003**	
	(3.63)	(2.51)	(2.48)	(2.53)	
13F×Post×Flow	0.015**	0.015**	0.013*	0.015**	0.013*
	(2.48)	(2.29)	(1.95)	(2.34)	(1.86)
13F×Flow	-0.009	-0.008	-0.012*	-0.011	-0.010
	(-1.47)	(-1.35)	(-1.72)	(-1.61)	(-1.42)
Flow	-0.000	-0.003	-0.054	0.053	-0.005
	(-0.02)	(-0.93)	(-0.95)	(0.85)	(-0.08)
LogSize		-0.000	-0.000	-0.000	-0.012***
		(-0.70)	(-0.63)	(-0.66)	(-11.69)
LogAge		-0.002*	-0.002*	-0.002*	-0.017***
		(-1.85)	(-1.74)	(-1.68)	(-4.12)
LagFlow		-0.006**	-0.006**	-0.006**	-0.028***
		(-2.21)	(-2.15)	(-1.99)	(-7.83)
LagRet		0.109***	0.108***	0.111***	-0.057***
		(5.50)	(5.43)	(5.60)	(-2.76)
Volatility		-0.011	-0.009	-0.014	-0.023
		(-0.35)	(-0.28)	(-0.46)	(-0.48)
RedemptionNotice		0.000	0.000	0.000	
		(0.33)	(0.41)	(0.44)	
LockUp		0.001	0.001	0.001	
		(1.12)	(1.12)	(1.11)	
ManagementFee		-0.000	-0.000	-0.000	
		(-0.22)	(-0.15)	(-0.17)	
IncentiveFee		0.000*	0.000*	0.000*	
		(1.85)	(1.83)	(1.76)	
MinInvestment		0.001***	0.001***	0.001***	
		(3.47)	(3.50)	(3.48)	
PersonalCapital		-0.000	-0.001	-0.001	
		(-0.34)	(-0.42)	(-0.41)	
HighWaterMark		0.002**	0.002**	0.002**	
		(1.98)	(2.00)	(1.99)	
Leveraged		0.001	0.000	0.000	
		(0.53)	(0.45)	(0.44)	
Offshore		-0.001	-0.001	-0.001	
		(-0.58)	(-0.56)	(-0.55)	
Time FE×Flow	No	No	Yes	Yes	Yes
Style FE×Flow	No	No	Yes	Yes	Yes
Controls×Flow	No	No	No	Yes	Yes
Fixed Effects	Time & Style	Time & Style	Time & Style	Time & Style	Time & Fund
Observations	60064	56894	56894	56894	56709
Adjusted R^2	0.075	0.080	0.081	0.081	0.110
# of Clusters	2064	1953	1953	1953	1848
Clustered by	Company	Company	Company	Company	Company

Panel C: FH8 Alpha

	(1)	(2)	(3)	(4)	(5)
13F×Post	-0.005***	-0.005***	-0.005***	-0.005***	0.001
	(-3.42)	(-3.20)	(-3.25)	(-3.27)	(0.33)
13F	0.005***	0.004***	0.004***	0.004***	
	(3.91)	(2.82)	(2.81)	(2.86)	
13F×Post×Flow	0.017***	0.018***	0.016**	0.019***	0.017**
	(2.79)	(2.81)	(2.41)	(2.86)	(2.46)
13F×Flow	-0.011*	-0.012*	-0.015**	-0.014**	-0.015**
	(-1.88)	(-1.85)	(-2.20)	(-2.13)	(-2.12)
Flow	0.000	-0.001	-0.049	0.068	-0.001
	(0.17)	(-0.22)	(-1.15)	(1.39)	(-0.01)
LogSize		-0.000	-0.000	-0.000	-0.012***
		(-0.48)	(-0.43)	(-0.46)	(-11.28)
LogAge		-0.002**	-0.002**	-0.002**	-0.018***
		(-2.15)	(-2.06)	(-2.00)	(-4.44)
LagFlow		-0.006**	-0.005*	-0.005*	-0.028***
		(-2.03)	(-1.93)	(-1.81)	(-7.59)
LagRet		0.056***	0.056***	0.060***	-0.105***
		(3.07)	(3.06)	(3.27)	(-5.53)
Volatility		-0.009	-0.006	-0.013	-0.012
		(-0.24)	(-0.18)	(-0.36)	(-0.23)
RedemptionNotice		0.000	0.000	0.000	
		(0.30)	(0.41)	(0.44)	
LockUp		0.001	0.001	0.001	
		(1.44)	(1.44)	(1.44)	
ManagementFee		-0.001	-0.001	-0.001	
		(-0.67)	(-0.62)	(-0.63)	
IncentiveFee		0.000*	0.000*	0.000*	
		(1.77)	(1.75)	(1.68)	
MinInvestment		0.001***	0.001***	0.001***	
		(3.18)	(3.23)	(3.22)	
PersonalCapital		-0.001	-0.001	-0.001	
		(-0.57)	(-0.66)	(-0.64)	
HighWaterMark		0.003**	0.003**	0.003**	
		(2.07)	(2.11)	(2.11)	
Leveraged		0.000	0.000	0.000	
		(0.34)	(0.29)	(0.27)	
Offshore		-0.001	-0.001	-0.001	
		(-0.57)	(-0.54)	(-0.53)	
Time FE×Flow	No	No	Yes	Yes	Yes
Style FE×Flow	No	No	Yes	Yes	Yes
Controls×Flow	No	No	No	Yes	Yes
Fixed Effects	Time & Style	Time & Style	Time & Style	Time & Style	Time & Fund
Observations	60064	56894	56894	56894	56709
Adjusted R^2	0.063	0.066	0.067	0.067	0.099
# of Clusters	2064	1953	1953	1953	1848
Clustered by	Company	Company	Company	Company	Company

Table 3.4 Parallel Trends and Dynamic Effects

This table reports the results of verifying parallel trends assumption and analyzing dynamic treatment effects. We estimate an extended baseline model (3.9) using FH8 alpha. We define a set of indicators, and their definitions can be found in section 3.4.3. Other controls are estimated but not reported. We include time fixed effects and fund fixed effects. In presence of fund fixed effects, standalone time-invariant fund characteristics are omitted, but their interactions with flow are are estimated but not reported. We cluster standard errors at the management company level. Column 1 verifies parallel trends assumption; Column 2, 3, and 4 analyze dynamic treatment effects; and Column 5, 6, and 7 perform both tests. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
13F×Post	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.47)	(0.43)	(0.43)	(0.44)	(0.44)	(0.44)	(0.45)
13F×Flow×Before3	0.023				0.023	0.023	0.023
	(0.98)				(0.97)	(0.97)	(0.98)
13F×Flow×Before2	0.010				0.010	0.010	0.010
	(0.48)				(0.48)	(0.48)	(0.48)
13F×Flow×Before1	-0.020				-0.021	-0.021	-0.021
	(-1.04)				(-1.05)	(-1.05)	(-1.06)
13F×Flow×Before0	0.006				0.006	0.006	0.006
	(0.45)				(0.41)	(0.40)	(0.40)
13F×Post×Flow	0.018**						
	(2.30)						
13F×Flow×After1		-0.005	-0.005	-0.005	-0.004	-0.004	-0.004
		(-0.30)	(-0.31)	(-0.29)	(-0.23)	(-0.24)	(-0.22)
13F×Flow×After2		-0.003	-0.003	-0.003	-0.002	-0.002	-0.002
		(-0.17)	(-0.17)	(-0.17)	(-0.13)	(-0.13)	(-0.13)
13F×Flow×After3		-0.009	-0.009	-0.009	-0.009	-0.009	-0.009
		(-0.44)	(-0.45)	(-0.44)	(-0.40)	(-0.41)	(-0.40)
13F×Flow×After4+		0.019***			0.020**		
		(2.61)			(2.49)		
13F×Flow×After4			0.005	0.005		0.005	0.006
			(0.27)	(0.29)		(0.30)	(0.33)
13F×Flow×After5+			0.019***			0.020**	
			(2.68)			(2.55)	
13F×Flow×After5				0.056***			0.057***
				(2.84)			(2.84)
13F×Flow×After6+				0.019**			0.019**
				(2.56)			(2.44)
13F×Flow	-0.015*	-0.014**	-0.014**	-0.014**	-0.015*	-0.015**	-0.015*
	(-1.94)	(-2.02)	(-2.02)	(-2.02)	(-1.96)	(-1.96)	(-1.96)
Flow	0.001	0.000	0.000	0.000	0.001	0.001	0.000
	(0.02)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
Time FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Style FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time & Fund FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	57902	57902	57902	57902	57902	57902	57902
Adjusted R^2	0.097	0.097	0.097	0.097	0.097	0.097	0.097

Table 3.5 RDD Smart Money Analysis

This table reports the regression results in the spirit of a regression discontinuity design. We conduct two subsample analyses: (i) for funds that experience a filing status switch (i.e., from non-filing to filing), we restrict the sample to those fund-quarter observations from the four-year window around the filing status change; and (ii) following Shi (2017), we restrict the sample to fund-quarter observations where the management company AUM is between \$50 million and \$300 million. We estimate baseline regression model (3.9). Fund performance is measured as excess returns, FH7 alpha, and FH8 alpha. *Flow* is the quarterly fund flow. $13F$ is an indicator for whether fund i ever files Form 13F. *Post* is an indicator for whether fund i has ever filed Form 13F as of quarter q. The time-variant controls include: LogSize, the logarithm of AUM at the end of $q-4$; LogAge, the logarithm of fund age in months (at the end of q); LagFlow, the average fund flows in quarter $q-1$, $q-2$, and $q-3$; LagRet, the average returns in quarter q, $q-1$, $q-2$, and $q-3$; and Volatility, the volatility of past 12 month returns. We include time fixed effects and fund fixed effects. In presence of fund fixed effects, standalone time-invariant fund characteristics are omitted, but their interactions with flow are estimated but not reported. We cluster standard errors at the management company level. Columns 1, 2, and 3 report the results using subsample (i), and columns 4, 5, and 6 report the results using subsample (ii). ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Panel A: Subsample (i)			**Panel B: Subsample (ii)**		
	(1)	(2)	(3)	(4)	(5)	(6)
	Excess	FH7	FH8	Excess	FH7	FH8
13F×Post	0.001	-0.001	0.000	0.003	0.005	0.004
	(0.22)	(-0.33)	(0.08)	(0.68)	(1.07)	(0.85)
13F×Post×Flow	0.044***	0.039***	0.036***	0.029***	0.031***	0.036***
	(3.89)	(3.29)	(3.25)	(3.41)	(3.01)	(3.44)
13F×Flow				-0.034***	-0.029***	-0.032***
				(-4.01)	(-2.98)	(-3.40)
Flow	-0.007	0.041	-0.127	0.043	0.041	-0.021
	(-0.05)	(0.30)	(-0.89)	(0.51)	(0.46)	(-0.23)
LogSize	-0.027***	-0.023***	-0.024***	-0.017***	-0.016***	-0.015***
	(-8.20)	(-5.77)	(-5.39)	(-8.79)	(-7.61)	(-6.49)
LogAge	0.020	-0.008	-0.020	-0.012**	-0.008	-0.014
	(1.16)	(-0.37)	(-0.91)	(-2.07)	(-0.89)	(-1.50)
LagFlow	-0.054***	-0.060***	-0.065***	-0.030***	-0.031***	-0.028***
	(-6.13)	(-5.27)	(-5.41)	(-4.79)	(-4.28)	(-3.71)
LagRet	-0.332***	-0.271***	-0.319***	-0.154***	-0.094**	-0.140***
	(-7.34)	(-4.54)	(-4.62)	(-6.17)	(-2.09)	(-3.86)
Volatility	0.309*	0.165	0.276	0.318***	-0.024	0.049
	(1.93)	(0.89)	(1.37)	(4.04)	(-0.30)	(0.57)
Time FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes
Style FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes
Controls×Flow	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Time & Fund	Time & Fund	Time & Fund	Time & Fund	Time & Fund	Time & Fund
Observations	6659	6096	6096	21894	20443	20443
Adjusted R^2	0.273	0.136	0.121	0.235	0.126	0.124

Table 3.6 Persistence of Smart Money Effect

This table studies the smart money effect at longer horizons, up to eight quarters in the future. We estimate baseline regression model (3.9). Fund performance is measured as excess returns, FH7 alpha, and FH8 alpha. *Flow* is the quarterly fund flow. $13F$ is an indicator for whether fund i ever files Form 13F. *Post* is an indicator for whether fund i has ever filed Form 13F as of quarter q. Other controls are estimated but not reported. We include time fixed effects and fund fixed effects. In presence of fund fixed effects, standalone time-invariant fund characteristics are omitted, but their interactions with flow are estimated but not reported. We cluster standard errors at the management company level. Panel A reports regression results using excess returns, Panel B reports regression results using FH7 alphas, and Panel C reports regression results using FH8 alphas. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Excess Return

	(1) Q+1	(2) Q+2	(3) Q+3	(4) Q+4	(5) Q+5	(6) Q+6	(7) Q+7	(8) Q+8
13F×Post	-0.001	-0.002	-0.001	0.000	0.001	0.003*	0.004*	0.005**
	(-0.49)	(-0.92)	(-0.47)	(0.12)	(0.32)	(1.67)	(1.94)	(2.49)
13F×Post×Flow	0.019***	0.005	0.011*	-0.008	0.001	0.007	-0.009	-0.001
	(3.03)	(0.84)	(1.80)	(-1.45)	(0.13)	(1.07)	(-1.47)	(-0.13)
13F×Flow	-0.015***	0.001	-0.006	0.002	0.001	0.006	0.010*	0.004
	(-2.61)	(0.15)	(-1.13)	(0.41)	(0.25)	(0.96)	(1.83)	(0.78)
Flow	-0.035	-0.048	-0.021	-0.052	0.067	-0.038	-0.051	0.086
	(-0.61)	(-1.08)	(-0.53)	(-1.17)	(1.01)	(-0.60)	(-1.20)	(1.59)
Time FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Style FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time & Fund FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	61128	58669	56085	53589	51176	48887	46679	44501
Adjusted R^2	0.207	0.219	0.219	0.221	0.214	0.212	0.217	0.215

Panel B: FH7 Alpha

	(1) Q+1	(2) Q+2	(3) Q+3	(4) Q+4	(5) Q+5	(6) Q+6	(7) Q+7	(8) Q+8
13F×Post	0.002	0.002	0.003	0.006**	0.006**	0.006**	0.006**	0.007**
	(0.70)	(0.83)	(1.42)	(2.12)	(2.22)	(2.24)	(2.09)	(2.34)
13F×Post×Flow	0.013*	0.010*	-0.003	-0.006	-0.004	0.002	-0.007	-0.001
	(1.86)	(1.68)	(-0.54)	(-1.10)	(-0.56)	(0.26)	(-1.22)	(-0.12)
13F×Flow	-0.010	-0.006	0.008	0.002	0.007	0.008	0.010*	0.006
	(-1.42)	(-1.04)	(1.31)	(0.42)	(1.25)	(1.34)	(1.89)	(1.11)
Flow	-0.005	-0.002	0.051	-0.020	0.126**	-0.070	-0.052	-0.024
	(-0.08)	(-0.04)	(1.12)	(-0.45)	(2.08)	(-1.07)	(-1.00)	(-0.52)
Time FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Style FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time & Fund FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	56709	56441	56085	53589	51176	48875	46626	44402
Adjusted R^2	0.110	0.109	0.112	0.111	0.110	0.107	0.103	0.100

Panel C: FH8 Alpha

	(1) Q+1	(2) Q+2	(3) Q+3	(4) Q+4	(5) Q+5	(6) Q+6	(7) Q+7	(8) Q+8
13F×Post	0.001	0.002	0.004	0.005*	0.005*	0.006*	0.005*	0.006**
	(0.33)	(0.85)	(1.45)	(1.82)	(1.85)	(1.93)	(1.84)	(2.11)
13F×Post×Flow	0.017**	0.011*	-0.001	-0.005	0.000	0.004	-0.005	-0.001
	(2.46)	(1.67)	(-0.21)	(-1.03)	(0.06)	(0.60)	(-0.78)	(-0.09)
13F×Flow	-0.015**	-0.006	0.006	0.001	0.005	0.005	0.007	0.004
	(-2.12)	(-0.94)	(1.07)	(0.22)	(0.85)	(0.80)	(1.31)	(0.71)
Flow	-0.001	0.004	0.049	-0.022	0.131**	-0.081	-0.029	-0.010
	(-0.01)	(0.06)	(1.06)	(-0.43)	(2.11)	(-1.40)	(-0.55)	(-0.22)
Time FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Style FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time & Fund FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	56709	56441	56085	53589	51176	48875	46626	44402
Adjusted R^2	0.099	0.099	0.101	0.098	0.096	0.097	0.092	0.088

Table 3.7 Cross-Sectional Smart Money Analysis: Precision of Information

This table reports the cross-sectional regression results based on the precision of information. We split the sample in the following three ways: (i) based on the number of funds reported in TASS, we split the sample to "single-fund company" and "multi-fund company"; (ii) based on whether a fund is the largest fund within a fund company; and (iii) based on whether the proportion revealed in 13F is above or below the cross-sectional median. We estimate baseline regression model (3.9) using FH8 alpha. *Flow* is the quarterly fund flow. $13F$ is an indicator for whether fund i ever files Form 13F. *Post* is an indicator for whether fund i has ever filed Form 13F as of quarter q. The time-variant controls include: LogSize, the logarithm of AUM at the end of $q-4$; LogAge, the logarithm of fund age in months (at the end of q); LagFlow, the average fund flows in quarter $q-1$, $q-2$, and $q-3$; LagRet, the average returns in quarter q, $q-1$, $q-2$, and $q-3$; and Volatility, the volatility of past 12 month returns. We include time fixed effects and fund fixed effects. In presence of fund fixed effects, standalone time-invariant fund characteristics are omitted, but their interactions with flow are estimated but not reported. We cluster standard errors at the management company level. Method (i) is reported in Columns 1 and 2, method (ii) in Columns 3 and 4, and method (iii) in Columns 5 and 6. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1) Single-Fund Company	(2) Multi-Fund Company	(3) Largest Fund	(4) Other Funds	(5) Above Median	(6) Below Median
13F×Post	-0.002	0.002	0.001	0.001	-0.001	0.002
	(-0.43)	(0.56)	(0.17)	(0.30)	(-0.19)	(0.53)
13F×Post×Flow	0.035***	0.011	0.032***	0.003	0.035***	0.011
	(2.78)	(1.31)	(3.57)	(0.30)	(3.08)	(1.21)
13F×Flow	-0.021*	-0.010	-0.018**	-0.012	-0.022**	-0.011
	(-1.71)	(-1.15)	(-2.08)	(-1.16)	(-2.17)	(-1.22)
Flow	-0.007	0.023	0.000	-0.062	0.204**	-0.046
	(-0.06)	(0.36)	(0.00)	(-0.82)	(2.22)	(-0.69)
LogSize	-0.014***	-0.011***	-0.013***	-0.013***	-0.014***	-0.012***
	(-8.24)	(-8.13)	(-10.19)	(-6.87)	(-8.67)	(-8.03)
LogAge	-0.017**	-0.018***	-0.019***	-0.011	-0.021***	-0.016***
	(-2.46)	(-3.18)	(-3.97)	(-1.31)	(-3.06)	(-2.67)
LagFlow	-0.032***	-0.026***	-0.031***	-0.031***	-0.030***	-0.027***
	(-6.16)	(-5.35)	(-7.65)	(-4.57)	(-6.34)	(-5.12)
LagRet	-0.137***	-0.107***	-0.129***	-0.115***	-0.119***	-0.127***
	(-5.02)	(-4.09)	(-5.91)	(-3.93)	(-4.65)	(-4.57)
Volatility	0.012	-0.008	0.004	-0.046	0.052	-0.071
	(0.19)	(-0.10)	(0.07)	(-0.49)	(0.84)	(-0.90)
Time FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes
Style FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes
Controls×Flow	Yes	Yes	Yes	Yes	Yes	Yes
Time & Fund FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	24387	32279	38373	18208	25914	30493
Adjusted R^2	0.110	0.097	0.106	0.094	0.116	0.090

Table 3.8 Placebo Smart Money Analysis

This table repeats the baseline analysis but with a placebo subsample. We limit the analysis to only fund-of-hedge funds ("FoFs"). FoFs do not hold 13(f) securities, thus Form 13F should be less informative for FoFs. We report results using baseline regression models (3.5) and (3.9). Fund performance is measured as excess returns, FH7 alpha, and FH8 alpha. *Flow* is the quarterly fund flow. $13F$ is an indicator for whether fund i ever files Form 13F. *Post* is an indicator for whether fund i has ever filed Form 13F as of quarter q. The time-variant controls include: LogSize, the logarithm of AUM at the end of $q-4$; LogAge, the logarithm of fund age in months (at the end of q); LagFlow, the average fund flows in quarter $q-1$, $q-2$, and $q-3$; LagRet, the average returns in quarter q, $q-1$, $q-2$, and $q-3$; and Volatility, the volatility of past 12 month returns. We include time fixed effects, or time and fund fixed effects. In presence of fund fixed effects, standalone time-invariant fund characteristics are omitted, but their interactions with flow are estimated but not reported. We cluster standard errors at the management company level. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Excess	Excess	FH7	FH7	FH8	FH8
13F×Post	-0.002*	-0.002	-0.001	-0.000	-0.001	-0.001
	(-1.72)	(-0.94)	(-0.60)	(-0.03)	(-0.72)	(-0.29)
13F	0.001		0.001		0.001	
	(1.27)		(0.54)		(0.44)	
13F×Post×Flow	0.001	-0.006	0.003	0.006	0.006	0.009
	(0.24)	(-0.69)	(0.37)	(0.51)	(0.67)	(0.91)
13F×Flow	0.003	-0.006	0.005	-0.001	0.003	-0.003
	(0.67)	(-0.91)	(0.72)	(-0.11)	(0.38)	(-0.46)
Flow	0.002	-0.052	0.004***	0.003	0.004***	0.056
	(1.13)	(-0.82)	(2.79)	(0.06)	(2.72)	(1.28)
LogSize		-0.006***		-0.005***		-0.005***
		(-7.74)		(-5.95)		(-6.38)
LogAge		-0.003		-0.004		-0.006*
		(-1.33)		(-1.26)		(-1.85)
LagFlow		-0.008***		-0.009***		-0.008***
		(-3.71)		(-3.22)		(-3.03)
LagRet		-0.119***		0.032		-0.048
		(-3.80)		(0.89)		(-1.26)
Volatility		0.042		-0.346***		-0.406***
		(0.31)		(-2.84)		(-3.41)
Time FE×Flow	No	Yes	No	Yes	No	Yes
Controls×Flow	No	Yes	No	Yes	No	Yes
Fixed Effects	Time	Time & Fund	Time	Time & Fund	Time	Time & Fund
Observations	27604	22726	23704	21253	23704	21253
Adjusted R^2	0.393	0.420	0.284	0.338	0.201	0.273

Table 3.9 Cross-Sectional Smart Money Analysis: Information Acquisition

This table reports the cross-sectional regression results based on the amount of investor attention paid to the fund. We split funds based on the median level of abnormal investor attention. Our measures of investor attention are based on: # of downloads (Panel A); and # of unique IP addresses (Panel B). The detailed descriptions of calculating abnormal investor attention can be found in section 3.5.2. We estimate baseline regression model (3.9) using switchers subsample and FH8 alpha. *Flow* is the quarterly fund flow. $13F$ is an indicator for whether fund i ever files Form 13F. *Post* is an indicator for whether fund i has ever filed Form 13F as of quarter q. The time-variant controls include: LogSize, the logarithm of AUM at the end of $q-4$; LogAge, the logarithm of fund age in months (at the end of q); LagFlow, the average fund flows in quarter $q-1$, $q-2$, and $q-3$; LagRet, the average returns in quarter q, $q-1$, $q-2$, and $q-3$; and Volatility, the volatility of past 12 month returns. We include time fixed effects and fund fixed effects. In presence of fund fixed effects, standalone time-invariant fund characteristics are omitted, but their interactions with flow are estimated but not reported. We cluster standard errors at the management company level. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Panel A: Abnormal investor attention based on # of Downloads		**Panel B: Abnormal investor attention based on unique # of IPs**	
	(1)	(2)	(3)	(4)
	High	Low	High	Low
13F×Post	-0.006	0.000	-0.005	-0.001
	(-1.39)	(0.03)	(-1.18)	(-0.18)
13F×Post×Flow	0.039***	0.006	0.038***	0.009
	(3.12)	(0.48)	(2.98)	(0.74)
Flow	-0.122	0.131	-0.140	0.143
	(-0.77)	(1.15)	(-0.89)	(1.17)
LogSize	-0.012***	-0.011***	-0.012***	-0.012***
	(-7.09)	(-5.45)	(-7.14)	(-5.68)
LogAge	-0.005	-0.015*	-0.003	-0.010
	(-0.58)	(-1.80)	(-0.36)	(-1.06)
LagFlow	-0.036***	-0.024***	-0.035***	-0.025***
	(-4.00)	(-3.40)	(-3.95)	(-3.54)
LagRet	-0.075	-0.123***	-0.080	-0.132***
	(-1.45)	(-3.31)	(-1.52)	(-3.39)
Volatility	-0.139	-0.022	-0.127	-0.052
	(-1.48)	(-0.19)	(-1.35)	(-0.43)
Time FE×Flow	Yes	Yes	Yes	Yes
Style FE×Flow	Yes	Yes	Yes	Yes
Controls×Flow	Yes	Yes	Yes	Yes
Time & Fund FE	Yes	Yes	Yes	Yes
Observations	8890	8859	8890	8858
Adjusted R^2	0.092	0.111	0.090	0.115

Table 3.10 Cross-Sectional Smart Money Analysis: Flow Restrictions

This table reports the cross-sectional regression results based on whether investor can get in and out of a fund more freely. To study this, we split the sample based on the following fund characteristics: (i) whether a fund has lock-up provision; (ii) total redemption (defined as redemption notice period *plus* redemption frequency); (iii) subscription frequency; and (iv) overall flow restriction based on (i)-(iii). We estimate baseline regression model (3.9) using FH8 alpha. *Flow* is the quarterly fund flow. $13F$ is an indicator for whether fund i ever files Form 13F. *Post* is an indicator for whether fund i has ever filed Form 13F as of quarter q. The time-variant controls include: LogSize, the logarithm of AUM at the end of $q-4$; LogAge, the logarithm of fund age in months (at the end of q); LagFlow, the average fund flows in quarter $q-1$, $q-2$, and $q-3$; LagRet, the average returns in quarter q, $q-1$, $q-2$, and $q-3$; and Volatility, the volatility of past 12 month returns. We include time fixed effects and fund fixed effects. In presence of fund fixed effects, standalone time-invariant fund characteristics are omitted, but their interactions with flow are estimated but not reported. We cluster standard errors at the management company level. Method (i) is reported in Columns 1 and 2, method (ii) in Columns 3 and 4, method (iii) in Columns 5 and 6, and method (iv) in Columns 7 and 8. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Total	Total	Subscription	Subscription	Overall	Overall
	Lock-Up?	Lock-Up?	Redemption	Redemption	Frequency	Frequency	Restriction	Restriction
	No	Yes	Short	Long	Short	Long	Relaxed	Strict
13F×Post	0.002	0.000	0.000	0.004	0.002	0.007	0.004	-0.000
	(0.57)	(0.05)	(0.09)	(1.06)	(0.51)	(0.92)	(0.95)	(-0.05)
13F×Post×Flow	0.019**	0.009	0.021**	0.002	0.017**	-0.025	0.023**	0.007
	(2.24)	(0.71)	(2.29)	(0.21)	(2.39)	(-1.10)	(2.13)	(0.79)
13F×Flow	-0.018**	-0.004	-0.016*	-0.016	-0.014*	-0.028	-0.021**	-0.008
	(-2.05)	(-0.29)	(-1.76)	(-1.46)	(-1.89)	(-1.33)	(-1.99)	(-0.78)
Flow	-0.006	0.020	0.014	-0.115	-0.004	0.305	-0.062	0.030
	(-0.09)	(0.16)	(0.23)	(-0.49)	(-0.07)	(1.25)	(-0.85)	(0.32)
LogSize	-0.012***	-0.012***	-0.012***	-0.012***	-0.011***	-0.017***	-0.011***	-0.013***
	(-9.60)	(-6.12)	(-8.90)	(-6.92)	(-10.31)	(-5.57)	(-7.47)	(-8.59)
LogAge	-0.018***	-0.017**	-0.023***	-0.015**	-0.020***	0.008	-0.021***	-0.018***
	(-3.63)	(-2.42)	(-3.88)	(-2.57)	(-4.44)	(0.63)	(-3.18)	(-3.41)
LagFlow	-0.027***	-0.028***	-0.024***	-0.034***	-0.026***	-0.033***	-0.025***	-0.032***
	(-6.95)	(-3.46)	(-5.46)	(-5.40)	(-6.92)	(-2.77)	(-5.53)	(-5.73)
LagRet	-0.117***	-0.086**	-0.175***	-0.040	-0.101***	-0.111*	-0.172***	-0.074***
	(-5.51)	(-2.44)	(-7.08)	(-1.42)	(-4.99)	(-1.76)	(-6.62)	(-3.05)
Volatility	0.013	-0.069	0.018	-0.037	0.008	-0.153	0.052	-0.055
	(0.22)	(-0.96)	(0.27)	(-0.56)	(0.15)	(-1.42)	(0.73)	(-0.92)
Time FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Style FE×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls×Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time & Fund FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39056	17653	32566	22964	49909	5458	24953	31721
Adjusted R^2	0.102	0.096	0.117	0.096	0.102	0.075	0.121	0.092

Table 3.11 FoFs Holdings-Based Analysis: Full Sample

This table reports the holdings-based analysis using our sample of FoFs and the entire sample of underlying hedge funds. At the end of each calendar quarter, we assign underlying hedge funds in each FoF's portfolio to one of two portfolios. We then compute the quarterly returns on the two portfolios over the next quarter. Within a given FoF-quarter, hedge funds are value-weighted and then we average calendar time portfolios across FoFs and quarters. Standard errors are clustered using various methods (no clustering, clustered by quarter, clustered by FoF, and double-clustered by FoF and quarter) and are reported in parentheses. The first two columns report the average returns of the two portfolios, and the third column reports return of the long-short portfolio constructed using these two portfolios. In Panel A, we examine FoF's 13F-filing holdings and its non-filing holdings. In Panel B, we examine 13F-filing hedge funds currently held and 13-filing hedge funds currently not held. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Filer Portfolio vs NonFiler Portfolio			
	Filer	NonFiler	Filer-NonFiler
Raw Returns (% per quarter)	1.585	1.353	0.232
t-statistics			
No Clustering	(17.57)***	(12.17)***	(2.60)***
Clustered by Quarter	(3.37)***	(2.89)***	(1.79)*
Clustered by FoF	(21.20)***	(13.09)***	(2.29)**
Clustered by FoF and Quarter	(3.39)***	(2.90)***	(1.68)*
Panel B: Filer Held vs Filer Not Held			
	Filer Held	Filer Not Held	Held-NotHeld
Raw Returns (% per quarter)	1.459	1.246	0.213
t-statistics			
No Clustering	(16.66)***	(18.40)***	(3.63)***
Clustered by Quarter	(3.03)***	(2.58)***	(2.26)**
Clustered by FoF	(20.89)***	(29.58)***	(3.17)***
Clustered by FoF and Quarter	(3.05)***	(2.60)***	(2.13)**

Table 3.12 FoFs Holdings-Based Analysis: Non-Local Funds

This table reports the holdings-based analysis using our sample of FoFs and the subset of non-local hedge funds. An underlying hedge fund is defined as non-local if it is located in a Metropolitan Statistical Area (MSA) that is different from that of the FoF. At the end of each calendar quarter, we assign underlying hedge funds in each FoF's portfolio to one of two portfolios. We then compute the quarterly returns on the two portfolios over the next quarter. Within a given FoF-quarter, hedge funds are value-weighted and then we average calendar time portfolios across FoFs and quarters. Standard errors are clustered using various methods (no clustering, clustered by quarter, clustered by FoF, and double-clustered by FoF and quarter) and are reported in parentheses. The first two columns report the average returns of the two portfolios, and the third column reports return of the long-short portfolio constructed using these two portfolios. In Panel A, we examine FoF's 13F-filing holdings and its non-filing holdings. In Panel B, we examine 13F-filing hedge funds currently held and 13-filing hedge funds currently not held. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Filer Portfolio vs NonFiler Portfolio			
	Filer	NonFiler	Filer-NonFiler
Raw Returns (% per quarter)	1.521	1.170	0.351
t-statistics			
No Clustering	(14.96)***	(8.89)***	(2.98)***
Clustered by Quarter	(3.14)***	(2.42)**	(2.35)**
Clustered by FoF	(17.84)***	(8.95)***	(2.69)***
Clustered by FoF and Quarter	(3.16)***	(2.42)**	(2.20)**
Panel B: Filer Held vs Filer Not Held			
	Filer Held	Filer Not Held	Held-NotHeld
Raw Returns (% per quarter)	1.450	1.202	0.248
t-statistics			
No Clustering	(15.02)***	(16.87)***	(3.57)***
Clustered by Quarter	(2.96)***	(2.40)**	(3.06)***
Clustered by FoF	(18.64)***	(28.48)***	(3.13)***
Clustered by FoF and Quarter	(2.98)***	(2.41)**	(2.77)***

REFERENCES

Acharya, Viral V, Yakov Amihud, and Lubomir Litov, 2011, Creditor rights and corporate risk-taking, *Journal of Financial Economics* 102, 150–166.

Acito, Andrew A, Jeffrey J Burks, and W Bruce Johnson, 2019, The materiality of accounting errors: Evidence from SEC comment letters, *Contemporary Accounting Research* 36, 839–868.

Agarwal, Vikas, George O Aragon, and Zhen Shi, 2019, Liquidity transformation and financial fragility: Evidence from funds of hedge funds, *Journal of Financial and Quantitative Analysis* 54, 2355–2381.

Agarwal, Vikas, Wei Jiang, Yuehua Tang, and Baozhong Yang, 2013, Uncovering hedge fund skill from the portfolio holdings they hide, *The Journal of Finance* 68, 739–783.

Agarwal, Vikas, Stefan Ruenzi, and Florian Weigert, 2018, Unobserved performance of hedge funds, *Working Paper,* available at SSRN 3288468.

Aggarwal, Rajesh K, and Philippe Jorion, 2010, The performance of emerging hedge funds and managers, *Journal of Financial Economics* 96, 238–256.

Aggarwal, Reena, Pedro AC Saffi, and Jason Sturgess, 2015, The role of institutional investors in voting: Evidence from the securities lending market, *The Journal of Finance* 70, 2309–2346.

Ahoniemi, Katja, and Petri Jylhä, 2014, Flows, price pressure, and hedge fund returns, *Financial Analysts Journal* 70, 73–93.

Aiken, Adam L, Christopher P Clifford, and Jesse Ellis, 2013, Out of the dark: Hedge fund reporting biases and commercial databases, *Review of Financial Studies* 26, 208–243.

Aiken, Adam L, Christopher P Clifford, and Jesse Ellis, 2015, The value of funds of hedge funds: Evidence from their holdings, *Management Science* 61, 2415–2429.

Almazan, Andres, Keith C Brown, Murray Carlson, and David A Chapman, 2004, Why constrain your mutual fund manager?, *Journal of Financial Economics* 73, 289–321.

Ammann, Manuel, and Michael Verhofen, 2009, The impact of prior performance on the risk-taking of mutual fund managers, *Annals of Finance* 5, 69–90.

Aragon, George O, Michael Hertzel, and Zhen Shi, 2013, Why do hedge funds avoid disclosure? evidence from confidential 13f filings, *Journal of Financial and Quantitative Analysis* 48, 1499–1518.

Baquero, Guillermo, and Marno Verbeek, 2005, A portrait of hedge fund investors: Flows, performance and smart money, *Working Paper,* available at SSRN 851625.

Barber, Brad M, Terrance Odean, and Lu Zheng, 2005, Out of sight, out of mind: The effects of expenses on mutual fund flows, *The Journal of Business* 78, 2095–2120.

Bargeron, Leonce L, Kenneth M Lehn, and Chad J Zutter, 2010, Sarbanes-oxley and corporate risk-taking, *Journal of Accounting and Economics* 49, 34–52.

Baugh, Matthew, Kyonghee Kim, and Kwang Lee, 2017, The effect of SEC reviewers on comment letters and financial reporting quality, *Working Paper,* available at SSRN 3068223.

Berk, Jonathan B, and Jules H Van Binsbergen, 2015, Measuring skill in the mutual fund industry, *Journal of Financial Economics* 118, 1–20.

Berk, Jonathan B, and Jules H Van Binsbergen, 2016, Assessing asset pricing models using revealed preference, *Journal of Financial Economics* 119, 1–23.

Bernile, Gennaro, Vineet Bhagwat, and P Raghavendra Rau, 2017, What doesn't kill you will only make you more risk-loving: Early-life disasters and ceo behavior, *The Journal of Finance* 72, 167–206.

Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan, 2004, How much should we trust differences-in-differences estimates?, *The Quarterly Journal of Economics* 119, 249–275.

Bertrand, Marianne, and Sendhil Mullainathan, 2003, Enjoying the quiet life? corporate governance and managerial preferences, *Journal of Political Economy* 111, 1043–1075.

Boguth, Oliver, and Mikhail Simutin, 2018, Leverage constraints and asset prices: Insights from mutual fund risk taking, *Journal of Financial Economics* 127, 325–341.

Boone, Audra L, Kathryn M Schumann, and Joshua T White, 2019, Ongoing SEC disclosures by foreign firms, *Working Paper,* available at SSRN 2626969.

Bozanic, Zahn, J Richard Dietrich, and Bret A Johnson, 2017, SEC comment letters and firm disclosure, *Journal of Accounting and Public Policy* 36, 337–357.

Brown, Keith C, W Van Harlow, and Laura T Starks, 1996, Of tournaments and temptations: An analysis of managerial incentives in the mutual fund industry, *The Journal of Finance* 51, 85–110.

Brown, Stephen J, and Christopher Schwarz, 2013, Do market participants care about portfolio disclosure? evidence from hedge funds' 13f filings, *Working Paper,* available at SSRN 1683628.

Cao, Sean, Kai Du, Baozhong Yang, and Liang Zhang, 2019, Copycatting and public disclosure: Direct evidence from peer companies' digital footprints, *Working Paper,* available at SSRN 3280744.

Carhart, Mark M, 1997, On persistence in mutual fund performance, *The Journal of Finance* 52, 57–82.

Cassell, Cory A, Lauren M Cunningham, and Ling Lei Lisic, 2019, The readability of company responses to SEC comment letters and SEC 10-k filing review outcomes, *Review of Accounting Studies* 24, 1252–1276.

Cassell, Cory A, Lauren M Dreher, and Linda A Myers, 2013, Reviewing the SEC's review process: 10-k comment letters and the cost of remediation, *The Accounting Review* 88, 1875–1908.

Chapman-Davies, Adrian, Jerry T Parwada, and Eric KM Tan, 2014, The impact of scandals on mutual fund performance, money flows and fees, *Working Paper, available at SSRN 2468938* .

Charoenwong, Ben, Alan Kwan, and Tarik Umar, 2019, Does regulatory jurisdiction affect the quality of investment-adviser regulation?, *American Economic Review* 109, 3681–3712.

Chernenko, Sergey, and Adi Sunderam, 2016, Liquidity transformation in asset management: Evidence from the cash holdings of mutual funds, *Working Paper,* available at SSRN 2733294.

Chevalier, Judith, and Glenn Ellison, 1997, Risk taking by mutual funds as a response to incentives, *Journal of Political Economy* 105, 1167–1200.

Chevalier, Judith, and Glenn Ellison, 1999, Career concerns of mutual fund managers, *The Quarterly Journal of Economics* 114, 389–432.

Christoffersen, Susan EK, Richard Evans, and David K Musto, 2013, What do consumers' fund flows maximize? evidence from their brokers' incentives, *The Journal of Finance* 68, 201–235.

Cochrane, John H, 2014, Challenges for cost-benefit analysis of financial regulation, *The Journal of Legal Studies* 43, S63–S105.

Cohen, Lauren, Andrea Frazzini, and Christopher Malloy, 2008, The small world of investing: Board connections and mutual fund returns, *Journal of Political Economy* 116, 951–979.

Coval, Joshua D, and Tobias J Moskowitz, 2001, The geography of investment: Informed trading and asset prices, *Journal of Political Economy* 109, 811–841.

Cremers, KJ Martijn, and Antti Petajisto, 2009, How active is your fund manager? a new measure that predicts performance, *Review of Financial Studies* 22, 3329–3365.

Cunningham, Lauren M, Bret A Johnson, E Scott Johnson, and Ling Lei Lisic, 2019, The switch-up: An examination of changes in earnings management after receiving SEC comment letters, *Contemporary Accounting Research,* forthcoming.

Cunningham, Lauren M, Roy Schmardebeck, and Wei Wang, 2017, SEC comment letters and bank lending, *Working Paper,* available at SSRN 2727860.

Dass, Nishant, Massimo Massa, and Rajdeep Patgiri, 2008, Mutual funds and bubbles: The surprising role of contractual incentives, *The Review of Financial Studies* 21, 51–99.

Dechow, Patricia M, Alastair Lawrence, and James P Ryans, 2016, SEC comment letters and insider sales, *The Accounting Review* 91, 401–439.

Doshi, Hitesh, Redouane Elkamhi, and Mikhail Simutin, 2015, Managerial activeness and mutual fund performance, *The Review of Asset Pricing Studies* 5, 156–184.

Drake, Michael S, Darren T Roulstone, and Jacob R Thornock, 2015, The determinants and consequences of information acquisition via edgar, *Contemporary Accounting Research* 32, 1128–1161.

Drake, Michael S, Darren T Roulstone, and Jacob R Thornock, 2016, The usefulness of historical accounting reports, *Journal of Accounting and Economics* 61, 448–464.

Duro, Miguel, Jonas Heese, and Gaizka Ormazabal, 2019, The effect of enforcement transparency: Evidence from SEC comment-letter reviews, *Review of Accounting Studies* 24, 780–823.

Edelen, Roger M, Richard B Evans, and Gregory B Kadlec, 2012, Disclosure and agency conflict: Evidence from mutual fund commission bundling, *Journal of Financial Economics* 103, 308–326.

Edmans, Alex, Sudarshan Jayaraman, and Jan Schneemeier, 2017, The source of information in prices and investment-price sensitivity, *Journal of Financial Economics* 126, 74–96.

Edwards, Alexander, Kenneth J Klassen, and Karen Pinto, 2018, Investor response to tax related SEC comment letters, *Working Paper,* available at SSRN 3157739.

Egan, Mark, Gregor Matvos, and Amit Seru, 2019, The market for financial adviser misconduct, *Journal of Political Economy* 127, 233–295.

Ege, M, JL Glenn, and JR Robinson, 2018, SEC resource constraints and comment letter quality, *Working Paper,* Texas A&M University.

Faccio, Mara, Maria-Teresa Marchica, and Roberto Mura, 2011, Large shareholder diversification and corporate risk-taking, *The Review of Financial Studies* 24, 3601–3641.

Fama, Eugene F, and Kenneth R French, 1992, The cross-section of expected stock returns, *The Journal of Finance* 47, 427–465.

Fung, William, and David A Hsieh, 2001, The risk in hedge fund strategies: Theory and evidence from trend followers, *The Review of Financial Studies* 14, 313–341.

Gao, Chao, Timothy D Haight, and Chengdong Yin, 2019, Fund selection, style allocation, and active management abilities: Evidence from funds of hedge funds' holdings, *Financial Management* 1–25.

Gârleanu, Nicolae, and Lasse Heje Pedersen, 2018, Efficiently inefficient markets for assets and asset management, *The Journal of Finance* 73, 1663–1712.

Gennaioli, Nicola, Andrei Shleifer, and Robert Vishny, 2015, Money doctors, *The Journal of Finance* 70, 91–114.

Giamouridis, Daniel, Kleopatra Koulikidou, and Stergios Leventis, 2018, The power of words in capital markets: SEC comment letters on foreign issuers and the impact of domestic enforcement, *Working Paper,* available at SSRN 3200306.

Golec, Joseph, and Laura Starks, 2004, Performance fee contract change and mutual fund risk, *Journal of Financial Economics* 73, 93–118.

Gormley, Todd A, Bong Hwan Kim, and Xiumin Martin, 2012, Do firms adjust their timely loss recognition in response to changes in the banking industry?, *Journal of Accounting Research* 50, 159–196.

Gruber, Martin J, 1996, Another puzzle: The growth in actively managed mutual funds, *The Journal of Finance* 51, 783–810.

Ha, Yeonjeong, and Kwangsoo Ko, 2017, Why do fund managers increase risk?, *Journal of Banking and Finance* 78, 108–116.

Heese, Jonas, Mozaffar Khan, and Karthik Ramanna, 2017, Is the SEC captured? evidence from comment-letter reviews, *Journal of Accounting and Economics* 64, 98–122.

Hu, Ping, Jayant R Kale, Marco Pagani, and Ajay Subramanian, 2011, Fund flows, performance, managerial career concerns, and risk taking, *Management Science* 57, 628–646.

Huang, Jennifer, Clemens Sialm, and Hanjiang Zhang, 2011, Risk shifting and mutual fund performance, *The Review of Financial Studies* 24, 2575–2616.

Huang, Jennifer, Kelsey D Wei, and Hong Yan, 2007, Participation costs and the sensitivity of fund flows to past performance, *The Journal of Finance* 62, 1273–1311.

Jayaraman, Sudarshan, and Joanna Shuang Wu, 2018, Is silence golden? real effects of mandatory disclosure, *The Review of Financial Studies* 32, 2225–2259.

Jensen, Michael C, 1976, *The financiers: the world of the great Wall Street investment banking houses* (Weybright and Talley).

John, Kose, Lubomir Litov, and Bernard Yeung, 2008, Corporate governance and risk-taking, *The Journal of Finance* 63, 1679–1728.

Kacperczyk, Marcin, Clemens Sialm, and Lu Zheng, 2005, On the industry concentration of actively managed equity mutual funds, *The Journal of Finance* 60, 1983–2011.

Kacperczyk, Marcin, Clemens Sialm, and Lu Zheng, 2008, Unobserved actions of mutual funds, *The Review of Financial Studies* 21, 2379–2416.

Kaniel, Ron, and Robert Parham, 2017, Wsj category kings–the impact of media attention on consumer and mutual fund investment decisions, *Journal of Financial Economics* 123, 337–356.

Kempf, Alexander, Stefan Ruenzi, and Tanja Thiele, 2009, Employment risk, compensation incentives, and managerial risk taking: Evidence from the mutual fund industry, *Journal of Financial Economics* 92, 92–108.

King, Matt, 2008, Are the brokers broken, *Report, Citigroup European Quantitative Credit Strategy and Analysis* .

Koski, Jennifer Lynch, and Jeffrey Pontiff, 1999, How are derivatives used? evidence from the mutual fund industry, *The Journal of Finance* 54, 791–816.

Kostovetsky, Leonard, 2016, Whom do you trust?: Investor-advisor relationships and mutual fund flows, *The Review of Financial Studies* 29, 898–936.

Kubick, Thomas R, Daniel P Lynch, Michael A Mayberry, and Thomas C Omer, 2016, The effects of regulatory scrutiny on tax avoidance: An examination of SEC comment letters, *The Accounting Review* 91, 1751–1780.

Kumar, Alok, Alexandra Niessen-Ruenzi, and Oliver G Spalt, 2015, What's in a name? mutual fund flows when managers have foreign-sounding names, *The Review of Financial Studies* 28, 2281–2321.

Lee, Charles MC, Paul Ma, and Charles CY Wang, 2015, Search-based peer firms: Aggregating investor perceptions through internet co-searches, *Journal of Financial Economics* 116, 410–431.

Lel, Ugur, and Darius P Miller, 2015, Does takeover activity cause managerial discipline? evidence from international m&a laws, *The Review of Financial Studies* 28, 1588–1622.

Lemke, Thomas P, and Gerald T Lins, 1987, Disclosure of equity holdings by institutional investment managers: An analysis of section 13 (f) of the securities exchange act of 1934, *The Business Lawyer* 43, 93–119.

Leuz, Christian, and Peter D Wysocki, 2016, The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research, *Journal of Accounting Research* 54, 525–622.

Li, Bing, and Zhenbin Liu, 2017, The oversight role of regulators: evidence from SEC comment letters in the ipo process, *Review of Accounting Studies* 22, 1229–1260.

Li, Frank Weikai, and Chengzhu Sun, 2020, Information acquisition and expected returns: Evidence from edgar search traffic, *Working Paper,* available at SSRN 3031977.

Liang, Bing, Christopher Schwarz, Mila Getmansky Sherman, and Russ Wermers, 2019, Share restrictions and investor flows in the hedge fund industry, *Working Paper,* available at SSRN 2692598.

Ma, Linlin, and Yuehua Tang, 2019, Portfolio manager ownership and mutual fund risk taking, *Management Science* 65, 5518–5534.

Massa, Massimo, and Rajdeep Patgiri, 2009, Incentives and mutual fund performance: higher performance or just higher risk taking?, *The Review of Financial Studies* 22, 1777–1815.

Menkhoff, Lukas, Ulrich Schmidt, and Torsten Brozynski, 2006, The impact of experience on risk taking, overconfidence, and herding of fund managers: Complementary survey evidence, *European Economic Review* 50, 1753–1766.

Ozik, Gideon, and Ronnie Sadka, 2015, Skin in the game versus skimming the game: Governance, share restrictions, and insider flows, *Journal of Financial and Quantitative Analysis* 50, 1293–1319.

Parwada, Jerry T, Jianfeng Shen, Kok Siaw, and Eric KM Tan, 2018, The value of institutional brokerage relationships: Evidence from the collapse of lehman brothers, *Working Paper,* available at SSRN 3101959.

Qian, Meijun, and Başak Tanyeri, 2017, Litigation and mutual-fund runs, *Journal of Financial Stability* 31, 119–135.

Reuter, Jonathan, 2006, Are ipo allocations for sale? evidence from mutual funds, *The Journal of Finance* 61, 2289–2324.

Ryans, James, 2017, Using the edgar log file data set, *Working Paper,* available at SSRN 2913612.

Sapp, Travis, and Ashish Tiwari, 2004, Does stock return momentum explain the "smart money" effect?, *The Journal of Finance* 59, 2605–2622.

Shi, Zhen, 2017, The impact of portfolio disclosure on hedge fund performance, *Journal of Financial Economics* 126, 36–53.

Shiller, Robert J, 2013, *Finance and the good society* (Princeton University Press).

Shu, Tao, Johan Sulaeman, and P Eric Yeung, 2012, Local religious beliefs and mutual fund risk-taking behaviors, *Management Science* 58, 1779–1796.

Sialm, Clemens, Zheng Sun, and Lu Zheng, 2019, Home bias and local contagion: Evidence from funds of hedge funds, *Review of Financial Studies,* forthcoming.

Sialm, Clemens, and T Mandy Tham, 2016, Spillover effects in mutual fund companies, *Management Science* 62, 1472–1486.

Sirri, Erik R, and Peter Tufano, 1998, Costly search and mutual fund flows, *The Journal of Finance* 53, 1589–1622.

Spiegel, Matthew, and Hong Zhang, 2013, Mutual fund risk and market share-adjusted fund flows, *Journal of Financial Economics* 108, 506–528.

Taylor, Jonathan, 2003, Risk-taking behavior in mutual fund tournaments, *Journal of Economic Behavior and Organization* 50, 373–383.

Teo, Melvyn, 2009, The geography of hedge funds, *The Review of Financial Studies* 22, 3531–3561.

Wu, Kai, 2018, Economic consequences of mutual fund advisory misconduct, *Working Paper,* available at SSRN 3061419.

Xiao, Xia, 2018, Auditor expertise in the SEC review process: Evidence from ipo registrations, *Working Paper,* The University of Arizona.

Zheng, Lu, 1999, Is money smart? a study of mutual fund investors' fund selection ability, *the Journal of Finance* 54, 901–933.

Zingales, Luigi, 2015, Presidential address: Does finance benefit society?, *The Journal of Finance* 70, 1327–1363.

APPENDIX

Appendix A

MATCHING CRSP MFDB WITH SEC N-SAR FORMS AND MORNINGSTAR

This appendix illustrates the process of merging Form N-SAR with the CRSP Mutual Fund Database and the Morningstar Mutual Fund Database. I download 146,513 N-SAR forms from SEC EDGAR database.[A.1] From CRSP MFDB, I follow Doshi, Elkamhi, and Simutin (2015) and include only domestic equity-oriented mutual funds. From Morningstar, I get a list of US equity mutual funds by requiring "US Category Group" in Morningstar equals to "U.S. Equity". Because there is no common identifier throughout the three databases, I merge them primarily by fund names and by ticker whenever such information is available.

Because N-SAR form is filed at the registrant level, I first extract the fund names of each N-SAR filer. Item 7A of N-SAR asks whether the registrant has more than one fund; if a registrant answers "yes", then it is required to provide fund names in Item 7C. For multi-fund registrants, the fund names are extracted using answers in item 7C;[A.2] for single-fund registrants, I use registrant name (Item 1A) or "company conformed name" in the N-SAR form header information.[A.3]

Next, I match N-SAR with CRSP MFDB by fund name and ticker. Starting from 2010, SEC provides series/class level ticker information of each Central Index Key (CIK); I utilize these tickers when merging between N-SAR and CRSP.[A.4] I follow prior literature (Chernenko and Sunderam, 2016; Parwada et al., 2018) and the matching is conducted at fund-year level. I first use a name-matching algorithm to match N-SAR and CRSP by fund name and ticker.[A.5] For the portion that cannot be matched using algorithm, I hand-match by fund names. To ensure the match is correct, I implement a series of robustness checks by comparing (1) fund TNA; (2) six-month TNA average; and (3) net asset value per share

[A.1] I download all N-SAR forms available on SEC EDGAR for the period from January 1993 to June 2016, including all amendment of N-SAR forms.

[A.2] Here I require a fund name must have at least three letters in length.

[A.3] In most cases, registrant name and company conformed name are the same.

[A.4] For details, please see https://www.sec.gov/open/datasets-investment_company.html

[A.5] When matching by fund names, I take advantage of the structure of fund names in CRSP MFDB; see Chernenko and Sunderam (2016) for details.

(NAV) reported in both N-SAR and CRSP. Specifically, fund TNA is reported in Item 74T of N-SAR; six-month TNA average is reported in Item 75B of N-SAR; and NAV is reported in Items 74V1 and 74V2 of N-SAR. I compare these values with those reported in CRSP MFDB. I require the reported discrepancies between the two databases to be no more than 10% for at least two of the three criteria.[A.6]

Finally, I merge the resulted database with Morningstar. Since I only have the snapshot version of Morningstar fund information; following Berk and Van Binsbergen (2015, 2016), the matching is conducted primarily using tickers. For the portion that cannot be matched by tickers, I hand-match by fund names.

Table A.1 presents the comparison between the CRSP domestic equity-oriented mutual fund universe and the final matched sample. Although the matching is done from 1993 to 2016, I only report the statistics for matched sample between 2003 and 2016 to coincide with sample used in this paper. On average, I am able to match over 80% of all fund-year observations in the CRSP universe; and in dollar terms, I am able to match about 90% of all assets in the mutual fund industry. The number of matched funds and statistics are largely consistent with recent studies that also employ N-SAR Forms.

[A.6] This procedure closely follows Parwada et al. (2018).

Table A.1 Comparison between CRSP Mutual Funds and Mutual Funds Matched with SEC N-SAR and Morningstar

This table compares between the CRSP universe of mutual funds and the N-SAR and Morningstar matched mutual funds for the period between 2003 and 2016. I focus on domestic actively managed equity funds. I aggregate the total net assets (TNA) for all fund share classes. For expense ratio, turnover ratio, and fund age, I compute the TNA-weighted average across all fund share classes. Expense ratio is the ratio of total investment that shareholders pay for the fund's operating expenses, which include 12b-1 fees. Turnover ratio is the minimum of aggregated sales or aggregated purchases of securities divided by the average 12-month TNA of the fund. Fund age is the number of years since inception.

		CRSP mutual funds					**Matched funds**				
Year	**% TNA Matched**	**# of Funds**	**TNA**	**Expense Ratio (%)**	**Turnover Ratio (%)**	**Age**	**# of Funds**	**TNA**	**Expense Ratio (%)**	**Turnover Ratio (%)**	**Age**
2003	96.22	2,075	571.75	1.44	95.20	8.16	1,833	622.77	1.43	94.82	8.49
2004	96.88	2,052	659.97	1.38	86.62	8.67	1,835	714.99	1.37	85.98	9.01
2005	94.19	2,131	699.17	1.36	83.33	8.70	1,827	768.14	1.35	81.30	9.28
2006	94.74	2,152	777.85	1.31	83.30	9.00	1,890	839.05	1.30	82.63	9.41
2007	95.56	2,145	825.21	1.24	81.71	9.47	1,894	893.03	1.22	81.95	9.78
2008	89.78	2,213	493.70	1.21	93.49	9.97	1,867	525.40	1.21	93.38	10.40
2009	90.63	2,077	689.79	1.23	95.21	10.87	1,757	739.05	1.23	94.64	11.33
2010	90.22	1,894	855.62	1.20	82.42	11.87	1,619	903.08	1.20	80.96	12.32
2011	89.68	1,791	872.57	1.17	74.40	12.76	1,522	920.81	1.17	73.31	13.16
2012	89.16	1,683	1006.59	1.16	68.49	13.59	1,442	1047.43	1.16	68.51	14.05
2013	89.81	1,576	1420.54	1.14	67.02	14.51	1,329	1512.98	1.13	65.87	14.86
2014	89.87	1,489	1555.72	1.11	62.03	15.26	1,267	1643.11	1.10	60.99	15.65
2015	89.09	1,449	1475.48	1.10	60.35	16.15	1,235	1542.35	1.09	60.09	16.50
2016	54.42	1,405	1534.53	1.09	59.71	17.04	722	1625.00	1.08	62.06	17.08

Appendix B

FUTURE RESEARCH DIRECTION

In this appendix, I discuss some of the future directions of utilizing the SEC comment letters to mutual fund companies. Although this is beyond the scope of my thesis, I believe that it is important for the readers to be aware of the potential use of the setting and thus help practitioners and researchers understanding the cost and benefit of the SEC review process.

The contents of comment letters would be an interesting topic to study. Since the comment letter conversations between the SEC and mutual fund company can cover various subjects, it would be interesting to examine whether investors would react differently to different issues raised in the comment letters. This would also reveal what issues do investors care about most.

Furthermore, since comment letters are sent to mutual fund company, it is possible to identify the subject fund of a particular SEC review process and its topics. In doing so, one could disentangle and attribute investor reaction to individual fund. From the perspective of fund investor, researchers could examine (i) whether investors treat funds from the same company equally; and (ii) whether flow reaction spills over from subject fund to other funds within the same fund company. From the perspective of fund manager, researchers could investigate (i) whether risk-taking behavior spills over to other funds managed by the same manager; and (ii) whether risk-taking behavior spills over to other funds within the same fund company.

Overall, this setting has great potential to further investigate how investors and professional asset managers react in the situation of regulatory oversight.

Appendix C

ADDITIONAL TABLES

Table C.1 Summary Statistics: FoFs Holdings

This table presents the summary statistics of our sample of 127 fund-of-hedge funds ("FoFs") between 2004Q3 and 2016Q4. Following Gao et al. (2019), we identify and collect quarterly holdings of FoFs form SEC filings. We match each underlying hedge fund with TASS and Form ADV, and classify them to 13F-filing funds or non-filing funds. Panel A, B, and C show the summary statistics of sample FoFs at the end of 2004, 2010, and 2016, respectively. FoF AUM is the summation of current values of all underlying hedge funds; # of Holdings is the number of hedge funds currently held; # of Filer Held is the number of underlying hedge funds categorized as "filer"; Filer AUM is the proportion of FoF's assets that invested in "filer" hedge funds; # of Non-Filer Held is the number of underlying hedge funds categorized as "non-filer"; Non-Filer AUM is the proportion of FoF's assets that invested in "non-filer" hedge funds.

	Mean	StdDev	Q1	Median	Q3
Panel A: 2004Q4 (Number of FoFs: 49)					
FoF AUM (millions $)	188.751	335.787	50.827	75.795	188.969
# of Holdings	23.714	13.342	15.000	21.000	29.000
# of Filer Held	6.592	4.354	4.000	6.000	8.000
Filer AUM (%)	29.879	12.936	18.361	31.361	37.814
# of Non-Filer Held	6.184	4.091	3.000	6.000	7.000
Non-Filer AUM (%)	27.140	12.912	20.528	25.481	29.516
Panel B: 2010Q4 (Number of FoFs: 46)					
FoF AUM (millions $)	392.293	881.760	30.470	118.927	430.999
# of Holdings	30.522	28.226	17.000	23.500	37.000
# of Filer Held	16.630	10.586	10.000	14.000	22.000
Filer AUM (%)	65.055	19.046	51.545	66.124	78.300
# of Non-Filer Held	8.870	14.938	2.000	6.500	11.000
Non-Filer AUM (%)	23.405	12.739	12.763	24.570	33.938
Panel C: 2016Q4 (Number of FoFs: 45)					
FoF AUM (millions $)	411.710	817.576	55.833	140.936	462.664
# of Holdings	28.333	26.061	16.000	24.000	31.000
# of Filer Held	18.467	10.235	12.000	17.000	23.000
Filer AUM (%)	74.555	18.281	66.034	77.632	88.837
# of Non-Filer Held	7.644	15.094	1.000	4.000	10.000
Non-Filer AUM (%)	19.797	16.737	7.581	15.838	28.460