Information Sharing between Mutual Funds and Auditors

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Abstract

This paper examines whether there is information sharing between mutual funds and their auditors about the auditors' other listed firm clients. Using detailed hand-collected data from the Chinese market and employing levels, changes, and PSM analyses, we find that mutual funds earn higher profits from trading in firms that share the same auditors. The effects are more pronounced when firms have a more opaque information environment and when the audit partners for the fund and the partners for the listed firm share school ties. The evidence is consistent with information flowing from auditors to mutual funds, providing mutual funds with an information advantage in firms that share the same auditors. We further find that auditors benefit by charging higher audit fees for mutual fund clients and by improving their audit quality for listed firm clients. Our study provides evidence of bi-directional information sharing between two important market intermediaries.

Keywords: Information Sharing; Mutual Funds; Auditors; China; Trading Profits; Emerging Markets; Guanxi; Audit Quality; Audit Fees

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I. INTRODUCTION

Mutual funds and auditors are important stock-market intermediaries. They both demand and collect information about listed firms. Mutual funds rely on information to make investment decisions, while auditors rely on information to issue appropriate audit opinions. In this paper, we investigate whether connected mutual funds and auditors share information about auditors' clients. We refer to a mutual fund and an auditor as "connected" when the auditor audits the mutual fund. With this auditor-client relationship, the auditors and the fund managers have many opportunities to communicate with each other and to share information about firms.

First, the information may flow from the auditor to the mutual fund. Auditors perform a variety of procedures to reach an appropriate audit opinion (Nelson and Tan 2005; Knechel, Rouse, and Schelleman 2009). A significant amount of information about clients is accumulated during the audit process, from examining financial documents, communicating with management, and exchanging knowledge with other parties. Mutual funds are strongly motivated to gain access to such information, as it can be potentially useful for them to make investment decisions. Auditors are also incentivized to share information with mutual funds from the perspective of providing services to retain fund clients or charge a fee premium. Despite regulations restricting auditors from sharing clients' information with others, previous studies provide evidence of information sharing from auditors, even in the U.S. where regulations are among the most stringent (e.g., Aobdia 2015; Cai, Kim, Park, and White 2016; Dhaliwal, Lamoreaux, Litov, and Neyland 2016). Therefore, it is possible that information flows from the auditor to the mutual fund.

Second, the information may also flow from the mutual fund to the auditor. Mutual funds

often have a team of professionals hired to examine current and potential investment targets. While the auditor has more information sources about its firm clients, mutual funds have an advantage at collecting and analyzing industry-wide and macroeconomic information, which is important for auditors in assessing clients' risks, designing audit procedures, and reaching appropriate audit opinions (Knechel et al. 2009). Further, auditors may demand evidence and opinions from external parties. Overall, mutual funds may share information that is incrementally useful for auditors.

Using a large sample of data of Chinese mutual funds, auditors, and listed firms during the period 2004 to 2016, we examine whether there is information sharing between connected mutual funds and auditors (at the audit-*office* level). The Chinese market provides a powerful setting for our research, as the institutional environment is less developed, investor protection is weaker, and "*guanxi"* (or the relationships individuals cultivate with other individuals) is more relied upon by various market participants. Further, in China, each individual fund is required to have an auditor, which allows us to better control any fund-level invariant factors.[1]

Our empirical analyses employ an extensive set of control variables motivated by extant research. We use levels, changes, and propensity-score matching approaches, and we control for fund-invariant factors by including *fund fixed effects.* Using detailed hand-collected data, we find that mutual funds' investments in firms that share the same auditors are positively associated with future abnormal returns and these effects are more pronounced when the firms' information environment is more opaque. This evidence indicates that mutual funds gain an information advantage in firms with shared auditors, suggesting that auditors share information of their clients with connected mutual funds.

[1] In U.S., the auditor is determined at the fund-company level (Adams, Nishikawa, and Rasmussen 2015).

We find that auditors also benefit from information sharing. Specifically, auditors charge higher audit fees from mutual-fund clients when they have more valuable information about their firm clients, and auditors have higher audit quality for firm clients when connected mutual funds have investments in these client firms. Overall, this suggests that mutual funds may provide incremental information to auditors.

We conduct several additional analyses. First, prior studies suggest that mutual funds place more bets in securities that they have information advantage. Consistent with this, we show that mutual funds invest more heavily in firms that share the same auditors. Second, we find that mutual funds trade more in firms with shared auditors, and their trading directions are informative for firms' future operating and stock performance. The evidence is consistent with mutual funds gaining an information advantage in firms with shared auditors through information sharing from the connected auditors. Third, prior research shows that firms are more likely to withhold bad news. Therefore, information sharing from the auditor is likely to be more valuable for mutual funds when firms have bad news. Consistent with this logic, we find that mutual funds avoid more trading losses from firms with shared auditors when these firms have negative news.[2]

Fourth, prior studies suggest that a common educational background fosters social ties and results in greater information sharing. Consistent with this, we find that the funds' trading gains from shared office are more pronounced when the fund's and the firm's audit partners have a common alma mater. Fifth, we conduct robustness tests by excluding observations for which the fund company has only one auditor within the year, or by including fund company-year fixed effects, and the inferences are unaffected. Finally, our primary definition of auditor is at the audit-

[2] It is very hard, if not impossible, for mutual funds to short individual stocks in China.

office level. When we examine the auditor at the audit-firm level, we find that the results are primarily driven by the shared *office* rather than shared audit firm.

Our paper contributes to the literature in several ways. First, we investigate information sharing between two important market intermediaries - mutual funds and auditors. Previous studies document that auditors can serve as an information channel when two firms share the same auditor. This information channel can mitigate the information asymmetry between the firms and facilitate firms' decisions on important corporate events, such as mergers and acquisitions (Cai et al. 2016; Dhaliwal et al. 2016) or supplier selection (Aobdia 2015). These articles focus on two firms and common auditors as an information channel. Our study is different by focusing on two intermediaries - mutual funds and auditors. Each of them plays a distinctive role in the market and shares its own information about firms. In our setting, the auditor is not just an information provider, but also benefits from the information sharing by collecting higher fees and increasing its audit quality.

Second, our study identifies a channel through which mutual funds can gain their information advantage. Prior research suggests that mutual funds' information advantage may come from a better ability to analyze public information, geographical closeness to firms, site visits, etc. (e.g., Coval and Moskowitz 1999, 2001; Dvorak 2005; Cheng, Du, Wang, and Wang 2019). Our study suggests that mutual funds can gain an information advantage through information sharing from their auditors. Moreover, we provide evidence that the information shared by the auditors is related to future stock and operating performance.

Third, our findings indicate that information from funds can be a supplemental source for the auditor. Although auditors have access to their clients' first-hand documents, the information from

funds may help auditors understand more about the industry or macroeconomic environment, thus aiding auditors in forming appropriate opinions. We are the first to show that auditors may benefit from information sharing from mutual funds.

Finally, our study adds to the understanding of auditors for the fund industry. Few papers pay attention to the auditors of mutual funds.[3] Auditors and mutual funds are both important information intermediaries, and each, individually, receives significant attention from academia. Our research sheds light on the interaction between these two parties.

II. INSTITUTIONAL BACKGROUND

Features of the Chinese Audit Market

With the recent growth in the Chinese economy and stock market, the Chinese audit industry has expanded rapidly.[4] Total audit-fee revenues earned by the 100 largest audit firms in China were about 58.4 billion RMB in 2015 according to the Chinese Institute of Certified Public Accountants (CICPA), ranking China among the major audit markets in the world (Gul, Wu, and Yang 2013; Gul, Lim, Wang, and Xu 2019).

Unlike the U.S. market where the Big-4 audit firms have an oligopolistic dominance, the Chinese audit market is much less concentrated (Chen, Sun, and Wu 2010; Wang, Yu, and Zhao 2015; Gul et al. 2019). As a result, fierce competition exists among different audit firms and this in turn creates additional pressure for auditors to acquire and retain clients. Meanwhile, the number

[3] Goldie, Li, and Masli (2018) examine the effect of audit quality on the investor of bond funds. Adams et al. (2015) investigate whether and when a fund-company chooses the same auditor as its parent company.

[4] The audit market in China was established in the early 1980s. Audit firms were initially founded as state owned and were affiliated with local or central governments, a university, or a government department until they disaffiliated from the government around 1998 and 1999 (DeFond, Wong, and Li 1999). Since then, audit firms have been independent entities.

of listed firms or other clients - such as mutual funds - in China is small relative to that of qualified audit firms. This implies that a buyer's market is likely to endow clients with more bargaining power and impose pressure on auditors fighting for market share (Chen et al. 2010). Besides regular contractual auditing services, providing more useful information beyond the scope of an audit may be one important way for auditors to retain their clients and charge higher fees.[5]

China's audit market is characterized by a less-developed institutional environment, weak investor-protection regime, and low litigation risk. Although the Chinese government has taken steps to improve the institutional environment and strengthen regulations in recent years, the regulatory and legal structures still fail to provide the same level of investor protection as that in more developed markets (Chan, Lin, and Mo 2006; Wang et al. 2015). The low litigation risk increases the likelihood of violations of conflict-of-interest rules and highlights the insufficiency in protecting clients' confidential information (providing more credence and power for our empirical tests).

Brief Overview of the Mutual-Fund Industry in China

To strengthen corporate governance and stabilize the stock market, the Chinese government made the strategic decision to develop mutual funds as institutional investors in the year 2000. Since then, the mutual-fund industry in China has achieved unprecedented growth. During our sample period, the number of fund-management companies increased from 36 in 2004 to 106 in 2016, while the number of mutual funds increased from 141 in 2004 to 2,523 in 2016. The net asset value of the mutual-fund industry increased from 246 billion RMB in 2004 to 2,790 billion RMB

[5] For example, it is an open secret in China that auditors who provide auditing services will help their client pay lower taxes. Such tax-avoidance skills or knowledge may be obtained from auditing other low-tax firms (Lim, Shevlin, Wang, and Xu 2018).

in 2016.[6]

The mutual-fund industry in China is very competitive. Fund managers face high pressure from the performance-ranking system and have strong incentives to perform.[7] As professional investors, mutual funds are supposed to make investment decisions by collecting and analyzing public information. However, the information environment in China is characterized by low-quality public information and high information asymmetry. Consequently, much of the information is acquired through private information channels, such as connections through different social networks (Gold, Guthrie, and Wank 2002; Gu, Li, Yang and Li, 2019). In this study, we investigate the effects of connections caused by professional relationships between auditors and mutual funds.

III. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Auditors as an Information Intermediary

By accumulating audit evidence and communicating their findings to information users, auditors provide independent assurance of the credibility of accounting information. In turn, this improves resource allocation and contracting efficiency. To achieve a sufficient level of assurance for the financial statements, auditors need to perform a variety of tasks and audit procedures, such as risk assessment, analytical procedures, internal-control evaluations, and substantive tests (Nelson and Tan 2005; Knechel et al. 2009). Through these audit procedures and formal/informal communication with senior management, auditors accumulate a considerable amount of client information (Cai et al. 2016; Dhaliwal et al. 2016). Given that auditors serve multiple clients at the

[6] Our sample period begins from 2004 because the China Securities Regulatory Commission (CSRC) requires the annual report of mutual fund to be audited since 2004. Note, the data description here is different from that in Table 1 because we impose additional criteria in our sample selection for the specific research questions.

[7] For example, there is a daily updated ranking for all mutual funds based on performance.

same time, it is conceivable that they would share information about different clients among their portfolios of clients (Lim et al. 2018).[8]

Anecdotal evidence suggests that auditors do share client information even in capital markets characterized by strong investor protection. For example, in 2013, a high-ranking KPMG partner in Los Angeles leaked confidential information about five different clients, and an Ernst & Young partner passed confidential takeover information to a third party (Rapoport 2013). Recent U.S. research explores whether auditors act as information intermediaries among their clients. Cai et al. (2016) and Dhaliwal et al. (2016) examine the impact of shared auditors on M&A transaction outcomes (i.e., both the acquirer firm and the target firm are audited by the same auditor). Specifically, Cai et al. (2016) show that a common auditor can help reduce uncertainty throughout the acquisition process, resulting in higher-quality M&As in terms of higher announcement returns. Dhaliwal et al. (2016) find that target firms are more likely to receive a bid from firms that share the same auditor and that deals with a shared auditor are associated with significantly lower deal premiums, lower event returns for target firms, higher event returns for acquirer firms, and higher deal completion rates. Both studies argue that shared auditors transfer information, unintentionally or on purpose, obtained from the auditing process.[9] Dhaliwal, Shenoy, and Williams (2017) investigate auditor information sharing between supplier and customer firms. They find that auditors share information with the supplier and customer, and the information sharing reduces the holdup problem and enhances relationship-specific investments.

[8] We use the terms auditor sharing, shared auditor, and common auditor interchangeably.

[9] Although information sharing through auditor could be beneficial for the acquirers, it may be at the expense of target shareholders. Dhaliwal et al. (2016) argue that the auditors may violate the professional duties and fail to protect confidential client information within the audit office to please clients. The AICPA Code of Professional Conduct (Section 301) states that "A member in public practice shall not disclose any confidential client information without the specific consent of the client." A similar rule exists in China (Section 2 in the CICPA Code of Professional Conduct).

Information Acquisition of Mutual Funds

Another relevant research stream examines how mutual funds gain an information advantage by acquiring private information. A growing literature suggests that institutional investors have an information advantage and make profitable investment decisions. For example, Bushee and Goodman (2007) show that changes in ownership by institutions with large positions in a firm are consistent with informed trading, especially for investment advisors such as mutual funds. Bollen and Busse (2001) and Jiang, Yao, and Yu (2007) show that mutual funds exhibit significant timing ability. Baker, Litov, Wachter, and Wurgler (2010) provide empirical evidence that mutual funds can pick stocks and trade profitably, in part because they can forecast earnings-related fundamentals.[10,11]

Another line of research suggests that mutual funds obtain an information advantage through social connections with other mutual-fund managers, firm management, or analysts. The importance of social connections has long been recognized, especially in countries with prevalence of "*guanxi*" and weak legal institutions (e.g., Gu et al. 2019). For example, Hong, Kubik, and Stein (2005) document that the holdings and trades of fund managers who work in the same city are correlated. Analysts also provide information to mutual funds. Using Chinese data, Gu et al. (2019) examine the effects of social connections between financial analysts and mutual-fund managers on funds' decisions. They show that fund managers are more likely to hold stocks covered by socially-

[10] However, there are also research findings that mutual-fund managers fail to outperform passive benchmark portfolios (e.g., Gruber 1996; Carhart 1997).

[11] Further, studies argue that institutional investors can gain an information advantage by investing in geographically closer firms (Coval and Moskowitz 1999, 2001; Dvorak 2005; Hau and Rey 2008; Ayers, Ramalingegowda, and Yeung 2011; Chhaochharia, Kumar, and Niessen-Ruenzi 2012) or through superior understanding of industry information (Kacperczyk, Sialm, and Zheng 2005).

connected analysts and that fund managers make higher profits from such holdings.

Hypotheses

Mutual funds have strong incentives to search for relevant information about stocks. We argue that information sharing from connected auditors can serve as one possible conduit for private information transfer to mutual funds. First, auditors have information that is potentially valuable for mutual funds. The auditors need to perform a variety of audit procedures to accumulate audit evidence. In the process, they gain a deep understanding about the clients' business through examining first-hand financial documents, reviewing board-meeting minutes, participating in audit-committee meetings, etc. They have frequent confidential communication with senior management and are thus likely to better assess the quality of management team and obtain access to material private information (Dhaliwal et al. 2016; Cai et al. 2016). Furthermore, to evaluate the company's ability to continue as a going concern, as required by auditing standards, the auditors conduct an evaluation of the company's future cash flows and operations. Such private information is relevant for mutual funds to make investment decisions (Bushee and Goodman 2007; Baker et al. 2010; Chen, Hope, Li, and Wang 2018).

Second, auditors have incentives to share information with mutual funds. Though the funds' auditors are limited with respect to the auditing services they provide, based on the engagement letter, they have incentives to provide additional value to the fund client beyond the scope of the audit to retain the client and collect associated fees. This is especially the case in China, where the audit market is highly competitive. One possible value-added service is to provide relevant information to fund clients. In addition, China is characterized as a relationship-based society with

low legal risks, making such information sharing more viable.

There could be several channels through which private information is transferred from the auditor to its mutual-fund clients. First, there could be passive communication. As the auditor of a mutual fund, a major task is to assure that the fund's calculation and reporting of net asset values (NAVs) is reliable (Goldie et al. 2018).[12] The auditor needs to communicate with fund managers about the fair values of securities that significantly influence the calculation of NAVs. It is possible that, to improve the audit quality for the fund, the auditors will communicate their understanding about the value of stocks obtained when they audit these firms and provide confirmation about the value of these stocks.[13] We consider this type of information transfer as passive as fund auditors are not active initiators of the information transfer.

Second, fund managers can actively acquire private information about the firms in their portfolios from the shared auditors. As an investor, it is natural that the mutual funds are concerned about the quality of firms' financial reporting (Chen et al. 2018). An engaged auditor represents a first-hand information source for such concerns. Further, the mutual funds have incentives to search for additional private information to gain abnormal investing returns. Thus, fund managers may actively ask for private information from shared auditors.

Third, as we discussed before, the fund auditors may actively communicate what they know about the firms with fund managers to retain the fund clients in a competitive audit market. Overall, information transfers could arise from either passive or active communications between shared

[12] In a mutual fund, the NAV (i.e., the value of each share held by the fund) is calculated by dividing the total market value of securities, minus any liabilities, by the number of the fund's shares outstanding (Goldie et al. 2018). The calculation of NAVs significantly influences the financial reporting of mutual funds; thus it is important for the auditor.
[13] The auditing standards require that auditors test funds' fair-value measurements and provide assurance about whether NAVs reflect fair-market conditions.

auditors and mutual funds.[14]

Based on the above discussion, we argue that private information could be transferred from connected auditors to mutual funds, giving mutual funds an information advantage in firms that share the same auditor. The mutual funds can make use of this information advantage and potentially obtain higher profits from trading those stocks (Cohen, Frazzini, and Malloy 2008; Cao, Dhaliwal, Li, and Yang, 2018). We state our first hypothesis as follows:[15]

H1: Mutual funds obtain higher trading gains from firms with shared auditors.

When making decisions related to information transfer to connected funds, auditors will trade off the relevant costs and benefits. The costs are obvious: the auditors need to consider potential litigation and reputation risks as the auditing standards of professional ethics (set by the CICPA) require auditors in public practice not to disclose any confidential client information without specific consent. Charging higher audit fees could be one of the benefits. DeFond and Zhang (2014) note that an audit-fee premium can be compensation for extra audit effort, extra risks, or non-competitive rents. Auditors who share information may charge a fee premium to compensate for the associated risk. Furthermore, if fund clients obtain more private information from the auditor and are able to gain abnormal profits from informed trading, the fund clients may be willing to pay more for the auditors' services. Formally, we state the above prediction in the following hypothesis:

[14] We note that the audit team for the fund and the audit team for the listed firms usually are not the same. We argue that private information is shared within the same *audit office*. This assumption is reasonable because audit firms are knowledge-intensive organizations and they derive competitive advantage through internal information transferring (Argote 1999; DeFond and Zhang 2014). Experimental or field research provides evidence of knowledge sharing across different audit teams within the audit office (Kennedy, Kleinmuntz and Peecher 1997; Kadous, Leiby and Peecher 2013). The audit office is where information about clients is concentrated and the individual network is strongest such that the opportunity to share information about clients is likely highest (Dhaliwal et al. 2016). Using the setting of supply chain or merger and acquisitions, Johnstone et al. (2014) and Dhaliwal et al. (2016) provide evidence consistent with information sharing occurring among auditors within the same audit office.

[15] All hypotheses are stated in the alternative form.

H2a: Auditors benefit from information sharing by charging higher audit fees for fund clients.

During the audit process, the auditors have incentives to seek out relevant independent third-party information to reduce audit risk and increase audit quality (Cheng, Cheng, Dhaliwal, and Kaplan 2015). Consistent with this incentive, prior studies provide evidence that auditor sharing between different clients can benefit auditors in terms of greater information about audit risks and increased audit quality. Johnstone, Li, and Luo (2014) find that audit quality is significantly higher if the auditor perform audits for both the supplier and the customer at the same time. Similarly, Chan, Jiang, and Mo (2017) demonstrate that firms sharing the auditor with their main banks have higher audit quality due to knowledge spillovers from banks to the auditors.

Compared with auditors, mutual funds may not have as detailed information to a specific firm. However, as mutual funds invest in a large portfolio of firms, they possess more macroeconomic and industry-level information, which is useful in assessing the risks in the financial statements (Cici, Gehde-Trapp, Goricke, and Kempf 2018; Knechel et al. 2009). When communicating with managers, auditors may be influenced by over-confident managers and a less biased (or just a second) opinion from mutual funds may be helpful to reach the appropriate audit opinion. Through obtaining information from mutual funds, the auditors can better assess client-specific risks and design audit procedures. In turn, this can help improve the audit quality. Therefore, we propose the following hypothesis:

H2b: Auditors benefit from information sharing by acquiring more information about the listed firm client, resulting in higher audit quality.

IV DATA AND SAMPLE

To promote the healthy development of the mutual-fund industry, the China Securities Regulatory Commission (CSRC) issued a rule titled "Information Disclosure for Securities Investment Funds." The rule requires that annual reports of all funds need to be audited starting July 1, 2004. To construct our sample, we *hand collect* funds' auditor information, including data on the engaged audit office and audit fees, from the funds' annual reports downloaded from the CNINFO website.[16] We are able to identify the auditor-office information for 10,115 fund-year observations and collect audit-fee information for 10,052 fund-year observations. We obtain information about the auditor from CSMAR. We define a fund and an audit office as connected when the fund is audited by the particular audit office. We define a stock and a fund to have a shared auditor if the stock is audited by the same audit office as the fund during the year.

Our sample period is from 2004 to 2016. We choose this period because the auditor information of mutual funds begins in 2004. In addition, the mutual-fund industry in China began to develop rapidly since 2004. To construct our sample, we impose the following criteria to the fund-stock-year observations. First, we include only diversified equity funds, thus excluding other funds such as index funds, bond funds, etc.[17] Second, we drop observations without auditor information for funds or firms. Finally, we drop observations without the necessary information on test and control variables for the subsequent regression analyses.

Table 1 presents descriptive statistics for our sample. The number of fund companies increases

[16] http://www.cninfo.com.cn is an official website where all listed firms and mutual funds disclose their regular (including annual and quarterly) reports. All sample funds are domestic and all listed firms are domestic.

[17] We exclude index funds from our sample because they replicate common share indices. In untabulated analyses, we use the index funds sample as a falsification test and find no evidence that shared auditors provide information advantage for index funds.

from 16 in 2004 to 84 in 2016, and the number of funds increases from 19 to 901. On average, each fund company has 11 funds. Within the fund company, the fund can select its engaged auditor. The average number of unique auditors for each fund company is 1.34. The number of stocks held by funds increased from 264 to 2,309. On average, 4.82% of the fund-stock-year observations can be identified as having a shared audit office.

V RESEARCH DESIGN AND EMPIRICAL RESULTS

In this section, we discuss our research design and empirical tests. First, we examine the association between auditor sharing and connected funds' information advantage, followed by an investigation into the specific channels for private-information transfer from shared auditor to connected funds. Second, we test funds' audit fees to explore connected auditors' benefits due to such information transfer. Finally, we analyze the audit quality of firms audited by connected auditors.

Auditor Sharing and Funds' Information Advantage

Trading Gains

As discussed, we predict that connected funds can acquire private information from auditor sharing. If a mutual fund has an information advantage in stocks with the shared audit office, we would expect to observe higher trading gains from trades in these stocks (e.g., Cohen et al. 2008; Bushee, Gerakos, and Lee 2018; Gu et al. 2019). To test this prediction, we estimate an ordinary least squares regression, as shown below:[18]

[18] All variable definitions are provided in the Appendix.

$$Gain_{i,j,T} = \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 Size_{i,t-1} + \beta_3 Analyst\ Following_{i,t} + \beta_4 BM_{i,t-1} + \beta_5 ROA_{i,t-1}$$
$$+ \beta_6 Leverage_{i,t-1} + \beta_7 Turnover_{i,t-1} + \beta_8 Return_{i,t-1} + \beta_9 Std\ Dev_{i,t-1} + \beta_{10} SOE_{i,t-1}$$
$$+ \beta_{11} Top10_{i,t-1} + \beta_{12} Fund\ Size_{j,t-1} + \beta_{13} Family\ Size_{j,t-1} + \beta_{14} Fund\ Performance_{j,t-1}$$
$$+ \beta_{15} Holding\ Size_{i,j,t-1} + \beta_{16} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{17} Same\ Region_{i,j,t-1}$$
$$+ Fixed\ Effects + \varepsilon_{i,j,t} \quad (1)$$

where $Gains_{i,j,T}$ is calculated by multiplying the *changes* in fund *j*'s holding in firm *i* from year t over the subsequent six-month period by the firm's buy-and-hold size-adjusted returns during the period.[19] This variable is constructed following Bushee et al. (2018), and is positive (negative) when the fund trades in the correct (opposite) direction of firms' future returns.[20] The variable of interest is $Shared\ Office_{i,j,t}$, which equals one if stock *i* and fund *j* share the same audit office during year *t*, and zero otherwise. Following prior literature (e.g., Cohen et al. 2008; Bushee et al. 2018; Gu et al. 2019), we control for a variety of firm characteristics such as stock-market capitalization (*Size*), analyst following (*AnalystFollowing*), book-to-market ratio (*BM*), stock turnover (*Turnover*), accounting performance (*ROA*), and leverage (*Leverage*). We also include the firm's stock returns in the past 12 months (*Return*) and the standard deviation of monthly returns (*Std Dev*). We add an indicator variable to identify state-owned enterprises (*SOE*) due to well-known differences between SOEs and Non-SOEs in China. To capture the audit quality of stocks held by funds, we add an indicator variable *Top10* that equals one if the stock is audited by a Top-10 auditor based on the total audited client assets during the year and zero otherwise.

In addition, we control for several characteristics of fund families and mutual funds, including

[19] In China data are available for *all* the stock holdings of mutual funds on a semi-annual basis. In untabulated sensitivity analyses we have alternatively used a quarterly test period. Only the top-ten stocks are available on a quarterly basis, which means the sample size is significantly smaller and less generalizable. However, inferences are the same using this smaller sample.

[20] There are two advantages of calculating trading gains following Bushee et al. (2018). First, it is more precise because we take the detailed percentage of holding for each stock in the funds' portfolios into consideration. Second, it captures the trading gains for buying stocks and selling stocks simultaneously. The results are similar (and no inferences affected) if we use the stock's six-month BHAR as the proxy for trading gains following Gu et al. (2019).

total net assets of the fund (*Fund Size*) and the fund family (*Family Size*), and the performance of the mutual fund (*Fund Performance*). We include *Holding Size* to control for the market value of stocks held by the particular fund, and we control for the market value of stocks held by other funds in the same fund family (*Family Fund Holding*) to control for information sharing within the same fund family. We include an indicator *Same Region* to control for a local information advantage of a mutual fund.[21] Finally, we include year, industry, and fund fixed effects and we cluster standard errors by fund.[22]

The observations are limited to fund-stock pairs in which the fund holds the stock either at the end of year t or at the end of the subsequent semi-annual period. As a result, we can capture the trading gains for both buying stocks and selling stocks. We have a sample with 560,697 fund-stock pairs over the sample period. Panel A of Table 2 reports descriptive statistics. Among the 560,697 fund-stock pairs across all years, 4.5% have a shared audit office.[23] Panel B of Table 2 presents the regression results. Column (1) shows the result without fund fixed effects, while Column (2) includes fund fixed effects. We find that the coefficients on *Shared Office* are positive and significant at the 1% levels in both specifications.[24] The findings indicate that mutual funds make higher profits by trading on the stocks with the shared audit office, suggesting that mutual funds have an information advantage in these stocks, which is consistent with H1.[25]

[21] Alternatively we include a control for same city and no conclusions are altered.
[22] The industry classification is based on the CSRC definitions and includes 21 industries.
[23] The percentage of fund-stock pairs with shared audit office is slightly different from that in Table 1 (4.82%) due to additional data requirements (i.e., dropping fund-stock pairs with missing control variables).
[24] After controlling for fund fixed effects, the fund realizes a trading gain that is 10.5 basis points higher over the following six months if it shares the same audit office with the invested stock.
[25] In untabulated tests, our fixed-effects structure consists of fund, firm, and industry×year. Our inferences are unaffected.

Change Analyses

The results so far are based on associations and could be sensitive to endogeneity concerns, in particular, potential omitted factors that simultaneously cause the auditor sharing and funds' trading gains. These tests do include numerous control variables that are motivated by prior research and also control for fund fixed effects. In this section, we further use change specifications. Specifically, we replace the variables in Equation (1) with the changed versions between the current and the lagged periods. We have 677,947 fund-stock pairs over the sample periods for the change analyses.[26] Table 3 presents the results. The coefficients on *Δ Shared Office* are positive but are not significant. However, when we separate *Δ Shared Office* into *Shared to Non-Shared* and *Non-Shared to Shared*, we find the coefficient on *Non-Shared to Shared* is positive and significant at the 5% level in both specifications, suggesting that the funds' trading gains increase significantly when the fund-stock pair changes *from non-shared audit to shared* audit. In contrast, the funds' trading gains are not affected when the fund-stock pair changes from shared audit to non-shared audit. We conjecture that the information advantage may still remain for some time after the shared auditor has been changed. Overall, the evidence from the change analyses supports our first hypothesis, that is, the fund can acquire private information about stocks that share the same auditor.

Propensity-Score Matched (PSM) Sample

While our change analysis controls for the potential effects of any time-invariant factors associated with the auditor sharing and connected funds' investment outcomes, there could be time-

[26] In the change analyses, we keep fund-stock pairs for which we can calculate the trading gains in either period t-1 or t. That is, the fund needs to have holdings in the stock at the end of period t-2, t-1, or t. In the levels analyses, we keep the fund-stock pairs for which we can calculate the trading gains in period t. Therefore, the number of observations for the change model is larger than for the levels model.

varying factors correlated with the sharing and funds' performance. To address this possibility, we examine the robustness of our findings to matching stocks using PSM with shared auditor to similar stocks without shared auditor (i.e., we control for "observables"). For each fund-firm-year, we estimate the conditional odds of having shared auditors using a logistic regression model where *Shared Office* is the dependent variable and the firm-level control variables discussed above are the independent variables. We then match, without replacement, a stock with shared auditor with a stock without shared auditor from the same mutual fund's portfolios during the same time period that has the closest predicted value within a maximum distance of 5 percent.[27]

We report the PSM results in Table 4. Columns (1) presents the results without fund fixed effects while Columns (2) tabulates the results with fund fixed effects. The coefficients on *Shared Office* are positive and significant at the 5% level across both specifications, suggesting that mutual funds obtain higher gains from trading on these stocks. These findings lend further credence to our previously reported results.

The Effects of Information Opacity

We next examine factors that affect the information transfer. The auditors have access to a wide range of proprietary client information, and this information is more valuable when firms have more opaque information environment (Aobdia 2015). Therefore, we expect the effects of information sharing to be more pronounced when the firms are more opaque. To test this prediction, we adapt Equation (1) to include an indicator for firms' information opacity, and an interaction of

[27] The resulting sample contains 21,914 fund-stock-year observations with shared audit office and 21,914 fund-stock-year observations without shared audit office. Our inferences stay the same if we instead use a caliper distance of 0.03 or 0.07. We also use one-for-three matching and the results are very similar.

information opacity with auditor sharing (*Shared Office×Opacity*). We predict that the coefficient on the interaction is positive. Because opacity is inherently difficult to measure, we use five measures to proxy for client companies' information opacity following prior studies: analyst following, earnings volatility, related-party transactions (RPT), intangible assets, and whether the company is an SOE.[28] We also use a *composite* measure that combines the above five measures.

Table 5 presents the results from estimating the effects of financial reporting opacity, where the results are based on using *Fewer Analysts*, *Higher Earnings Volatility*, *Existence of RPTs*, *More Intangible Assets*, *SOE*, and *Composite Index* as proxies for opacity in Columns (1) - (6), respectively. We find that the coefficient estimates for *Shared Office×Opacity* are positive and statistically significant at the 5% level or better across all specifications. The evidence suggests that auditor sharing has a greater impact on funds' trading gains when the invested companies have more opaque information. These findings also further help reduce concerns regarding endogeneity. That is, we find that the effects are stronger in subsamples in which we have clear ex-ante reasons to expect more pronounced effects.

[28] Lang, Lins, and Miller (2004) find that analysts play an important oversight and information-processing role and thus a lower analyst following indicates greater opacity. Survey evidence indicates that earnings volatility is negatively related to earnings predictability and that this view is widely held by management. Consistent with such beliefs, Dichev and Tang (2009) provide empirical evidence that earnings volatility can reduce earnings predictability. Therefore, higher earnings volatility is indicative of greater opacity. RPTs are a convenient tool used by management to manipulate earnings. RPTs can further be employed as a tunneling mechanism used by controlling shareholders to expropriate minority interests. Therefore the existence of RPTs can measure the extent of reliance on relationship-based transactions, which likely lead to financial reporting opacity (Gu et al. 2019). Gu and Lev (2017) show that the gains from predicting corporate earnings have been shrinking over the past 30 years due to the increased prevalence of intangible assets. Furthermore, intangible assets can capture the complexity of firms' information and reduce institutional investors' informed trading (Bushee et al. 2018). In China, SOEs enjoy preferential treatment in the financial market and lack the incentives to disclose high-quality public information (Wang, Wong, and Xia 2008). Therefore, we use SOEs to proxy for the extent of financial reporting opacity. Please refer to the Appendix for the detailed definitions of opacity.

Connected Auditors' Benefits: Audit-Fee Analyses

So far, we have provided evidence that auditor sharing relates to information transfer and that connected funds can acquire private information from a shared audit office and obtain higher trading gains. In this section, we examine one of benefits that the connected auditors can receive, audit fees. We conduct audit-fee analyses at the fund level using this model:

$$LnFee_{j,t} = \beta_0 + \beta_1 Connected\ Firms_{j,t}\left(Connected\ Firm\ Value_{j,t}\right) + \beta_2 Fund\ Size_{j,t} + \beta_3 Fund\ Performance_{j,t} + \beta_4 Family\ Size_{j,t} + \beta_5 Family\ Performance_{j,t} + \beta_6 Auditor\ Tenure_{j,t} + \beta_7 Fund\ Top\ 10_{j,t} + Fixed\ Effects + \varepsilon_{j,t} \quad (2)$$

where $LnFee_{j,t}$ is the natural logarithm of audit fees of fund client *j* in year *t*. For each fund-year observation, we calculate the number or the market value of firms that share the same auditor with the fund during the year. When a connected auditor audits more firm clients, or larger firm clients, the information shared by the auditor would be more valuable. Therefore, we expect these auditors to receive higher audit fees from the fund client.

We include a number of variables to capture other factors that may contribute to the fund's audit fees, such as fund size, fund performance, family size, and family performance. In addition, we control the auditor's tenure for fund auditing (*Auditor Tenure*) and whether the auditor is Top 10 or not (*Fund Top10*) based on the ranking of total audited client assets during the year. Finally, we include year (and fund) fixed effects in the model.

The results are reported in Table 6. The coefficients on *Connected Firms* and *Connected Firm Value* are positive and statistically significant at the 10% level or better in all specifications, suggesting that the fund auditor can charge higher audit fees as a benefit to transfer private information. The results suggest an economic reason why shared auditors are willing to transfer

information to their fund clients.[29]

We further analyze whether the auditor-sharing effects on funds' trading gains vary with the funds' audit-fee level. We add interactions between *Shared Office* and proxies for high audit fees by funds in the regression model. *High Fee* equals one if the funds' audit fees are greater than the sample median value during the year and zero otherwise. Because audit fees are a rough measure that includes compensation for extra audit effort and residual audit risk (DeFond and Zhang 2014), we further employ abnormal audit fees. Here, abnormal fees are calculated using the model in Table 6 (excluding *Connected Firms* and *Connected Firm Value*), and the abnormal fees are the residuals from the regression. *High Abnormal Fee* equals one if it is greater than the sample median during the year and zero otherwise.

The results are presented in Table 7. The dependent variables are trading gains. The coefficients on the interactions between *Shared Office* and proxies for high fund audit fees are positive and significant at the 5% level or better, suggesting the funds' high audit fees can amplify the auditor-sharing effects on funds' trading gains. In other words, high audit fees may be one of the economic incentives for shared auditors to transfer private information about firms to connected funds.[30] Overall, the results are consistent with the notion that high audit fees are an important reason for shared auditors' information transferring to mutual-fund clients.

Connected Auditors' Benefit: Audit-Quality Analyses

Another possible benefit for the connected auditors to transfer information is that they can

[29] Based on the coefficient estimates in Column (2), moving from the 25th to the 75th percentile of *Connected Firm Value* is associated with an increase of 1.678 in *LnFee* (0.002×(8.64-0.25)×100), or 14.93 percent of its sample mean.
[30] We alternatively use absolute values of stock trading as the dependent variable. The coefficients on the interactions are positive and significant at the 5% level or better (untabulated). The results indicate that the funds' high audit fees can strengthen the auditor-sharing effects on funds' trading volume.

obtain private information from funds that help them reduce audit risks and improve the audit quality. We examine the auditor-sharing effects on firms' audit quality in this section. Specifically, we construct a sample of firm-year observations for firms that are held by at least one mutual fund and run the following regression:

$$\begin{aligned} Audit\ Quality_{i,t} = {} & \beta_0 + \beta_1 Fund\ Office_{i,t} + \beta_2 Size_{i,t} + \beta_2 ROA_{i,t} + \beta_4 Leverage_{i,t} + \beta_5 Loss_{i,t} \\ & + \beta_6 Sales\ Turnover_{i,t} + \beta_7 BM_{i,t} + \beta_8 RECINV_{i,t} + \beta_9 CFO_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Return_{i,t} \\ & + \beta_{12} Age_{i,t} + \beta_{13} Top\ 10_{i,t} + \beta_{14} Fund\ Share_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (3)$$

The dependent variable is audit quality. We use three common measures for audit quality. *AbsDA_DD* is the absolute value of abnormal accruals following Dechow and Dichev (2002), *AbsDA_KWL* is the absolute value of abnormal accruals following Kothari, Leone, and Wasley (2005), and *Irregularity* is the existence of financial reporting irregularities.[31] Our variable of interest is *Fund Office*, an indicator that equals one if firms share a common audit office with at least one of the mutual funds that hold the stocks of the company and zero otherwise. We include several control variables based on prior research (Gul et al. 2013; Li, Qi, Tian, and Zhang 2017).[32]

We report the results in Table 8. Panel A reports descriptive statistics. 11.5% of sample firms display financial reporting irregularities during our sample period. 12.3% of firms have at least one common audit office with the mutual funds that hold the stocks of companies. The distribution of other variables is comparable to prior literature (e.g., Gul et al. 2013; Li et al. 2017). Panel B reports

[31] Specifically, *Irregularity* is an indicator variable that equals one if the firm conducted financial reporting fraud sanctioned by regulators (i.e., the CSRC, MOF, or stock exchanges in China) in the subsequent periods, and zero otherwise (source: CSMAR). These cases are similar to the Accounting and Auditing Enforcement Releases in the U.S.

[32] Earnings quality is affected by financial characteristics such as operating performance, debt, growth, and size, therefore, we control for the following time-varying firm characteristics: the log value of total assets (*LnAsset*), return on assets (*ROA*), the leverage ratio (*Leverage*), the presence of loss (*Loss*), the ratio of sales to assets (*Sales Turnover*), the book-to-market ratio (*BM*), the ratio of receivables and inventory to assets (*RECINV*). Following Li et al. (2017), we include operating cash flows (*CFO*), sales growth (*Growth*), and stock returns during the year (*Return*). We add listing age (*Age*) based on Gul et al. (2013). Finally, we control the Top-10 audit-firm effect (*Top10*) and the percentage of shares held by mutual funds (*Fund Share*). As before, we include year and industry fixed effects in this firm-year model.

the regression results. We find that the coefficients on *Fund Office* are negative and statistically significant at the 5% level or better across all specifications, suggesting that the auditors can improve the audit quality of the firms if the firms and the mutual funds that hold their stock share a common audit office.[33]

VI ADDITIONAL ANALYSES AND ROBUSTNESS CHECKS

Auditor Sharing and Holding Decision

In this section, we examine whether auditor sharing affect mutual funds' holding decision. Prior literature suggests that funds will invest more in securities that they have information advantage (e.g., Cohen et al. 2008; Bushee et al. 2018; Gu et al. 2019). When funds have information advantage in some securities, the future expected returns from trading those securities will be higher. In our setting, this suggests that mutual funds will put more weight on firms that share the same auditors. We estimate the following regression model:

$$\begin{aligned} Proportion_{i,j,t} = {} & \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 Size_{i,t-1} + \beta_3 Analyst\ Following_{i,t} + \beta_4 BM_{i,t-1} + \beta_5 ROA_{i,t-1} \\ & + \beta_6 Leverage_{i,t-1} + \beta_7 Turnover_{i,t-1} + \beta_8 Return_{i,t-1} + \beta_9 Std\ Dev_{i,t-1} + \beta_{10} SOE_{i,t-1} \\ & + \beta_{11} Top10_{i,t-1} + \beta_{12} Fund\ Size_{j,t-1} + \beta_{13} Family\ Size_{j,t-1} + \beta_{14} Fund\ Performance_{j,t-1} \\ & + \beta_{15} Holding\ Size_{i,j,t-1} + \beta_{16} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{17} Same\ Region_{i,j,t-1} \\ & + Fixed\ Effects + \varepsilon_{i,j,t} \qquad (4) \end{aligned}$$

in which, subscripts *i*, *j*, *t* denote stock *i*, fund *j*, and year *t*, respectively. $Proportion_{i,j,t}$ is the percentage of fund *j*'s holding amount for stock *i* as a fraction of the fund's NAV during year *t*.[34]

[33] Another possible alternative explanation for our audit-quality results is that the mutual funds provide industry-level or macroeconomic information directly to the companies, resulting in higher earnings quality. However, one of the assumptions for such possibility is that the mutual funds have sufficient incentives and ability to push the listed firms to increase earnings quality or audit quality. In untabulated analyses, we examine a sample in which mutual funds have less than 5% (or even 2%) ownership of the listed firms' shares. These mutual funds should have no incentives or ability to influence the listed firms. Our conclusions still hold.

[34] We consider *Proportion* to be both intuitive and directly related to our research question. However, in additional analyses we replace *Proportion* with an indicator equal to one if the connected stock is one of the top-10 holdings of the fund. Conclusions are unaltered with this alternative outcome variable (untabulated).

The sample contains stocks that are held by any fund at the end of the year. To increase the power of our test, we require the fund to have invested in at least one stock with a shared audit office and at least one stock without a shared audit office during the year (Cheng et al. 2019).[35] *Shared Office*$_{i,j,t}$ equals one if stock *i* and fund *j* share the same audit office during year *t*, and zero otherwise. The definitions of control variables are similar to those in Equation (1).

Table 9 reports the regression results for Equation (4). Column (1) provides results without controlling for fund fixed effects. The coefficient on *Shared Office* is positive and significant at the 1% level (0.203, t-value=9.404), suggesting that the fund holds more stocks with a shared audit office. This conclusion holds after including fund fixed effects in Column (2) (0.068, t-value=4.348).[36] Overall, the evidence is consistent with the notion that funds acquire more private information of firms that share the same auditor and, for this reason, they hold more stocks in these firms *ex ante*.[37]

Auditor Sharing and Funds' Trading Behavior

How will mutual funds make use of their information advantage in firms with shared auditors? First, mutual funds may trade more actively in these firms. Bushee et al. (2018) find that local institutional investors have larger trading activities at the time when they have information advantage from the management. Second, mutual funds can shift their portfolio weights in advance of the public disclosure of information. Previous studies assess the extent of institutional investors' information advantage by examining whether the change in stock holdings is predictive of the

[35] Our results stay the same if we include these observations.
[36] The effect of auditor sharing is economically significant. Compared with firms with non-shared auditor, mutual funds on average invest 7.06% (=0.069/0.977) more in firms with shared auditors.
[37] Similar to the trading-gains tests, we also employ a changes model and PSM specification for the holding decision and our inferences hold.

upcoming earnings (e.g., Gompers and Metrick, 2001; Chen, Harford, and Li 2007; Cheng et al. 2019). In this section, we conduct analyses to shed light on how mutual funds utilize the information advantage from auditor sharing. Specifically, we examine whether funds' stock-holding changes relate to auditor sharing and to future performance.[38] The regression models are:

$$\begin{aligned}\Delta Holding_{i,j,t} = {} & \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 Size_{i,t-1} + \beta_3 Analyst\ Following_{i,t} + \beta_4 BM_{i,t-1} + \beta_5 ROA_{i,t-1} \\ & + \beta_6 Leverage_{i,t-1} + \beta_7 Turnover_{i,t-1} + \beta_8 Return_{i,t-1} + \beta_9 Std\ Dev_{i,t-1} + \beta_{10} SOE_{i,t-1} \\ & + \beta_{11} Top10_{i,t-1} + \beta_{12} Fund\ Size_{j,t-1} + \beta_{13} Family\ Size_{j,t-1} + \beta_{14} Fund\ Performance_{j,t-1} \\ & + \beta_{15} Holding\ Size_{i,j,t-1} + \beta_{16} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{17} Same\ Region_{i,j,t-1} \\ & + Fixed\ Effects + \varepsilon_{i,j,t} \qquad (5)\end{aligned}$$

$$\begin{aligned}\Delta Holding_{i,j,t} = {} & \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 Performance_{i,t} + \beta_3 Share\ Office_{i,t} * Performance_{i,t} \\ & + \beta_4 Size_{i,t-1} + \beta_5 Analyst\ Following_{i,t} + \beta_6 BM_{i,t-1} + \beta_7 ROA_{i,t-1} + \beta_8 Leverage_{i,t-1} \\ & + \beta_9 Turnover_{i,t-1} + \beta_{10} Return_{i,t-1} + \beta_{11} Std\ Dev_{i,t-1} + \beta_{12} SOE_{i,t-1} + \beta_{13} Top10_{i,t-1} \\ & + \beta_{14} Fund\ Size_{j,t-1} + \beta_{15} Family\ Size_{j,t-1} + \beta_{16} Fund\ Performance_{j,t-1} \\ & + \beta_{17} Holding\ Size_{i,j,t-1} + \beta_{18} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{19} Same\ Region_{i,j,t-1} \\ & + Fixed\ Effects + \varepsilon_{i,j,t} \qquad (6)\end{aligned}$$

where $\Delta Holding_{i,j,t}$ is defined as the fund *j*' stock-holding changes in firm *i* from lagged six months to year *t*. *Shared Office* is as previously defined. Following prior studies, we use three measures to proxy for future performance announcements (Chen et al. 2007; Cheng et al. 2019): the change in ROA (*⊿ROA*), unexpected earnings (*UE*), and subsequent six-month buy-and-hold size-adjusted stock returns (*BHAR*). We interact the performance measures and *Shared Office* in Equation (6), and the coefficients on the interactions capture the auditor-sharing effects on the funds' informed trading.

Panel A of Table 10 reports the results for Equation (5). In Column (1), we estimate the auditor-

[38] The change of stock holding is defined in a 6-month period, that is, we compare the shareholding in the current period with that from 6 months ago. We do this because the funds disclose detailed holding information in semi-annual and annual reports.

sharing effects on the absolute magnitude of funds' stock trading. The coefficient on *Shared Office* is positive and statistically significant at the 1% level, suggesting that the funds trade more if they share the same audit office with the invested stocks. In Columns (2) and (3), we separate the trading into net buying stocks and net selling stocks, respectively. The significant coefficients on *Shared Office* indicate that the funds both buy more stocks and sell more stocks if they share the same audit office with the concerned stocks.

Panel B reports the results for Equation (6). The coefficient estimates for the interaction of *Shared Office* and future performance (i.e., β_3) are positive and statistically significant at the 1% level in Columns (1) and (2) and at the 10% level in Column (3). The results suggest that the changes in connected funds' holding of the stocks with the shared audit office are more predictive of the invested firms' future performance than those of non-connected funds. This is consistent with the notion that connected funds acquire private information about firms' operating performance from the connected auditor, and then trade the stocks based on the information.

Negative Information and Auditor-Sharing Effects

There are reasons to believe that the effects of information sharing will be more pronounced when firms have negative information. Managers have strong incentives to withhold bad news due to career and/or compensation concerns (e.g., Berger and Hann 2007; Kothari, Shu, and Wysocki 2009). Therefore, information asymmetry between firms and outsiders, such as mutual funds, is likely more severe when firms have bad news and this is the situation in which information sharing from a connected auditor becomes more valuable.

To examine our prediction, we adjust Equation (1) to include a proxy for firms' negative

information and interact it with the auditor-sharing indicator. *Negative* is an indicator that equals one if the firm's operating performance (measured using ROA) declines in the upcoming earnings announcement and zero otherwise.[39] The results are reported in Table 11. The results for auditor-sharing effects on funds' trading gains in the subsample of negative information and positive information are presented in Columns (1) and (2), respectively. In both specifications, the auditor sharing significantly increases the connected funds' trading gains. However, the positive and significant coefficient on *Shared Office* × *Negative* in Column (3) is consistent with our prediction that the effects are stronger when firms report negative information. This empirical evidence also helps differentiate auditor-sharing effects from other social-network effects documented in prior studies because information sharing from managers is more significant when firms have good news (e.g., Cohen et al. 2008; Gu et al. 2019).[40]

Effects of Social Ties between the Fund's Audit Partners and the Firm's Audit Partners

We argue that private information is shared within the same audit office. Experimental and field research provide evidence of knowledge sharing across different audit teams within the audit office (Kennedy et al. 1997; Kadous et al. 2013; Cai et al. 2016). But we note that the audit team for the fund and the audit team for the listed firms usually are not the same. This fact could limit the information sharing among audit partners within the same office. In this section, we explore whether the potential information sharing varies with the additional social ties among the partners auditing the fund and the firm within the same office. Social ties are important across the globe and

[39] Our test is based on the upcoming semi-annual earnings release. No conclusions are altered if we use an annual period instead.

[40] Ex ante, the information advantage will motivate mutual funds to invest more in stocks with shared auditor. Ex post, if the information is received, mutual funds will invest more in firms with positive information and dispose of firms with negative information.

considered critical in China (e.g., Cheng and Rosett 1991; Bian 1997).

Following Cohen, Frazzini, and Malloy (2010) and Guan, Su, Wu, and Yang (2016), we focus on school ties arising from sharing an educational link. Individuals who attended the same schools are likely to have the same background and similar interests (McPherson, Smith-Lovin, and Cook 2001).[41] Therefore, we expect that partners within the same office are more likely to share information when they also have school ties. As a result, we expect the information sharing between mutual funds and connected auditors to be more pronounced when the audit partners have school ties.

To test our prediction, we *hand-collect* school information for individual audit partners.[42] Then we partition *Shared Office* into two variables: *Shared Office* $_{ties}$, which equals one if partners auditing the fund and the firm within the same office have a common alma mater and zero otherwise; *Shared Office* $_{no\ ties}$, which equals one if the partners do not have a common alma mater and zero otherwise. The results are reported in Table 12.[43] In Columns (1) and (2), we find that both coefficients on *Shared Office* $_{ties}$ and *Shared Office* $_{no\ ties}$ are positive and significant at the 5% level or better.[44] An F-test shows that the difference between the estimated coefficients of *Shared Office* $_{ties}$ and *Shared Office* $_{no\ ties}$ is significant in both columns (two-sided p-value=0.0180 and 0.0117, respectively). The results suggest that the additional social ties among partners can amplify the

[41] Connections forged through school ties enjoy enhanced interaction via in-jokes, shared traditions, and a sense of group belonging, as evidenced by alumni networks, newsletters, donations, and college sports events. Prior studies suggest that a common educational background fosters social ties and result in greater information sharing. Socially connected people tend to follow communal norms that promote mutual caring and trust (Silver 1990; Cohen et al. 2010; Guan et al. 2016). Moreover, interactions and greater comfort between individuals allow connected agents to better communicate subtle and sensitive information that would otherwise not be shared (Granovetter 2005).

[42] The personal information of individual audit partners in China is publicly available on the website of the China Institute of Certified Public Accountants (CICPA) at www.cicpa.org.cn

[43] In the subsample where the mutual fund and listed company share the same office (*Shared Office*=1), 5% have such school ties.

[44] The sample size is smaller in Table 12 because we drop the 519 and 762 observations where all the fund's and firm's partners' school information are missing when the mutual fund and listed firm share the same office. The results are very similar if we classify them as no school ties.

information sharing between mutual funds and connected auditors.

Shared Audit Firm versus Shared Audit Office

We use a common audit office between the mutual fund and firm to proxy for auditor sharing. The underlying argument is that the audit office is where the client information is concentrated (e.g., Dhaliwal et al. 2016). As a robustness check, we investigate whether audit-*firm* sharing can cause information transfer in our setting. *Shared Audit Firm* indicates whether the mutual fund and the company share the same audit firm during the year. Further, we separate the shared audit firm into two variables: *Shared Office* (as defined before) and *Shared Audit Firm Not Office* (that equals one if the fund and the company share the same audit firm but not the same audit office and zero otherwise). Panel A of Table 13 reports the descriptive statistics for three key variables. 4.9% of fund-stock pairs share the same audit firm and 4.5% share the same audit-firm office, while only 0.5% of them share the same audit firm but not audit office.[45] We report the regression results in Panels B. The coefficients reported in Column (1) on *Shared Audit Firm* are positive and significant at the 5% level. Further analyses reported in Columns (2) show that the coefficients on *Shared Office* are positive and highly significant, while the coefficient on *Shared Audit Firm Not Office* is insignificant. Overall, the results indicate that *audit-office* sharing is especially important and relates to information transfer from auditors to mutual funds.

Potential Confounding Effects of Fund Family

Prior research suggests that the information used in investment decisions is shared among funds

[45] The reason for the unbalanced distribution is that most of mutual funds in China are located in big cities such as Beijing, Shanghai, and Guangzhou, and the audit firms are more likely to have offices located in these cities.

within a fund family (Elton, Gruber, and Green 2007). To exclude the possibility that our results are driven by information sharing within the same fund-management company, we first exclude the fund-stock pairwise observations where all the funds within the fund family are audited by the same auditor and rerun the regressions. Untabulated results show that the coefficient on *Shared Office* is still positive and significant (at the 1% level), indicating that our results are not driven by information sharing within the fund family. Second, we include *fund company-year fixed effects* to control for the potential effects of unobservable time-varying fund-company characteristics and our results still hold. We conclude that our inferences are robust to considering potential information sharing within the fund company.

Alternative Explanations

Although we address the possibility of endogeneity stemming from the matching between audit clients and auditors using fixed effects models, change analyses, and PSM, there are still alternative explanations that potentially drive our results. First, mutual funds may have a preference for the auditor that audits the companies they invest in ("preference explanation"). If mutual funds influence invested companies (which they believe will outperform) to hire the auditors that also audit the mutual funds, we may also observe that a shared auditor is associated with higher trading gains that are not caused by information sharing. However, the assumption for this alternative explanation is that the mutual funds have sufficient ability to influence the auditor choice of the companies they invest in. In our sample, the mutual funds only hold 0.11% (0.18%) of listed companies' total outstanding shares on average. In untabulated tests, we exclude the observations for which the mutual funds hold more than 5% (2%, or even 1%) of shares of listed companies and

our conclusions stay the same. Therefore, our results are not likely to be driven by such "preference explanation."

Another theoretical possibility is that the mutual funds just have greater faith in the audit opinions of their own auditors, as a result, the fund managers are more likely to invest in well-performing firms that are audited by shared auditors and obtain higher trading gains ("greater faith explanation"). However, if such possibility drives our results, the effects of shared auditors on mutual funds' trading gains should be more pronounced for listed companies with forthcoming positive information or at least no difference for companies with forthcoming positive or negative information. However, we find that the effects of shared auditors are more pronounced for companies with forthcoming negative information because such negative information is more likely to be withheld by the companies. Therefore, our results are unlikely to be caused by such "greater faith explanation."

VII CONCLUSIONS

We examine whether mutual funds and their auditors share information about the auditors' clients. Although regulators put restrictions on auditors' ability to share clients' information, such information sharing can potentially benefit both mutual funds and auditors. Using a large and hand-collected Chinese sample, we find that mutual funds' trading in the stocks that share the same auditors with them earns greater profits and that these effects are more pronounced when the firms are more opaque. We further find that mutual funds invest more in these stocks and trade more in these firms, and that their trading is associated with the future operating performance of these firms. The evidence suggests that information about firms with shared auditors flows from connected

auditors to mutual funds, which enhances funds' informational advantage in these firms.

We also find evidence that connected auditors receive higher audit fees from mutual funds when the information sharing is more likely, suggesting that the auditor benefits from the information sharing. Similarly, we show that connected auditors increase their audit quality, which is consistent with the mutual funds providing relevant information to the auditor. Overall, our study provides evidence of bi-directional information sharing between two important market intermediaries.

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Table 1: Sample Descriptive Statistics

Year	# of Fund Companies	# of Funds	# of unique funds for each fund company	# of unique auditors for each fund company	Stocks held by funds	Fund-Stock Observations	Fund-Stock with Shared Auditor	Percent of Fund-Stock with Shared Auditor
2004	16	19	1.32	1.12	264	802	72	8.98%
2005	18	28	1.71	1.20	370	1393	103	7.39%
2006	29	50	2.32	1.19	496	2413	159	6.59%
2007	40	92	3.11	1.30	609	5048	286	5.67%
2008	54	192	5.19	1.29	679	10936	613	5.61%
2009	54	228	5.61	1.34	957	15420	737	4.78%
2010	56	264	6.91	1.35	1,122	18625	1,004	5.39%
2011	56	313	7.72	1.40	1,178	21329	1,234	5.79%
2012	61	412	9.40	1.35	1,622	33023	1,697	5.14%
2013	62	469	10.14	1.35	1,811	40104	1,719	4.29%
2014	65	497	11.39	1.38	2,077	46986	2,010	4.28%
2015	67	419	10.60	1.26	2,134	40193	2,069	5.15%
2016	84	901	18.96	1.44	2,309	74506	3,262	4.38%
Total	662	3884	11.02	1.34	15,628	310,778	14,965	4.82%

This table describes the yearly distribution of the sample after dropping fund-stock observations without necessary variables for the subsequent regressions of holding decisions.

Table 2: Shared Auditors and Funds' Trading Gains

This table presents the regression results of funds' trading gains on shared auditor between fund and listed firms held by the fund based on the following regression:

$$\begin{aligned} Gain_{i,j,T} = {} & \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 Size_{i,t-1} + \beta_3 Analyst\ Following_{i,t} + \beta_4 BM_{i,t-1} \\ & + \beta_5 ROA_{i,t-1} + \beta_6 Leverage_{i,t-1} + \beta_7 Turnover_{i,t-1} + \beta_8 Return_{i,t-1} \\ & + \beta_9 Std\ Dev_{i,t-1} + \beta_{10} SOE_{i,t-1} + \beta_{11} Top10_{i,t-1} + \beta_{12} Fund\ Size_{j,t-1} \\ & + \beta_{13} Family\ Size_{j,t-1} + \beta_{14} Fund\ Performance_{j,t-1} + \beta_{15} Holding\ Size_{i,j,t-1} \\ & + \beta_{16} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{17} Same\ Region_{i,j,t-1} + Fixed\ Effects \\ & + \varepsilon_{i,j,t} \end{aligned}$$

The dependent variable is trading gains, which is measured as the semi-year change in percentage of shares outstanding held by fund multiplied by the buy-and-hold size-adjusted returns over the subsequent semi-year period. The units of analysis are fund-stock-years. Only stocks that are held by fund at the end of the year or at the end of the subsequent semi-year are included in this sample. The sample contains 560,697 fund-stock pairs across all the years in the sample period after dropping observations without necessary variables used in the regression analysis. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

Panel A: Descriptive Statistics

VARIABLES	N	Mean	Std Dev	P25	P50	P75
Gains	560,697	0.015	5.605	-0.112	0.000	0.117
Shared Office	560,697	0.045	0.206	0.000	0.000	0.000
Size	560,697	16.500	1.029	15.780	16.430	17.140
Analyst Following	560,697	2.628	0.983	2.197	2.890	3.367
BM	560,697	0.525	0.267	0.307	0.486	0.730
ROA	560,697	0.068	0.065	0.026	0.057	0.098
Leverage	560,697	0.469	0.201	0.314	0.476	0.629
Turnover	560,697	4.294	3.237	1.914	3.414	5.768
Return	560,697	0.282	0.713	-0.181	0.089	0.528
Std Dev	560,697	0.137	0.060	0.098	0.125	0.161
SOE	560,697	0.533	0.499	0.000	1.000	1.000
Top10	560,697	0.615	0.487	0.000	1.000	1.000
Fund Size	560,697	20.600	1.849	19.230	20.760	22.040
Family Size	560,697	24.270	1.181	23.600	24.380	25.080
Fund Performance	560,697	0.099	0.331	-0.097	0.034	0.230
Holding Size	560,697	10.730	6.854	0.000	13.490	16.010
Family Fund Holding	560,697	19.910	3.203	19.180	20.470	21.530
Same Region	560,697	0.120	0.325	0.000	0.000	0.000

Panel B: Regression Results

	(1)	(2)
VARIABLES	Dependent Variable = Trading Gains	
Shared Office	0.113***	0.105***
	(2.850)	(2.668)
Size	0.048**	0.058***
	(2.530)	(2.711)
Analyst Following	0.026***	0.021**
	(2.643)	(2.153)
BM	0.118**	0.159***
	(2.035)	(2.712)
ROA	0.461**	0.447*
	(2.012)	(1.917)
Leverage	-0.162***	-0.179***
	(-2.915)	(-3.179)
Turnover	0.015***	0.016***
	(4.804)	(4.920)
Return	-0.026	-0.036
	(-1.074)	(-1.470)
Std Dev	0.097	0.106
	(0.503)	(0.542)
SOE	0.001	0.001
	(0.034)	(0.038)
Top10	0.025	0.026*
	(1.606)	(1.669)
Fund Size	0.015**	0.058**
	(2.227)	(2.136)
Family Size	0.007	0.038
	(0.861)	(0.808)
Fund Performance	-0.005	-0.058
	(-0.047)	(-0.396)
Holding Size	-0.018***	-0.017***
	(-8.561)	(-7.485)
Family Fund Holding	0.002	-0.001
	(0.498)	(-0.331)
Same Region	0.010	0.006
	(0.366)	(0.245)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Fund Fixed Effects	No	Yes
Observations	560,697	560,697
Adjusted R-squared	0.005	0.009

Table 3: Change Analyses

This table presents the change analysis results of the role of shared auditors in influencing funds' holding decisions and trading gains based on the following regression:

$$\begin{aligned}\Delta Gain_{i,j,T} = {} & \beta_0 + \beta_1 \Delta Shared\ Office_{i,j,t} + \beta_2 \Delta Size_{i,t-1} + \beta_3 \Delta Analyst\ Following_{i,t} + \beta_4 \Delta BM_{i,t-1} \\ & + \beta_5 \Delta ROA_{i,t-1} + \beta_6 \Delta Leverage_{i,t-1} + \beta_7 \Delta Turnover_{i,t-1} + \beta_8 \Delta Return_{i,t-1} \\ & + \beta_9 \Delta Std\ Dev_{i,t-1} + \beta_{10} \Delta SOE_{i,t-1} + \beta_{11} \Delta Top10_{i,t-1} + \beta_{12} \Delta Fund\ Size_{j,t-1} \\ & + \beta_{13} \Delta Family\ Size_{j,t-1} + \beta_{14} \Delta Fund\ Performance_{j,t-1} \\ & + \beta_{15} \Delta Holding\ Size_{i,j,t-1} + \beta_{16} \Delta Fam\ Fund\ Holding_{i,j,t-1} \\ & + \beta_{17} Same\ Region_{i,j,t-1} + Fixed\ Effects + \varepsilon_{i,j,t}\end{aligned}$$

The dependent variable is change in *Trading Gains*. The units are fund-stock-years. The sample contains 677,947 fund-stock pairs in the trading gains model across all the years in the sample period after dropping observations without necessary variables used in the regression analysis. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

	(1)	(2)	(3)	(4)
VARIABLES	Dependent Variable = Δ Gains			
Δ Shared Office	0.118		0.122	
	(1.167)		(1.198)	
Shared to Non-Shared		0.142		0.139
		(1.004)		(0.977)
Non-Shared to Shared		0.335**		0.338**
		(2.166)		(2.182)
Δ Size	-0.187***	-0.186***	-0.181***	-0.180***
	(-5.627)	(-5.601)	(-5.398)	(-5.374)
Δ Analyst Following	0.045***	0.045***	0.049***	0.049***
	(3.225)	(3.228)	(3.504)	(3.505)
Δ BM	0.680***	0.678***	0.675***	0.674***
	(4.021)	(4.014)	(3.961)	(3.954)
Δ ROA	-0.529*	-0.534*	-0.533*	-0.538*
	(-1.692)	(-1.708)	(-1.708)	(-1.724)
Δ Leverage	-0.437***	-0.438***	-0.442***	-0.443***
	(-3.383)	(-3.391)	(-3.405)	(-3.414)
Δ Turnover	0.004	0.004	0.004	0.004
	(0.901)	(0.898)	(1.012)	(1.008)
Δ Return	0.078***	0.078***	0.076***	0.075***
	(3.235)	(3.220)	(3.095)	(3.082)
Δ Std Dev	0.100	0.106	0.101	0.107
	(0.465)	(0.491)	(0.464)	(0.490)
Δ SOE	0.018	0.019	0.015	0.015
	(0.129)	(0.129)	(0.103)	(0.104)
Δ Top10	-0.050	-0.052	-0.051	-0.053
	(-1.272)	(-1.335)	(-1.295)	(-1.359)
Δ Fund Size	0.013	0.013	0.017	0.017
	(0.586)	(0.592)	(0.506)	(0.506)
Δ Family Size	-0.086***	-0.086***	-0.107**	-0.107**
	(-2.606)	(-2.611)	(-2.381)	(-2.383)
Δ Fund Performance	-0.087	-0.087	-0.123	-0.123
	(-1.267)	(-1.265)	(-1.424)	(-1.418)
Δ Holding Size	-0.022***	-0.022***	-0.022***	-0.022***
	(-9.172)	(-9.168)	(-9.073)	(-9.070)
Δ Family Fund Holding	0.011***	0.011***	0.011***	0.011***
	(8.588)	(8.588)	(8.384)	(8.385)
Same Region	0.022	0.020	0.020	0.019
	(1.332)	(1.224)	(1.304)	(1.200)
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Fund Fixed Effects	No	No	Yes	Yes
Observations	677,947	677,947	677,947	677,947
Adjusted R-squared	0.003	0.003	0.004	0.004

Table 4: Propensity-Score Matching

This table presents the regression results of the role of shared auditors in influencing funds' holding decisions and trading gains based on the Equation (1) and (2) using propensity score matched sample. The dependent variable is trading gains, which is measured as the semi-year change in percentage of shares outstanding held by fund multiplied by the buy-and-hold size-adjusted returns over the subsequent semi-year period. The units are fund-stock-years. The sample contains 43,828 fund-stock-year observations in the trading gains model across all the years in the sample period. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

	(1)	(2)
VARIABLES	Dependent Variable = Trading Gains	
Shared Office	0.140**	0.144**
	(2.291)	(2.313)
Size	0.157***	0.196***
	(3.119)	(3.465)
Analyst Following	-0.057	-0.078*
	(-1.452)	(-1.878)
BM	-0.012	0.121
	(-0.062)	(0.569)
ROA	-0.378	-0.093
	(-0.432)	(-0.102)
Leverage	-0.379	-0.358
	(-1.399)	(-1.237)
Turnover	-0.019	-0.020
	(-1.309)	(-1.311)
Return	-0.256***	-0.282***
	(-2.919)	(-3.039)
Std Dev	1.656**	1.534**
	(2.306)	(2.032)
SOE	0.097	0.128*
	(1.335)	(1.655)
Top10	-0.001	-0.028
	(-0.003)	(-0.112)
Fund Size	0.061***	0.203**
	(3.107)	(2.281)
Family Size	0.003	0.195
	(0.129)	(1.233)
Fund Performance	-0.389	-0.652*
	(-1.312)	(-1.713)
Holding Size	-0.045***	-0.044***
	(-6.639)	(-5.760)
Family Fund Holding	0.015	0.006
	(0.798)	(0.302)
Same Region	0.003	-0.004
	(0.036)	(-0.036)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Fund Fixed Effects	No	Yes
Observations	43,828	43,828
Adjusted R-squared	0.012	0.041

Table 5: The Effect of Firms' Opacity on Fund's Trading Gains (Channel Test)

This table presents the regression results of effects of listed firms' opacity on association between funds' trading gains and shared auditor between fund and listed firms held by the fund based on the following regression:

$$
\begin{aligned}
Gain_{\mathrm{i,j,T}} = {} & \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 Opaque_{i,t} + \beta_3 Share\ Office_{i,j,t} * Opaque_{i,t} \\
& + \beta_4 Size_{i,t-1} + \beta_5 Analyst\ Following_{i,t} + \beta_6 BM_{i,t-1} + \beta_7 ROA_{i,t-1} \\
& + \beta_8 Leverage_{i,t-1} + \beta_9 Turnover_{i,t-1} + \beta_{10} Return_{i,t-1} + \beta_{11} Std\ Dev_{i,t-1} \\
& + \beta_{12} SOE_{i,t-1} + \beta_{13} Top10_{i,t-1} + \beta_{14} Fund\ Size_{j,t-1} + \beta_{15} Family\ Size_{j,t-1} \\
& + \beta_{16} Fund\ Performance_{j,t-1} + \beta_{17} Holding\ Size_{i,j,t-1} \\
& + \beta_{18} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{19} Same\ Region_{i,j,t-1} + Fixed\ Effects + \varepsilon_{i,j,t}
\end{aligned}
$$

The dependent variable is trading gains, which is measured as the semi-year change in percentage of shares outstanding held by fund multiplied by the buy-and-hold size-adjusted returns over the subsequent semi-year period. We use five alternative measures, i.e. analyst following, earnings volatility, related party transactions, intangible assets and SOE to proxy for firms' opacity in Column (1), Column (2), Column (3), Column (4), and Column (5), respectively. *Fewer Analysts* is an indicator variable which equals one if the firm's number of analyst following is less than the sample lower tertile during the year and zero otherwise; *High Volatility* is an indicator variable which equals one if the firm's earnings volatility is higher than the sample upper tertile during the year and zero otherwise. Earnings volatility is measured as the standard deviation of ROA over the past three years; *RPT* is an indicator variable which equals one if the firm has related party sales and purchases during the year, and zero otherwise; *More Intangible* is an indicator variable which equals one if the firm's intangible asset is greater than the sample upper tertile during the year and zero otherwise; *SOE* is an indicator variable that equals one if the company is a state-owned enterprise, and zero otherwise. In Column (6), we use a composite index to proxy for opacity. *Composite Index* is an indicator variable that equals one if the sum of indicator variables for five opaque measures including *Fewer analysts*, *Higher Earnings Volatility*, *Existence of RPTs*, *More Intangible Assets*, and *SOE* is higher than the sample upper tertile during the year and zero otherwise. The units of analysis are fund-stock-years. Only stocks that are held by fund at the end of the year or at the end of the semi-year are included in this sample. The sample contains 560,697 (557,760 in Panel C) fund-stock pairs across all the years in the sample period after dropping observations without necessary variables used in the regression analysis. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable = Trading Gains					
	Fewer Analysts	Higher Earnings Volatility	Existence of RPTs	More Intangible Assets	SOE	Composite Index
Shared Office×Opaque	0.232**	0.230**	0.293**	0.315***	0.193**	0.449***
	(2.375)	(2.006)	(2.363)	(3.565)	(2.291)	(4.798)
Opaque	-0.023	-0.012	-0.040**	-0.053***	-0.006	-0.028
	(-0.865)	(-0.635)	(-2.146)	(-2.989)	(-0.370)	(-1.241)
Shared Office	0.056	-0.011	-0.169	-0.005	-0.028	-0.155***
	(1.231)	(-0.233)	(-1.501)	(-0.112)	(-0.464)	(-2.721)
Size	0.058***	0.044**	0.062***	0.056***	0.058***	0.060***
	(2.743)	(1.980)	(2.917)	(2.632)	(2.732)	(2.835)
Analyst Following	0.015	0.021**	0.025**	0.022**	0.021**	0.022**
	(1.080)	(2.172)	(2.562)	(2.228)	(2.122)	(2.077)
BM	0.159***	0.110*	0.165***	0.155***	0.156***	0.154**
	(2.714)	(1.767)	(2.793)	(2.646)	(2.665)	(2.537)
ROA	0.440*	0.379	0.466**	0.424*	0.456*	0.422*
	(1.885)	(1.629)	(1.995)	(1.806)	(1.953)	(1.806)
Leverage	-0.178***	-0.173***	-0.144***	-0.178***	-0.174***	-0.172***
	(-3.164)	(-2.970)	(-2.587)	(-3.150)	(-3.090)	(-2.994)
Turnover	0.016***	0.016***	0.015***	0.016***	0.016***	0.016***
	(4.965)	(4.679)	(4.804)	(4.922)	(4.972)	(4.860)
Return	-0.036	-0.049**	-0.052**	-0.036	-0.037	-0.053**
	(-1.476)	(-1.989)	(-2.107)	(-1.483)	(-1.486)	(-2.132)
Std Dev	0.104	0.215	0.193	0.112	0.093	0.216
	(0.532)	(1.094)	(0.997)	(0.578)	(0.477)	(1.114)
SOE	0.000	0.000	-0.002	0.000	0.026*	-0.005
	(0.001)	(0.011)	(-0.101)	(0.028)	(1.693)	(-0.245)

Top10	0.025	0.034**	0.032**	0.027*	0.058**	0.042***
	(1.631)	(2.107)	(2.069)	(1.696)	(2.136)	(2.664)
Fund Size	0.057**	0.060**	0.054**	0.057**	0.038	0.058**
	(2.130)	(2.166)	(2.030)	(2.129)	(0.810)	(2.128)
Family Size	0.038	0.031	0.017	0.037	-0.058	0.012
	(0.805)	(0.645)	(0.367)	(0.796)	(-0.396)	(0.248)
Fund Performance	-0.057	-0.088	-0.060	-0.057	-0.017***	-0.093
	(-0.395)	(-0.641)	(-0.410)	(-0.392)	(-7.486)	(-0.673)
Holding Size	-0.017***	-0.017***	-0.017***	-0.017***	-0.001	-0.016***
	(-7.482)	(-7.159)	(-7.280)	(-7.482)	(-0.327)	(-6.890)
Family Fund Holding	-0.001	0.002	-0.003	-0.001	0.006	-0.002
	(-0.345)	(0.393)	(-0.835)	(-0.323)	(0.228)	(-0.532)
Same Region	0.006	0.006	0.010	0.007	-1.852	0.019
	(0.250)	(0.243)	(0.410)	(0.278)	(-1.189)	(0.721)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Fund Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	560,697	541,369	557,760	560,697	560,697	538,642
Adjusted R-squared	0.009	0.008	0.009	0.009	0.009	0.009

Table 6: Auditors' Benefits: Audit Fees

This table presents the regression results of funds' auditor's number (value) of listed firms audited and the fund's audit fees based on the following regression:

$$LnFee_{j,t} = \beta_0 + \beta_1 Connected\ Firms_{j,t}\left(Connected\ Firm\ Value_{j,t}\right) + \beta_2 Fund\ Size_{j,t} + \beta_3 Fund\ Performance_{j,t} + \beta_4 Family\ Size_{j,t} + \beta_5 Family\ Performance_{j,t} + \beta_6 Auditor\ Tenure_{j,t} + \beta_7 Fund\ Top\ 10_{j,t} + Fixed\ Effects + \varepsilon_{j,t}$$

The dependent variable is the fund's audit fees, measured as the natural logarithm of audit fees for fund *j* in year *t.* The units of analysis are fund-years. The sample contains 8,492 fund-years across our sample period after dropping observations without necessary variables used in the regression analysis. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

	(1)	(2)	(3)	(4)
VARIABLES	Dependent Variable=*LnFee*			
Connected Firms	0.002**		0.002**	
	(2.179)		(2.006)	
Connected Firm Value		0.002***		0.001*
		(3.013)		(1.863)
Fund Size	0.144***	0.145***	0.071***	0.072***
	(39.442)	(39.396)	(8.917)	(9.024)
Fund Performance	-0.000**	-0.000**	-0.000	-0.000
	(-2.081)	(-2.068)	(-0.292)	(-0.287)
Family Size	-0.016***	-0.016***	0.012	0.012
	(-4.258)	(-4.225)	(0.960)	(0.984)
Family Performance	0.000	0.000	-0.000	-0.000
	(0.034)	(0.100)	(-1.440)	(-1.430)
Auditor Tenure	0.027***	0.026***	0.009**	0.009**
	(15.956)	(15.722)	(2.074)	(2.118)
Fund Top10	0.151***	0.148***	-0.019	-0.018
	(5.041)	(4.912)	(-0.510)	(-0.473)
Fund Fixed Effects	No	No	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	8,279	8,279	8,279	8,279
Adjusted R-squared	0.522	0.522	0.800	0.800

Table 7: The Effect of Audit Fees on the Role of Shared Auditor

This table presents the regression results of effects of funds' audit fees on association between funds' trading gains and shared auditor based on the following regression:

$$Gain_{i,j,T} = \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 High\ Fee_{j,t} + \beta_3 Share\ Office_{i,j,t} * High\ Fee_{j,t} + \beta_4 Size_{i,t-1} + \beta_5 Analyst\ Following_{i,t} + \beta_6 BM_{i,t-1} + \beta_7 ROA_{i,t-1} + \beta_8 Leverage_{i,t-1} + \beta_9 Turnover_{i,t-1} + \beta_{10} Return_{i,t-1} + \beta_{11} Std\ Dev_{i,t-1} + \beta_{12} SOE_{i,t-1} + \beta_{13} Top10_{i,t-1} + \beta_{14} Fund\ Size_{j,t-1} + \beta_{15} Family\ Size_{j,t-1} + \beta_{16} Fund\ Performance_{j,t-1} + \beta_{17} Holding\ Size_{i,j,t-1} + \beta_{18} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{19} Same\ Region_{i,j,t-1} + Fixed\ Effects + \varepsilon_{i,j,t}$$

The dependent variable is trading gains, which is measured as the semi-year change in percentage of shares outstanding held by fund multiplied by the buy-and-hold size-adjusted returns over the subsequent semi-year period. Only stocks that are held by fund at the end of the year or at the end of the subsequent semi-year are included in this sample. The sample size is 558,201 across all the years in the sample period after dropping observations without necessary variables used in the regression analysis. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

	(1)	(2)
VARIABLES	Dependent Variable = Trading Gains	
Shared Office×High Fee	0.218***	
	(2.858)	
High Fee	-0.022	
	(-0.396)	
Shared Office×High Abnormal Fee		0.161**
		(2.029)
High Abnormal Fee		-0.061
		(-1.608)
Shared Office	-0.022	0.020
	(-0.435)	(0.329)
Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Fund Fixed Effects	Yes	Yes
Observations	558,201	558,201
Adjusted R-squared	0.009	0.009

Table 8: Shared Auditors and Audit Quality

The table presents the regression results of association between shared auditors and audit quality based on the following regression:

$$Audit\ Quality_{i,t} = \beta_0 + \beta_1 Fund\ Office_{i,t} + \beta_2 Size_{i,t} + \beta_2 ROA_{i,t} + \beta_4 Leverage_{i,t} + \beta_5 Loss_{i,t} + \beta_6 Sales\ Turnover_{i,t} + \beta_7 BM_{i,t} + \beta_8 RECINV_{i,t} + \beta_9 CFO_{i,t} + \beta_{10} Growth_{i,t} + \beta_{11} Return_{i,t} + \beta_{12} Age_{i,t} + \beta_{13} Top\ 10_{i,t} + \beta_{14} Fund\ Share_{i,t} + Fixed\ Effects + \varepsilon_{i,t}$$

The dependent variable is audit quality, which is measured as absolute value of abnormal accruals and likelihood of financial reporting irregularity for firm *i* in year *t*. The units of analysis are firm-years. The sample contains 14,627 firm-years across our sample period after dropping observations without necessary variables used in the regression analysis. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for firm-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

Panel A: Descriptive statistics for firm-year in audit-quality model

	N	Mean	Std	P25	Median	P75
AbsDA_KWL	14,627	0.055	0.053	0.018	0.039	0.073
AbsDA_DD	14,627	0.039	0.041	0.013	0.028	0.052
Irregularity	14,627	0.115	0.318	0.000	0.000	0.000
Fund Office	14,627	0.123	0.328	0.000	0.000	0.000
LnAsset	14,627	22.880	1.039	22.150	22.750	23.470
ROA	14,627	0.042	0.051	0.015	0.037	0.066
Leverage	14,627	0.468	0.204	0.312	0.475	0.626
Loss	14,627	0.082	0.274	0.000	0.000	0.000
Sales Turnover	14,627	0.669	0.470	0.352	0.555	0.836
BM	14,627	0.546	0.254	0.342	0.522	0.739
RECINV	14,627	0.268	0.176	0.133	0.242	0.370
CFO	14,627	0.050	0.076	0.007	0.048	0.094
Growth	14,627	0.199	0.444	-0.014	0.125	0.295
Return	14,627	0.400	0.796	-0.144	0.194	0.717
Age	14,627	2.230	0.630	1.792	2.398	2.773
Top10	14,627	0.508	0.500	0.000	1.000	1.000
Fund Share	14,627	0.077	0.106	0.007	0.031	0.101

Panel B: Regression Results

	(1)	(2)	(3)
	AbsDA_DD	*AbsDA_KWL*	*Irregularity*
Fund Office	-0.002**	-0.003**	-0.417***
	(-2.239)	(-2.337)	(-4.664)
LnAsset	0.002***	-0.002**	-0.200***
	(3.045)	(-2.276)	(-3.656)
ROA	0.171***	0.112***	-2.199***
	(4.400)	(7.252)	(-2.746)
Leverage	0.008***	0.034***	1.653***
	(3.525)	(10.570)	(6.121)
Loss	0.048***	0.013***	0.439***
	(9.849)	(5.282)	(4.184)
Sales Turnover	0.004**	0.004***	-0.011
	(2.479)	(3.203)	(-0.107)
BM	-0.028***	-0.016***	-0.437*
	(-8.103)	(-6.311)	(-1.706)
RECINV	-0.004	0.012**	-0.391
	(-1.584)	(2.385)	(-1.383)
CFO	-0.048***	-0.034***	-1.163**
	(-5.927)	(-3.919)	(-2.340)
Growth	0.016***	0.019***	0.229***
	(9.785)	(9.978)	(4.027)
Return	0.001	0.003**	0.064*
	(0.457)	(2.249)	(1.933)
Age	0.003***	0.000	-0.090
	(4.639)	(0.432)	(-0.981)
Top10	-0.001	-0.002**	-0.058
	(-1.426)	(-2.392)	(-0.896)
Fund Share	-0.011**	0.003	-1.201**
	(-2.495)	(0.549)	(-2.444)
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Observations	14,627	14,627	14,627
Adjusted/Pseudo R-squared	0.157	0.102	0.065

Table 9: Shared Auditors and Funds' Holding Decisions

This table presents the regression results of funds' holding decisions on shared auditor between fund and listed firms based on the following regression:

$$Proportion_{i,j,t} = \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 Size_{i,t-1} + \beta_3 Analyst\ Following_{i,t} + \beta_4 BM_{i,t-1} + \beta_5 ROA_{i,t-1} + \beta_6 Leverage_{i,t-1} + \beta_7 Turnover_{i,t-1} + \beta_8 Return_{i,t-1} + \beta_9 Std\ Dev_{i,t-1} + \beta_{10} SOE_{i,t-1} + \beta_{11} Top10_{i,t-1} + \beta_{12} Fund\ Size_{j,t-1} + \beta_{13} Family\ Size_{j,t-1} + \beta_{14} Fund\ Performance_{j,t-1} + \beta_{15} Holding\ Size_{i,j,t-1} + \beta_{16} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{17} Same\ Region_{i,j,t-1} + Fixed\ Effects + \varepsilon_{i,j,t}$$

The definitions of the variables are shown in the Appendix. The units of analysis are fund-stock-years. The sample contains 310,778 fund-stock pairs across all the years in the sample period after dropping observations without necessary variables used in the regression analysis. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

	(1)	(2)
VARIABLES	Dependent Variable = Proportion	
Shared Office	0.203***	0.068***
	(9.404)	(4.348)
Size	0.201***	0.235***
	(16.286)	(29.142)
Analyst Following	0.198***	0.059***
	(26.728)	(12.745)
BM	-0.202***	0.023
	(-6.675)	(1.094)
ROA	0.585***	0.621***
	(6.785)	(9.815)
Leverage	0.147***	0.090***
	(5.963)	(4.659)
Turnover	0.006***	0.009***
	(3.542)	(7.906)
Return	0.005	0.019***
	(0.666)	(3.145)
Std Dev	-1.017***	-0.308***
	(-13.698)	(-5.664)
SOE	-0.037***	-0.052***
	(-3.700)	(-7.101)
Top10	-0.022***	-0.002
	(-3.243)	(-0.279)
Fund Size	0.007	-0.038**
	(0.429)	(-2.123)
Family Size	-0.124***	-0.058*
	(-4.589)	(-1.921)
Fund Performance	0.235***	0.061
	(3.512)	(1.434)
Holding Size	0.032***	0.039***
	(9.579)	(15.945)
Family Fund Holding	-0.039***	-0.013***
	(-18.251)	(-8.748)
Same Region	0.041**	0.028***
	(2.564)	(3.005)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Fund Fixed Effects	No	Yes
Observations	310,778	310,778
Adjusted R-squared	0.082	0.373

Table 10: Shared Auditors and Funds' Trading Behaviors

This table presents the regression results of association between funds' holding changes and shared auditor between fund and listed firms held by the fund and association between funds' informed trading and shared auditor based on the following two regressions:

$$\begin{aligned}\Delta Holding_{i,j,t} = {} & \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 Size_{i,t-1} + \beta_3 Analyst\ Following_{i,t} + \beta_4 BM_{i,t-1} \\ & + \beta_5 ROA_{i,t-1} + \beta_6 Leverage_{i,t-1} + \beta_7 Turnover_{i,t-1} + \beta_8 Return_{i,t-1} \\ & + \beta_9 Std\ Dev_{i,t-1} + \beta_{10} SOE_{i,t-1} + \beta_{11} Top10_{i,t-1} + \beta_{12} Fund\ Size_{j,t-1} \\ & + \beta_{13} Family\ Size_{j,t-1} + \beta_{14} Fund\ Performance_{j,t-1} + \beta_{15} Holding\ Size_{i,j,t-1} \\ & + \beta_{16} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{17} Same\ Region_{i,j,t-1} + Fixed\ Effects + \varepsilon_{i,j,t}\end{aligned}$$

$$\begin{aligned}\Delta Holding_{i,j,t} = {} & \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 Performance_{i,t} + \beta_3 Share\ Office_{i,j,t} \\ & * Performance_{i,t} + \beta_4 Size_{i,t-1} + \beta_5 Analyst\ Following_{i,t} + \beta_6 BM_{i,t-1} \\ & + \beta_7 ROA_{i,t-1} + \beta_8 Leverage_{i,t-1} + \beta_9 Turnover_{i,t-1} + \beta_{10} Return_{i,t-1} \\ & + \beta_{11} Std\ Dev_{i,t-1} + \beta_{12} SOE_{i,t-1} + \beta_{13} Top10_{i,t-1} + \beta_{14} Fund\ Size_{j,t-1} \\ & + \beta_{15} Family\ Size_{j,t-1} + \beta_{16} Fund\ Performance_{j,t-1} + \beta_{17} Holding\ Size_{i,j,t-1} \\ & + \beta_{18} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{19} Same\ Region_{i,j,t-1} + Fixed\ Effects + \varepsilon_{i,j,t}\end{aligned}$$

The dependent variables are absolute value of trading magnitude in Column (1), trading magnitude of net buy in Column (2), and trading magnitude of net sell in Column (3) of Panel A. The dependent variables are trading magnitude based on the holding shares change in Panel B. We restrict the fund sample with at least one stock with shared auditor and at least one stock without shared auditor in a given period. The units of analysis are fund-stock-years. Only stocks that are held by fund at the end of the year or at the end of the semi-year are included in this sample. The sample contains 456,240 fund-stock pairs across all the years in the sample period after dropping observations without necessary variables used in the regression analysis. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

Panel A: Shared Auditor and Funds' Trading Magnitude

	(1)	(2)	(3)
VARIABLES	*Abs(⊿Holding)*	*⊿Holding>0*	*⊿Holding<0*
Shared Office	0.013***	0.008***	-0.010***
	(5.259)	(3.202)	(-4.344)
Size	0.035***	0.030***	-0.032***
	(19.377)	(19.386)	(-18.608)
Analyst Following	0.001	0.000	-0.000
	(1.500)	(0.628)	(-0.541)
BM	0.080***	0.079***	-0.076***
	(16.042)	(16.036)	(-14.429)
ROA	-0.191***	-0.155***	0.181***
	(-16.152)	(-13.495)	(15.454)
Leverage	-0.035***	-0.028***	0.030***
	(-12.108)	(-9.768)	(9.761)
Turnover	0.004***	0.003***	-0.003***
	(16.082)	(14.724)	(-14.161)
Return	-0.006***	-0.006***	0.006***
	(-6.208)	(-5.582)	(5.523)
Std Dev	0.008	0.034***	0.014*
	(1.077)	(3.794)	(1.771)
SOE	-0.014***	-0.013***	0.012***
	(-13.474)	(-12.024)	(10.804)
Top10	0.007***	0.005***	-0.006***
	(10.236)	(6.130)	(-7.688)
Fund Size	0.017***	0.011***	-0.022***
	(4.851)	(3.269)	(-6.336)
Family Size	0.012*	0.004	-0.017***
	(1.890)	(0.643)	(-2.940)
Fund Performance	0.008	-0.003	-0.017*
	(0.838)	(-0.290)	(-1.825)
Holding Size	0.002***	-0.002***	-0.004***
	(6.946)	(-5.862)	(-12.616)
Family Fund Holding	-0.001***	0.000	0.002***
	(-5.142)	(0.677)	(8.226)
Same Region	0.005***	0.005***	-0.003**
	(3.528)	(3.214)	(-2.336)
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Fund Fixed Effects	Yes	Yes	Yes
Observations	456,240	215,766	240,474
Adjusted R-squared	0.356	0.374	0.415

Panel B: Shared Auditor and Funds' Informed Trading

	Dependent Variable=△Holding		
VARIABLES	*Perf=ΔROA*	*Perf=UE*	*Perf=BHAR*
Performance	0.186***	0.101***	-0.000
	(9.853)	(5.285)	(-0.220)
Shared Office×Performance	0.216***	0.304***	0.012*
	(2.688)	(3.422)	(1.839)
Shared Office	-0.005	-0.009***	0.001
	(-1.561)	(-2.696)	(0.478)
Size	-0.001*	-0.002**	-0.001**
	(-1.898)	(-2.377)	(-2.024)
Analyst Following	-0.001**	-0.001	-0.000
	(-2.035)	(-1.274)	(-0.179)
BM	0.012***	0.004	0.009***
	(3.782)	(1.444)	(2.858)
ROA	-0.014	0.023***	0.034***
	(-1.452)	(2.863)	(4.212)
Leverage	0.002	0.000	0.000
	(1.002)	(0.112)	(0.074)
Turnover	-0.001***	-0.001***	-0.001***
	(-6.266)	(-6.680)	(-6.513)
Return	-0.006***	-0.006***	-0.005***
	(-6.108)	(-5.681)	(-5.494)
Std Dev	0.024***	0.020**	0.019**
	(2.740)	(2.362)	(2.187)
SOE	0.000	0.000	0.000
	(0.504)	(0.432)	(0.547)
Top10	-0.001	-0.001	-0.001
	(-1.170)	(-1.280)	(-1.389)
Fund Size	-0.015***	-0.015***	-0.015***
	(-5.530)	(-5.538)	(-5.535)
Family Size	-0.005	-0.005	-0.005
	(-1.467)	(-1.470)	(-1.486)
Fund Performance	-0.013*	-0.013*	-0.013*
	(-1.680)	(-1.681)	(-1.705)
Holding Size	-0.007***	-0.007***	-0.007***
	(-20.868)	(-20.881)	(-20.878)
Family Fund Holding	0.001***	0.001***	0.001***
	(10.821)	(10.812)	(10.797)
Same Region	0.001	0.001	0.001
	(0.730)	(0.601)	(0.751)
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Fund Fixed Effects	Yes	Yes	Yes
Observations	456,240	456,240	456,240
Adjusted R-squared	0.035	0.035	0.035

Table 11: The Effect of Firms' Negative Information on Fund's Trading Gains

This table presents the regression results of effects of listed firms' negative information on association between funds' trading gains and shared auditor based on the following regression:

$$Gain_{i,j,T} = \beta_0 + \beta_1 Shared\ Office_{i,j,t} + \beta_2 Negative_{i,t} + \beta_3 Share\ Office_{i,j,t} * Negative_{i,t} + \beta_4 Size_{i,t-1} + \beta_5 Analyst\ Following_{i,t} + \beta_6 BM_{i,t-1} + \beta_7 ROA_{i,t-1} + \beta_8 Leverage_{i,t-1} + \beta_9 Turnover_{i,t-1} + \beta_{10} Return_{i,t-1} + \beta_{11} Std\ Dev_{i,t-1} + \beta_{12} SOE_{i,t-1} + \beta_{13} Top10_{i,t-1} + \beta_{14} Fund\ Size_{j,t-1} + \beta_{15} Family\ Size_{j,t-1} + \beta_{16} Fund\ Performance_{j,t-1} + \beta_{17} Holding\ Size_{i,j,t-1} + \beta_{18} Fam\ Fund\ Holding_{i,j,t-1} + \beta_{19} Same\ Region_{i,j,t-1} + Fixed\ Effects + \varepsilon_{i,t}$$

The dependent variable is trading gains, which is measured as the semi-year change in percentage of shares outstanding held by fund multiplied by the buy-and-hold size-adjusted returns over the subsequent semi-year period. We define the company has negative information if its ROA at the end of the year is less than that at the end of semi-year. The units of analysis are fund-stock-years. Only stocks that are held by fund at the end of the year or at the end of the subsequent semi-year are included in this sample. The sample contains 560,697 fund-stock pairs across all the years in the sample period after dropping observations without necessary variables used in the regression analysis. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

	(1)	(2)	(3)
VARIABLES	Negative=1	Negative =0	Full Sample
Shared Office×Negative			0.342**
			(1.988)
Negative			0.014
			(0.488)
Shared Office	0.464***	0.068*	0.067
	(2.610)	(1.675)	(1.640)
Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Fund Fixed Effects	Yes	Yes	Yes
Observations	65,928	494,769	560,697
Adjusted R-squared	0.043	0.008	0.009

Table 12: Effects of Social Ties between Fund's Partners and Firm's Partners

This table presents the regression results of social ties between fund's partners and firm's partners in the shared office and fund's trading gains. The units of analysis are fund-stock-years. The dependent variable is trading gains, which is measured as the semi-year change in percentage of shares outstanding held by fund multiplied by the buy-and-hold size-adjusted returns over the subsequent semi-year period. Only stocks that are held by fund at the end of the year or at the end of the subsequent semi-year are included in this sample. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

	(1)	(2)
VARIABLES	Dependent Variable=Trading Gains	
Shared Office $_{ties}$	0.586***	0.611***
	(2.928)	(3.039)
Shared Office $_{no\ ties}$	0.099**	0.091**
	(2.438)	(2.242)
Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Fund Fixed Effects	No	Yes
Observations	559,935	559,935
Adjusted R-squared	0.005	0.009
F-test:	5.60**	6.38**
Shared Office $_{ties}$ =*Shared Office* $_{no\ ties}$	P=0.0180	P=0.0117

Table 13: Effects of Shared Audit Firm versus Shared Audit Office

This table presents the results of effects of shared audit firms. The units of analysis are fund-stock-years. The dependent variable is trading gains, which is measured as the semi-year change in percentage of shares outstanding held by fund multiplied by the buy-and-hold size-adjusted returns over the subsequent semi-year period. Only stocks that are held by fund at the end of the year or at the end of the subsequent semi-year are included in this sample. The definitions of the variables are shown in the Appendix. The t-values in parentheses are based on standard errors adjusted for fund-level clustering. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

Panel A: Descriptive statistics for shared audit firm

VARIABLES	N	Mean	Std Dev	P25	P50	P75
Shared Audit Firm	560,697	0.049	0.217	0	0	0
Shared Office	560,697	0.045	0.206	0	0	0
Shared Audit Firm Not Office	560,697	0.005	0.069	0	0	0

Panel B: Funds' Trading Gains

	(1)	(2)
VARIABLES	Dependent Variable = Gains	
Shared Audit Firm	0.076**	
	(2.012)	
Shared Office		0.104***
		(2.625)
Shared Audit Firm Not Office		-0.170
		(-1.519)
Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Fund Fixed Effects	Yes	Yes
Observations	560,697	560,697
Adjusted R-squared	0.009	0.009

Appendix: Variable Definitions

Variable	Definition
Fund Behavior Variables	
Dependent Variables	
Trading Gains	Change in percentage of shares outstanding held by fund (times 100) multiplied by the buy-and-hold size-adjusted returns (times 100) over the subsequent semi-annual period.
Δ Gains	The change in fund's trading gains for a firm from year t-1 to year t
Proportion	The percentage of fund's holding amount for listed firm as a fraction of the fund's NAV
ΔHolding	Change in percentage of shares outstanding held by the fund, compared with last semi-annual period, times 100
Abs(ΔHolding)	Absolute value of change in percentage of shares outstanding held by the fund, compared with last semi-annual period, times 100
Test Variables	
Shared Office	An indicator variable that equals one if the fund shares the same audit office with the firm in its stock holding and zero otherwise
Δ Shared Office	The change in indicator variable shared office from year t-1 to year t
Shared to Non-Shared	An indicator variable that equals one if the fund and firm in fund's stock holding shared the same office in year t-1, but not share the same office in year t, and zero otherwise
Non-Shared to Shared	An indicator variable that equals one if the fund and firm in fund's stock holding did not share the same office in year t-1, but share the same office in year t, and zero otherwise
Variable for Opaqueness	
Fewer Analysts	An indicator variable which equals one if the firm's number of analyst following is less than the sample lower tertile during the year and zero otherwise
Higher Earnings Volatility	An indicator variable which equals one if the firm's earnings volatility is higher than the sample upper tertile during the year and zero otherwise. Earnings volatility is measured as the standard deviation of ROA over the past three years.
Existence of RPTs	An indicator variable which equals one if the firm has related party sales and purchases during the year, and zero otherwise.
More Intangible Assets	An indicator variable which equals one if the firm's intangible asset is greater than the sample upper tertile during the year and zero otherwise.
SOE	An indicator variable that equals one if the firm is a state-owned enterprise, and zero otherwise.
Composite Index	An indicator variable that equals one if the sum of indicator variables for five opaque measures including *Fewer analysts*, *Higher Earnings Volatility, Existence of RPTs, More Intangible Assets,* and *SOE* is higher than the sample upper tertile during the year and zero otherwise.
UE	unexpected earnings, the difference between actual earnings per share (EPS) minus EPS in lagged semi-annual period, scaled by closing stock price at the end of the year
ΔROA	The change in ROA in the forthcoming earnings announcement, compared with ROA in lagged semi-annual period.

BHAR	The buy-and-hold size-adjusted abnormal return in the subsequent semi-annual period
Size	The natural logarithm of the equity's market value during the year
Analyst Following	The natural logarithm of one plus the number of analysts following the stock during the year
BM	The ratio of book value to market value of the firm during the year
ROA	Operating net income scaled by total assets during the year
Leverage	Total liabilities scaled by total assets during the year
Turnover	Trading volume scaled by the total outstanding shares of the company during the year.
Return	Cumulative raw return in the 12 months ending during the year
Std Dev	Standard deviation of monthly returns during the year.
Top10	An indicator variable that equals one if the firm is audited by a Top 10 auditor based on total client assets during the year, and zero otherwise.
Fund Size	The natural logarithm of total market value of *all* stocks held by the fund during the year
Family Size	The natural logarithm of total market value of *all* stocks held by the fund family during the year
Fund Performance	The growth rate of its unit net value during the year
Holding Size	Natural logarithm of the market value of stock i held by the fund during the year
Family Fund Holding	The percentage of shares outstanding held by the funds in the same family during the year
Same Region	An indicator variable that equals one if the fund is located in the same province as the firm and zero otherwise
Negative	An indicator variable that equals one if the firm's operating performance declines in the forthcoming earnings announcement, compared with the operating performance in the last semi-annual period, and zero otherwise
Shared Office $_{ties}$	An indicator variable that equals one if the fund shares the same audit office with the firm in its stock holding and the fund's partners and firm's partners have common alma mater, and zero otherwise.
Shared Office $_{no\ ties}$	An indicator variable that equals one if the fund shares the same audit office with the firm in its stock holding and the fund's partners and firm's partners do not have common alma mater, and zero otherwise.
Shared Audit Firm	An indicator variable that equals one if the fund shares the same audit firm with the firm in its stock holding and zero otherwise
Shared Audit Firm Not Office	An indicator variable that equals one if the fund shares the same audit firm but not the same office with the firm in its stock holding and zero otherwise
Δ X	The change in control variables used in regression analysis from year t-1 to year t
Fund Audit-Fees Model	
LnFee	Natural logarithm of the fund's audit fees during the year.
Connected Firms	Natural logarithm of one plus the number of firms that share the same auditor with the fund during the year
Connected Firm Value	Total holding proportion based on net asset value of the stocks

	that share the same audit office with the mutual funds during the year, times 100.
Family Performance	The performance of the mutual fund family, which is estimated as the asset-weighted average performance of all mutual funds affiliated to the mutual fund family.
Auditor Tenure	The number of years that the auditor audited the fund
Fund Top10	An indicator variable that equals one if the fund is audited by one of top10 auditors and zero otherwise
High Fee	An indicator variable which equals one if audit fee paid by fund is greater than the sample median value during the year and zero otherwise.
High Abnormal Fee	An indicator variable which equals one if abnormal audit fee paid by fund is greater than the sample median value during the year and zero otherwise. Abnormal fee is estimated residuals based on model in Table 6 excluding interested variables (i.e. *Connected Firms or Connected Firm value)*.
Audit-Quality Model	
AbsDA_DD	Absolute value of abnormal accruals following Dechow and Dichev (2002). It is the absolute value of the residual from the following regression for each year and each industry that has at least 20 observations: $TA_{i,t} = \alpha_0 + \alpha_1 CFO_{i,t-1} + \alpha_2 CFO_{i,t} + \alpha_3 CFO_{i,t+1} + \alpha_4 \Delta Sales_{,t} + \alpha_5 PPE_{i,t} + \varepsilon_{i,t}$
AbsDA_KWL	Absolute value of abnormal accruals following Kothari et al. (2005). It is the absolute value of the residual from the following regression for each year and each industry that has at least 20 observations: $TA_{i,t} = \alpha_0 + \alpha_1 1/ASSET_{i,t-1} + \alpha_2 \Delta SALES_{i,t-1} + \alpha_3 PPE_{i,t-1} + \alpha_4 ROA_{i,t-1} + \varepsilon_{i,t}$
Irregularity	An indicator variable that equals one if firm conducted financial reporting irregularity sanctioned by regulators in the subsequent periods, and zero otherwise
Fund Office	An indicator variable that equals one if the firm's audit office also audits any of funds that holds the stocks of the firm and zero otherwise
LnAsset	The natural logarithm of the total asset of firm during the year
Loss	An indicator variable that equals one if the firm reports a negative net income and zero otherwise
Sales Turnover	Sales scaled by total assets
RECINV	Accounts receivable and inventory scaled by total assets during the year
CFO	Operating cash flows scaled by total assets during the year
Growth	Sales growth, measured as the change in sales scaled by sales last year
Age	The natural logarithm of one plus the number of years that the firm is listed on the stock exchange
Fund Share	The percentage of shares outstanding held by all the mutual fund during the year