

**It's a small world: The Importance of Social Connections with
Auditors to Mutual Fund Managers' Portfolio Decisions**

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Abstract

We examine the impact of social connections between mutual fund managers and auditors of public firms on mutual fund stockholdings. We find that mutual funds whose managers are socially connected with firm auditors hold more shares of these firms. In cross-sectional tests, we find that the effect of social connections on mutual fund stockholdings is more pronounced when the social connections are stronger, for small audit firms, and for public firms with greater business opacity, stock price synchronicity, and systematic risk. We further document that mutual funds with socially connected auditors engage more in informed trading and generates superior portfolio returns. In compensation, connected auditors benefit from more audit business and higher audit and non-audit fees from public firms. Our findings suggest information transfer from auditors to mutual fund managers through their social connections, which helps mutual fund portfolio decisions.

Keywords: Social connection; Auditor; Mutual fund stockholding.

JEL classifications: G11, G23, M42.

1. Introduction

As human beings, financial market participants are naturally involved in various social networks. Prior research analyzes economic outcomes stemming from social connections between corporate executives and related parties such as board members (Hwang and Kim, 2009; Fracassi and Tate, 2012; Bruynseels and Cardinaels, 2014; Cao et al., 2015; Khanna, Kim, and Lu, 2015), financial analysts (Cohen, Frazzini, and Malloy, 2010), bank officers (Engelberg, Gao, and Parsons, 2012), and auditors (Guan et al., 2016). There are also studies that explore social connections between executives and directors of the acquirer and the target (Ishii and Xu, 2014), as well as among CEOs of different firms (Engelberg, Gao, and Parsons, 2013) and among different venture capitalists (Gompers, Mukharlyamov, and Xuan, 2016). In this study, we examine whether mutual fund managers obtain private information about public firms through their social connections with auditors of these firms and exploit this information in making portfolio decisions.

Mutual fund managers have strong incentives to deliver high returns to investors because their compensation and career trajectories are closely related to the performance of the fund. To generate superior returns, fund managers need to secure an informational advantage over other investors. There is evidence that fund managers tend to invest in local firms because of easier access to private and sensitive information about these firms (Coval and Moskowitz, 1999, 2001; Lin, Tian, and Wu, 2013). Fund managers also obtain private information from their peer networks (Hong, Kubik, and Stein, 2005; Pool, Stoffman, and Yonker, 2015; Rossi et al., 2018), and through social connections with corporate board members (Cohen, Farazzini, and Malloy, 2008) and financial analysts (Gu et al., 2019). In monitoring the financial reporting process, auditors accumulate extensive private information about their clients. Auditors also obtain proprietary information through informal discussions with top managers of the client firms. The private information auditors possess is highly valuable to mutual funds in investing and may flow

to fund managers through their social connections, improving their portfolio decisions.

However, injecting tension into our analysis, socially connected auditors eager to protect their valuable reputations and to avoid violating professional standards may be reluctant to share private information on their clients. Similar to other jurisdictions, regulators in China prohibit certified public accountants from divulging confidential client information to third parties. Accordingly, whether mutual fund portfolio decisions are sensitive to fund manager-firm auditor social links distils to an empirical question.

We focus on the Chinese market in this study for several reasons. First, it is well known that “*guanxi*” (i.e., social connections) is prevalent in China. Social connections help forge trust among related parties in the Chinese financial market, which can be exploited to collude against the interests of others or to arrange privileged access to resources, including private information. Given the major role that social connections play in China, this market provides a high-power testing ground for our research question. Second, the mutual fund and auditing industries in China are relatively immature compared to those in developed markets. In China, mutual fund managers face intense competition from their peers, although governance structures there remain relatively poor, implying that fund managers having strong incentives and wide scope to trade on private information stemming from “grey” channels. Additionally, the audit market in China is highly competitive and the cost of auditor misbehavior is relatively low, which may make auditors more willing to share proprietary information with related parties, including socially connected fund managers. Third, all public firms in China are required to disclose the identities of the signatory auditors, which enables us to pinpoint social connections between fund managers and firm signatory auditors using publicly available data on their educational

histories.¹ Nevertheless, our evidence is relevant to developed markets such as the U.S. because mutual fund managers have similar incentives there. Importantly, prior research implies that auditors in these markets occasionally reveal confidential information about their clients to third parties.²

Using a sample of open-end mutual funds in the Chinese market during the period from 2004 to 2017, we begin by documenting that mutual funds whose managers are socially connected with the signatory auditors of public firms hold more shares of these firms. The results hold in a propensity score-matched sample and in a test that uses mandatory auditor partner rotation as an exogenous shock to social ties between fund managers and firm auditors. We also show that the findings are not driven by social connections between fund managers and firm executives nor the “home bias” that mutual funds are known to exhibit. Next, consistent with expectations, we find in cross-sectional analyses that the impact of fund manager-firm auditor social connections on mutual fund stockholdings is more pronounced: when the social connections are stronger (evident in taking the same major or graduating from a top university); for small audit firms with less valuable reputations to protect and relatively lax quality control structures governing their auditors; and for public firms with greater business opacity, stock price synchronicity, and systematic risk. The last set of results imply that private

¹ Although the identities of engagement partners on public company audits recently became publicly available in the U.S., comprehensive data that we require for our analysis, including on individuals’ alma maters, remains unavailable.

² Even in the U.S. where strict litigation institutions governing auditors provide ample discipline against disclosing confidential client information, there is evidence that auditors still reveal such information to third parties. For example, the Securities and Exchange Commission (SEC) charged Scott London, a former partner in charge of KPMG’s Pacific Southwest audit practice, in 2013 with divulging confidential information about KPMG’s audit clients to his friend Brian Shaw, which he exploited to make more than \$1.2 million in illicit trading profits. Additionally, there is evidence that when the acquirer and the target engage the same auditor, the shared auditor tends to reveal confidential information of the two parties to each other (Cai et al. 2016; Dhaliwal et al. 2016). In fact, Dhaliwal et al. (2016: 51) attribute their evidence to: “...auditors frequently [violating] their duty to put the interests of their clients ahead of their own in what appears to be a failure to protect confidential client information.” Bills et al. (2019) provide survey results implying that companies routinely avoid appointing their competitors’ auditor in order to prevent sensitive information from leaking. This reinforces Aobdia’s (2015) evidence from analyzing three quasi-natural experiments that auditor choice reflects that firms are eager to constrain propriety information loss through this channel.

information acquired from auditors is more valuable for mutual funds when the underlying firms are lesser known in the capital markets.

Further, we explore how fund manager-firm auditor social connections impact mutual fund trading. The results show that mutual fund trading on firms with connected auditors is more closely related to upcoming earnings news and audit opinions, suggesting that these funds have privileged information about these firms through connected auditors. We also examine whether fund manager-firm auditor social connections offer superior performance to the mutual funds and find supportive evidence. Last, we investigate whether connected auditors receive any benefit by revealing private information to fund managers. We document that as compensation to connected auditors, mutual funds use their influence over executives of the firms they invest in to help these auditors retain existing clients and attract new clients. They also use their influence to induce firms to pay higher audit and non-audit fees to connected auditors. This explains why auditors are willing to reveal information about the client firms to their socially connected managers.

Our study makes several contributions. First, we extend the literature about the effect of social connections in the financial market. Recent studies have explored social connections among related parties, including corporate executives, board members, financial analysts, bank officers, and auditors (e.g., Cohen, Frazzini, and Malloy, 2010; Engelberg, Gao, and Parsons, 2012; Fracassi and Tate, 2012; Bruynseels and Cardinaels, 2014; Cao et al., 2015; Khanna, Kim, and Lu, 2015; Guan et al., 2016; He etv al., 2017). Nevertheless, there is limited evidence on whether investors utilize their social connections with informed parties to secure informational advantages in making investment decisions. Two notable exceptions are Cohen, Farazzini, and Malloy (2008) and Gu et al. (2019) which explores whether mutual fund managers enjoy an informational advantage in investing through being socially connected with corporate board members and financial analysts, respectively. We extend this set of literature by examining the effect of social

connections between fund managers and firm signatory auditors on mutual fund stockholdings.

Second, we provide further evidence that mutual funds try to attain an informational advantage over other investors through various channels. Prior studies document that mutual fund managers are able to acquire private information about firms via local and peer networks, and social connections with board members and financial analysts (Hong, Kubik, and Stein, 2005; Cohen, Farazzini, and Malloy, 2008; Pool, Stoffman, and Yonker, 2015; Rossi et al., 2018; Gu et al., 2019). Our findings show that mutual funds could also obtain private information about firms through socially connected auditors, who are supposed to keep these information confidential. As such, we extend the mutual fund literature by documenting a “grey” channel through which mutual funds acquire proprietary information.

Third, our findings have policy implications given that information leakage from socially connected auditors to mutual funds undermines the interests of other investors, especially small outside investors. Besides alerting investors to this issue, our research is relevant to regulators of the mutual fund and auditing industries since this behavior threatens to damage the capital markets by compromising the reputations of these two key industries. At a practical level, our analysis may benefit audit firms in developing their partner assignment policies (Lennox and Wu, 2018); e.g., modifying their quality control structures to prohibit partners from working on engagements involving social connections to mutual fund managers. Similarly, given their focus on protecting the integrity of the financial reporting process, audit committees may insist that non-connected partners handle the engagement.

The rest of the paper is organized as follows. Section 2 provides the institutional background and develops the testable hypotheses. Section 3 describes the data and variables. Section 4 reports the results for social connections and mutual fund stockholdings and Section 5 reports the cross-sectional results of the relation. Section 6 presents the results for social connections and mutual fund trading and performance. Section 7 shows the

benefits auditors receive by being socially connected with fund managers. Section 8 concludes.

2. Institutional Background and Hypothesis Development

2.1. Institutional Background

The mutual fund industry in China originated in 2001, when the first open-end mutual fund, Hua An Chuang Xin, was formally established. Since then, the industry has become one of the fastest growing industries in the Chinese capital market. The number of open-end mutual funds has been increasing steadily over time. In 2004, there were only 108 open-end mutual funds. By the end of 2017, there were 4,650 open-end funds, and the total net assets under management are RMB 11,180 billion (approximately USD 1,718 billion). Because there are very few close-end mutual funds in China,³ we focus on open-end mutual funds in our analysis. Mutual fund refers to open-end mutual funds hereafter.

Closely resembling their U.S. peers, mutual fund managers in China are under constant pressure to deliver high returns to fund investors due to compensation and career concerns. The management fees mutual funds charge are usually based on the size of the fund under their management. For open-end funds, investors can contribute to and withdraw from the fund at any time, depending on the investment performance of the fund. Therefore, the amount of management fees mutual funds can collect and hence the compensation to fund managers are closely related to fund investment performance. In addition, mutual fund managers in China face intense competition from their peers. The performance assessment for fund managers in most fund companies is based on fund managers' annual ranking in the market. Some fund companies even employ quarterly rankings to evaluate fund managers.⁴ As a result, the turnover rate for Chinese mutual fund managers is very high, upwards to 37.5% per year (Huang and Wang, 2015),

³ By the end of 2017, there are only 40 close-end mutual funds in the Chinese market.

⁴ http://epaper.stcn.com/paper/zqsb/html/2011-04/18/content_262543.htm.

far higher than the corresponding figure in the U.S. which is only 12.5% (Hu, Hall, and Harvey, 2000). Given the intense peer pressure and hence career concerns, Chinese mutual fund managers have strong incentives to boost the performance of the fund under their management.

The auditing industry was formally established in China in early 1980s. Initially, almost all audit firms in China were state-owned and affiliated with government agencies. During 1998-1999, the Chinese Institute of Certified Public Accounts (CICPA) had implemented a program that fully disaffiliated audit firms from government agencies, after which all audit firms became independent entities with full legal responsibility for their conduct. There are other developments in the auditing market. For example, the Chinese Auditing Standards Board (CASB) promulgated new Chinese Independent Auditing Standards in 2006 with effective date of January 2007 to converge with International Standards on Auditing. In 2010, the government also started to push audit firms to switch their organizational form from limited liability company (LLC) to limited liability partnership (LLP) structures to discipline auditors by holding them legally liable for any misconduct in auditing. Meanwhile, the Big 4 audit firms were permitted to enter into the Chinese market through joint ventures with local audit firms in the 1990s, which helped to diffuse a high level of professional conduct to local audit firms.

Despite the recent improvements, the Chinese auditing market is still underdeveloped compared with sophisticated markets such as the U.S. market. Due to poor investor protection and lack of enforcement of laws, the cost of auditor misbehavior is relatively low in China (Chen et al., 2016). There are very few class action law suits in China so the litigation risk faced by auditors is negligible (He et al., 2016). Even for severe cases such as audit failures, the penalty imposed on auditors is still low. During our sample period, there are only 15 cases that the CSRC charges penalties on audit firms and the most severe penalty is to forfeit the audit fee for the firm during the year when the audit failure occurs plus a fine equivalent to that audit fee.

Another characteristic of the Chinese auditing market is that the market is widely dispersed compared with oligopolistic audit markets such as the U.S. market (Guan et al., 2016). According to Chan and Wu (2011), the market share of the Big 4 auditors in China is only 6.9% at the end of 2006. A few other studies (e.g., Wang, Wong, and Xia, 2008; Gul, Wu, and Yang, 2013; Yang, 2013) document that only 20-30% of publicly listed firms in China are audited by the top 10 auditors. The dispersed market structure makes the audit market in China highly competitive. To survive from the competition, auditors face great pressure to cultivate good relationships with relevant parties to secure audit business. Considering that mutual funds are important institution investors of public firms and have influence on management decisions such as auditor choices, auditors have incentives to build good relationships with fund managers to retain existing clients and attract potential new clients.

2.2. Hypothesis Development

Mutual fund managers rely on the information they possess in making investment decisions. To generate superior returns from their portfolios, fund managers need to secure an informational advantage over other investors through various channels. Coval and Moskowitz (1999, 2001) document that U.S. fund managers exhibit a strong preference for local firms (i.e., “home bias”) and earn substantial abnormal returns in investing in these firms, suggesting that fund managers have easier access to private and sensitive information about local firms and trade local stocks at an informational advantage. In the same vein, Lin, Tian, and Wu (2012) show that Chinese mutual funds display strong preferences to invest in more geographically proximate firms.

Mutual fund managers can also exploit their social networks to extract an information advantage. Hong, Kubik, and Stein (2005) show that mutual fund managers in the U.S. are more likely to buy or sell a particular stock if other fund managers in the same city are buying or selling the same stock, suggesting that fund managers spread information about stocks to one

another by word of mouth. Pool, Stoffman, and Yonker (2015) find that U.S. fund managers who reside in the same neighborhood have more similar holdings and earn higher returns, suggesting that valuable information is transmitted through these peer networks. Using a sample of U.K. pension funds, Rossi et al. (2018) show a positive relation between network centrality of fund manager and fund performance, suggesting that these managers exploit investment opportunities through network connections.

Further, Cohen, Farazzini, and Malloy (2008) examine the connections between mutual fund managers and corporate board members through shared education networks. They find that mutual fund managers invest more in connected firms and perform significantly better in these investments, suggesting an information flow through social networks. Gu et al. (2019) show that Chinese mutual fund managers are more likely to hold stocks covered by analysts with whom they are socially connected via social ties. They also generate higher returns from these holdings. In exchange, fund managers tend to cast star analysts votes in favor of their connected analysts and their fund companies are more likely to allocate trading commissions to the brokerages of connected analysts.

In addition to local and peer networks and connections with board members, executives, and financial analysts, mutual fund managers could also obtain private information about the firms they invest through social connections with the auditors of the firms. In auditing the clients' financial statements, auditors accumulate a considerable amount of information about their clients. They could also obtain proprietary information through informal discussions with top managers of the clients. The private information auditors possess may flow to mutual fund managers through their social connections. Consistent with the argument, DeFond, Fang, and Luo (2018) find in the Chinese market that financial analysts that are socially connected with firm signatory auditors issue more accurate and less optimistically biased earnings forecasts, suggesting private information dissemination along social networks.

Given the intense competition in the mutual fund industry in China, fund managers have strong incentives to trade on private information to generate superior performance. The presence of social connections with firm signatory auditors provides a potential mechanism through which fund managers can acquire proprietary information about the firms they trade. From the auditors' point of view, sharing information with connected fund managers helps signatory auditors build a strong social network which is essential to them in a highly dispersed and competitive market. Meanwhile, litigation risk for auditors is minimal in China, which results in a low potential cost of such information leakage. All of these make the flow of private information from socially connected auditors to fund managers possible.

Reflecting that fund managers are in a better position to access proprietary information about firms in the presence of socially connected auditors, we expect mutual funds to hold more stocks of firms whose signatory auditors are socially connected with their fund managers. Against the backdrop of the unique information advantage mutual funds possess while holding stocks of firms whose signatory auditors are socially connected with fund managers, these funds are more likely to engage in informed trading and enjoy superior returns. These funds are also expected to have better performance by holding and trading such stocks. As such, our hypothesis is listed as follows.

Hypothesis: Mutual funds hold more stocks of firms whose signatory auditors are socially connected with their fund managers and such stockholdings generate higher returns to funds.

Nevertheless, there is considerable tension underlying our analysis in that socially connected auditors may refuse to share their private information with mutual fund managers. The China Code of Ethics for Certified Public Accountants prohibits auditors from disclosing confidential client information to third parties or exploiting this information for their own trading activities. The code also stresses the importance of ensuring that confidential

information is not inadvertently revealed to friends or relatives.⁵ Additionally, auditors with valuable reputations at stake may refrain from sharing their private information with connected fund managers.

3. Data and Variables

3.1. Sample

We obtain the data used in the analysis from multiple sources. Data on fund managers' educational background are obtained from their CVs downloaded from the CSMAR (China Stock Market and Accounting Research) and WIND databases. From these profiles, we manually identify the information of the universities in which the fund managers did their undergraduate and/or postgraduate studies. China Securities Regulatory Commission (CSRC) requires all listed firms in China to disclose the identities of the two signatory auditors in their annual reports. The signatory auditors include the engagement partner who leads the audit team conducting the fieldwork, and the review partner who reviews the audit upon its completion. We manually collect the information of signatory auditors from firm annual reports. We identify the universities in which these auditors did their undergraduate and/or postgraduate studies from the personnel profiles provided by the CICPA (<http://cmispub.cicpa.org.cn>). Further, we obtain data on mutual fund holdings from the CSMAR database, which provides both annual and semi-annual stock holdings of mutual funds. We use annual holdings in our main analysis and semi-annual holdings in a robustness check. We collect firm financial information and stock return data from the CSMAR and WIND databases. The data on the other fund information, such as fund size, fund age, fund return volatility, fund management fees and fund manager characteristics, are obtained from the CSMAR database as well.

Reflecting that there are very few open-end mutual funds in China before 2004, we start our sample period from 2004. We limit our analysis to open-end

⁵ http://www.cicpa.org.cn/Professional_standards/Professional_ethics/yifabu2/201211/t20121104_39483.html.

mutual funds investing in China's A-share market, including equity funds, balanced funds and bond funds. To mitigate the concern that our findings are driven by differences between firms with and without mutual fund holdings, we follow Cohen, Frazzini, and Malloy (2008) and Gu et al. (2019) and limit our main analysis to a sample of fund-firm-year observations for which the fund has non-zero holdings of the firm. Further, we remove observations with insufficient information to construct the variables in the baseline regression. To mitigate the effect of outliers, we winsorize all continuous variables at both the upper and lower one-percentiles. Our final sample consists of 500,681 fund-firm-year observations over the period from 2004 to 2017.

Table 1 presents the annual distribution of the sample. The table shows that the number of observations in our sample is 2,542 in 2004, which involves 65 unique funds and 406 unique firms. Among them, 79 observations (3.11%) have social connections between fund managers and firm auditors. Predictably, the number of observations rises steeply over time. There are 98,415 fund-firm observations in 2017, which involves 1,788 unique funds and 2,488 unique firms. Among the observations, 1,646 (1.67%) have fund manager-firm auditor social connections. Our full sample consists of 500,681 observations, which involves 2,239 unique funds and 2,796 unique firms. 10,365 observations have social connections between fund managers and firm auditors, constituting 2.07% of the sample. It is worth noting that these statistics are based on fund-firm-year observations and a fund usually holds stocks of multiple firms. When we collapse the observations into firm-years, 15.61% of observations have social connections between fund managers and firm auditors. In Appendix A, we report the top 10 education institutions that have the largest number of unique fund manager-firm auditor connection.⁶

[Insert Table 1 about here]

3.2. Variables

⁶ Our core results hold when we remove observations with fund manager-firm auditor connections through the top three education institutions listed in this appendix, suggesting that our findings reflect pervasive economic phenomena, rather than stemming from the clustering of social connections in certain education institutions.

The variables used in the main analysis are constructed as follows. The dependent variable is fund stockholding (*Holding*), defined as fund investment in a stock divided by the total net assets of the fund. Fund investment in a stock is to the number of shares held by the fund times the year-end closing stock price. For ease of interpretation, we multiple fund stockholding by 100 in the analysis. We measure fund manager-firm auditor social connection using the school tie dummy (*Ties*), defined as a dummy variable equal to one if the fund manager graduated from the same university as one of signatory auditors of a firm, and zero otherwise.

The selection of the control variables follows prior studies (Cohen, Frazzini, and Malloy, 2008; Massa and Rehman, 2008; Li, Tian, and Wu, 2013; Fang, Peres, and Zheng, 2014; Gu et al., 2019). Firm size (*SIZE*) is the natural logarithm of the firm's market value of equity. Book-to-market (*BM*) is calculated as the firm's book value of equity divided by its market value of equity. Leverage (*LEV*) is the ratio of firm's total liabilities to total assets. Stock turnover (*Turnover*) is defined as the firm's annual trading volume divided by total number of shares outstanding. Return volatility (*Volatility*) is the standard deviation of the firm's daily returns in a year. Analyst coverage (*Analyst*) is defined as the natural logarithm of one plus the number of analysts following the firm during the year. Stock returns (*Return*) is the firm's cumulative stock returns over the year. Fund size (*Fund_size*) is the natural logarithm of total net assets of the fund. Fund management fees (*Fund_fee*) is 100 times the rate of management fee charged by the fund. Fund age (*Fund_age*) is the number of years since the fund is founded. Detailed variable definitions are available in Appendix B.

3.3. Descriptive Statistics

Panel A of Table 2 reports the summary statistics of the variables in the baseline analysis. The panel shows that the average fund stockholding in our sample is 0.912. Among the observations, about 2.1% have social connections between mutual fund managers and their portfolio firms' signatory auditors. On average, the sample firms have a book-to-market ratio of 0.557 and a

leverage ratio of 0.493. The mean value of stock turnover is 4.329, and the mean value of return volatility is 0.028. On average, the sample firms have 12 following analysts and the annual stock return of 0.318. Finally, the funds in our sample have an average total net assets of RMB 600 million, an average management fee of 1.106 percentage, and an average age of 4 years. The summary statistics closely resemble those in prior studies (e.g., Gu et al., 2019).

Panel B of Table 2 presents the correlation matrix of the variables. The panel shows that the correlation coefficient between fund stockholding and the school tie dummy is 0.012 and the coefficient is significant at the 1% level. The finding provides preliminary empirical support that fund managers invest more in firms audited by auditors with whom they are socially connected. With regard to the control variables, fund stockholding is positively correlated with firm size, firm leverage, analyst coverage, stock returns, fund size, fund management fees and fund age, while negatively correlated with book-to-market ratio, stock turnover, and return volatility. Moreover, the highest variance inflation factor among these variables is 2.18, suggesting that multicollinearity is not a concern in our tests (O'Brien, 2007).

[Insert Table 2 about here]

4. Social Connections and Mutual Fund Stockholdings

4.1. Baseline Analysis

To empirically test the effect of fund manager-firm auditor social connections on mutual fund stockholdings, we estimate the following regression model.

$$\begin{aligned}
 Holding_{j,i,t} = & \beta_0 + \beta_1 Ties_{j,i,t} + \beta_2 SIZE_{i,t} + \beta_3 BM_{i,t} + \beta_4 LEV_{i,t} + \beta_5 Turnover_{i,t} \\
 & + \beta_6 Volatility_{i,t} + \beta_7 Analyst_{i,t} + \beta_8 Return_{i,t-1} + \beta_9 Fund_size_{j,t} \\
 & + \beta_{10} Fund_fee_{j,t} + \beta_{11} Fund_age_{j,t} + \sum Fundtype + \sum Year + \varepsilon_{j,i,t}
 \end{aligned} \tag{1}$$

where j denotes the fund, i denotes the firm, t denotes the year, and ε denotes the error term. *Fundtype* is fund style fixed effect and *Year* is year fixed effect.⁷

⁷ Fund style refers to active, index, IPO, and mixed funds.

The analysis is at the fund-firm-year level, with the dependent variable being fund stockholding (*Holding*) and the independent variable of interest being the school tie dummy (*Ties*). The regressions are estimated using ordinary least squares (OLS), with standard errors clustered at the fund and firm levels.

The regression results are presented in Table 3. Column (1) shows that the coefficient on *Ties* is positive and significant at the 1% level, indicating that fund managers hold larger stakes in stocks of firms audited by auditors with whom they have school ties. In terms of economic significance, the coefficient on *Ties* is 0.042, suggesting that mutual funds hold 0.042 more stocks of firms whose signatory auditors are socially connected with their fund managers. Given the mean fund stockholding is 0.912, this constitutes an increase of 5% relative to the mean. Therefore, the effect of fund manager-firm auditor social connections on mutual fund stockholdings is economically significant as well.

The results of control variables suggest that mutual funds prefer to hold the stocks of firms with larger size, lower book-to-market ratio, higher leverage, higher stock liquidity, lower return volatility, more analyst coverage and higher stock return. Further, fund stockholding in a particular stock is smaller when the fund has a larger size or is older. Finally, fund stockholding is also greater when the fund charges high management fees. In general, the results of the control variables are consistent with prior studies (e.g., Lin, Tian, and Wu, 2013; Gu et al., 2019).

To validate our findings, we undertake two robustness tests at this stage. First, we perform analysis on semi-annual stockholdings of funds, instead of annual stockholdings. The results are reported in Column (2) of Table 3. The column shows that the coefficient on *Ties* is positive and significant at the 1% level, suggesting the robustness of our findings to semi-annual stockholdings. Second, we include all A-share firms (both with and without fund stockholding) in our sample, instead of just those with non-zero fund stockholding as in the baseline analysis. The results are reported in Column (3) of Table 3, which shows that the coefficient on *Ties* remains positive and

significant. The finding suggests that our results hold for the full sample as well.⁸

Overall, the findings in the baseline analysis indicate that fund managers invest more in firms audited by auditors with whom they have social connections because funds are able to gain information advantage through connected auditors.

[Insert Table 4 about here]

4.2. Endogeneity Tests

We conclude from the baseline analysis that fund managers tend to invest more in firms whose signatory auditors have social connections with them. Nevertheless, it is plausible that our findings are driven by endogeneity problems. For example, some firms may have characteristics that makes them more attractive to certain mutual funds. At the same time, these characteristics are related to firm auditor choice, which results in the apparent relation between fund manager-firm auditor social connection and fund stockholdings. We perform two tests to mitigate the endogeneity concerns.

In the first test, we adopt a propensity score matching approach (PSM). We first use a logit regression to estimate the probability that a firm whose fund stockholder's manager graduated from the same university as its signatory auditors. The dependent variable is *Ties* and the independent variables are all the control variables in Equation (1). Then, we use nearest-neighbor matching (with replacement) to match each firm in the treatment group (i.e., *Ties*=1) with one and five firms that have the closest propensity score in the control group (i.e., *Ties*=0), respectively.⁹ We re-estimate Equation (1) using the two propensity score-matched samples and report the results in Table 4. In both columns, we continue to find a positive

⁸ The coefficient of *Ties* is much smaller than that in the baseline regression (i.e., Column (1) of Table 3) because the inclusion of A-share firms without any fund stockholding translates into the mean fund stockholdings falling sharply. For economic significance, mutual funds hold 0.002 more stocks of firms whose signatory auditors are socially connected with their fund managers. Given the mean fund stockholdings is only 0.0245 in this sample, this constitutes an increase of 8% as compared to the mean, which is comparable to that from the baseline regression.

⁹ Our results hold when we match each treatment firm with three or ten control firms.

and significant coefficient on *Ties*, suggesting that our results hold in propensity score-matched samples.

[Insert Table 4 about here]

Next, we rely on the mandatory rotation of signatory auditors as an exogenous shock that potentially alters the connectedness between fund managers and firm signatory auditors. In China, the signatory auditor has to be rotated if she/he provides audit services for the same client for five consecutive years (MOF and CSRC, 2003). In this analysis, we examine whether mutual fund stockholdings vary with mandatory auditor rotation that can establish or sever the fund manager-signatory auditor connection.¹⁰

We first identify 1,717 firm-year observations that experience a change in their signatory auditors due to the mandatory rotation during our sample period. Then, we create two dummy variables, *Ties_rise* and *Ties_fall*. *Ties_rise* equals to one if a firm switched from an unconnected to a connected auditor with its fund stockholder's manager, and zero otherwise. *Ties_fall* equals to one if a firm switched from a connected to an unconnected auditor with its fund stockholder's manager, and zero otherwise. The default comparison group consists of auditor switches that did not result in a change in the connections between fund managers and firm signatory auditors. We regress the changes in fund stockholdings ($\Delta Holding$) on *Ties_rise* and *Ties_fall*, and control for changes in all the control variables in Equation (1).

The regression results are reported in Table 5. The table shows that the coefficient on *Ties_rise* is positive and significant, while the coefficient on *Ties_fall* is negative and marginally significant. The results indicate that fund stockholding increases when the auditor rotation brings social connections between fund manager and the firm's signatory auditors. On the contrary, fund stockholding decreases when the auditor rotation cuts social connections between fund manager and the firm's signatory auditors. Overall, the tests in

¹⁰ Prior research exploits mandatory partner rotation as an exogenous pairing of auditors and clients (e.g., Firth, Rui, and Wu, 2012; Lennox, Wu, and Zhang, 2014).

both Tables 4 and 5 suggest that our findings are less likely to be driven by endogeneity problems.

[Insert Table 5 about here]

4.3. Tests on Alternative Explanations

In this section, we discuss and perform tests to exclude potential alternative explanations for the results in the baseline analysis. Cohen, Frazzini, and Malloy (2008) find that fund managers invest more in firms whose board members are connected with them through education networks. He et al. (2017) show that social ties between engagement auditors and audit committee members undermine auditors' monitoring of the financial reporting process. It is likely that firms choose auditors that are socially connected with them to avoid auditor monitoring. Meanwhile, fund managers tend to invest in firms whose managers are socially connected with them, which results in a positive relation between fund manager-firm auditor social connection and fund stockholdings.

We perform two tests to help dispel this alternative explanation. In the first test, we exclude fund-firm-year observations with social connections between fund managers and firm management. The results are reported in Column (1) of Table 6, which shows that the coefficient on *Ties* remains positive and significant for the subsample of firms without any social connections between fund managers and firm management. In the second test, we control for the fund manager-firm management school tie dummy (*Fundfirm_ties*), defined as a dummy variable equal to one if the fund manager graduated from the same university as one of the executives or board members of a firm, and zero otherwise. The results are reported in Column (2) of Table 6. Consistent with Cohen, Frazzini, and Malloy (2008), the coefficient on *Fundfirm_ties* is positive and significant, suggesting that mutual funds hold more stocks of firms whose management are socially connected with fund managers. More relevant for our purposes, the coefficient on *Ties* continues to enter positively at the 1% level after controlling for the fund manager-firm

management school tie dummy, suggesting that our findings are not driven by social connections between fund managers and firm management.

Further, prior studies document that funds exhibit a strong preference for local firms (Coval and Moskowitz, 1999, 2001; Lin, Tian, and Wu, 2013). Similarly, companies may prefer local auditors to facilitate communication and minimize travel costs (e.g., Beck et al., 2019). If fund managers and signatory auditors come from the same geographic area, they are more likely to have social connections through attending local universities. As a result, our findings could be driven by home bias in fund investing instead of social connections between fund managers and firm auditors.

We perform two tests to mitigate this concern. First, we exclude fund-firm-year observations for which the mutual fund and the firm are located in the same city. Column (3) of Table 6 report the results showing that the coefficient on *Ties* remains positive and highly significant for this subsample. Second, we control for the fund-firm same city dummy (*Same_city*), defined as a dummy variable equal to one if the firm and the mutual fund are in the same city, and zero otherwise. The results are presented in Column (4) of Table 6, which shows that the coefficient on *Same_city* is positive and significant, confirming the existence of local bias in mutual fund investing. Importantly for our research focus, the coefficient on *Ties* is still positive and significant after controlling for the fund-firm same city dummy. The results indicate that our findings are not driven by home bias in mutual fund investment.

[Insert Table 6 about here]

5. Cross-Sectional Analyses

In this section, we perform a number of cross-sectional analyses to further validate the narrative that fund managers hold more stocks of firms whose auditors have social connections with them because funds are able to benefit from information advantage through these connected auditors.

5.1. The Effect of the Strength of Social Connections

We start by exploring whether the impact of fund manager-firm auditor social connections on fund stockholdings intensifies when the connections are stronger. If the fund manager and the auditor took the same major, it follows that they likely have more social interactions since they belong to a smaller alumni group (Cohen, Frazzini, and Malloy, 2008). Also, top universities usually have more resources and greater incentives to build strong alumni networks. As a result, we expect the social connections between fund managers and firm auditors to be stronger when the fund manager and the auditor have the same university major or graduate from a top university.

We perform two analyses to test this conjecture. First, we specify two dummy variables to reflect whether the fund manager and the auditor have the same degree.¹¹ The same degree tie dummy (*Ties_samedegree*) is equal to one if the fund manager graduated from the same university and has the same degree as one of the signatory auditors of a firm, and zero otherwise. The different degree tie dummy (*Ties_diffdegree*) is set to one if the fund manager graduated from the same university but has a different degree as one of the signatory auditors of a firm, and zero otherwise. We re-estimate the regressions after replacing *Ties* with the two variables in Equation (1). In the results reported in Column (1) of Table 7, Panel A, we find that the coefficients on both *Ties_samedegree* and *Ties_diffdegree* are positive and significant. The magnitude of the coefficient on *Ties_samedegree* is larger than that on *Ties_diffdegree* and the difference is statistically significant. The results suggest that the effect of fund manager-firm auditor social connections on fund stockholdings is greater when the fund manager and the auditor share the same degree.

Next, we define two dummy variables to reflect whether the fund manager and the auditor graduate from a top university in China. The top university tie dummy (*Ties_topuni*) is equal to one if the fund manager

¹¹ According to China State Council Academic Degree Committee Subject Categories, there are 110 first-layer academic degrees. We define whether the fund manager and the auditor have the same degree based on whether their degrees are the same first-layer academic degree.

graduated from the same university as one of the signatory auditors of a firm and the university is a top university in China, and zero otherwise. The non-top university tie dummy (*Ties_nontopuni*) a dummy variable equal to one if the fund manager graduated from the same university as one of the signatory auditors of a firm and the university is a non-top university in China, and zero otherwise. We define top universities in China as those that belong to the Project 211.¹² Again, we re-run the regressions after replacing *Ties* with the two variables in Equation (1). In Column (2) of Table 7, Panel A, the results include that the coefficient on *Ties_topuni* enters positively, while the coefficient on *Ties_nontopuni* is statistically insignificant. The magnitude of the coefficient on *Ties_topuni* is larger than that on *Ties_nontopuni* and the difference is statistically significant, suggesting that the importance of fund manager-firm auditor social connections to fund stockholdings rises when connections are forged through top universities.

Overall, the evidence in this section supports that the impact of fund manager-firm auditor social connections on fund stockholdings is rises when the connections are stronger, evident in sharing the same major or graduating from a top university in China.

5.2. The Effect of Audit Firm Size

Prior studies (e.g., DeAngelo, 1981; Craswell, Francis, and Taylor, 1995; DeFond and Zhang, 2014) document that small audit firms have relatively lax quality control structures and less valuable reputations to protect. Consequently, small audit firms may have loose internal procedures to prevent the leakage of clients' private information to outside parties. Therefore, we expect that the effect of fund manager-firm auditor connections on fund stockholdings is greater for firms audited by small audit firms.

We define the small auditor dummy (*Small_auditfirm*) as a dummy variable equal to one if the firm is audited by one of the small audit firms in China, and zero otherwise. Small audit firms are those that are not among the

¹² The Project 211 program reflects the national key universities and colleges according to China's Ministry of Education. There are 116 universities sponsored under this initiative.

Big 4 international audit firms and top 10 local audit firms. We define top 10 local audit firms each year by their total revenue in that year. We include *Small_auditfirm* and the interaction term *Ties*×*Small_auditfirm* in Equation (1). The results are reported in Panel B of Table 7, which show that the coefficient on *Ties*×*Small_auditfirm* is positive and significant, suggesting that the effect of fund manager-firm auditor social connections on mutual fund stockholdings is stronger when the firm is audited by small auditors. The finding is consistent with our expectation that signatory auditors in small audit firms are more likely to reveal private information about their clients to their socially connected fund managers.

5.3. The Effect of Firm Business Opacity

Prior studies (e.g., Shleifer and Vishny, 1997) document that it is more difficult for investors to accurately assess the performance of firms with opaque business operations. High business opacity intensifies the information asymmetry between firms and investors, which makes the private information auditors possess more valuable (Aobdia, 2015). This increases the incentives of mutual funds to acquire private information about the firm from connected auditors. Therefore, we expect the effect of fund manager-firm auditor connections on fund stockholdings to be greater for firms with high business opacity.

We adopt two measures of business opacity. First, we follow Cohen and Lou (2012) and define the business complexity dummy (*Complexity*) as a dummy variable equal to one if the firm operates in more than one industry, and zero otherwise. Firms that operate in multiple industries usually have more complex business and hence are more opaque in their business operations. We include *Complexity* and *Ties*×*Complexity* in Equation (1). The results are reported in Column (1) of Table 7, Panel C. The results show that the coefficient on *Ties*×*Complexity* is positive and significant, suggesting that the effect of fund manager-firm auditor social connections on mutual fund stockholdings is more pronounced when firm business operation is more complicated.

Second, we follow Gu et al. (2019) and define the related-party transaction dummy (*Related_party*) as a dummy variable equal to one if a firm's percentage of related-party transactions, including related-party purchase and sales as a proportion of its revenue, is higher than 90%, and zero otherwise.¹³ High proportion of related-party transactions indicates greater opacity in firm business operations. We include *Related_party* and *Ties×Related_party* in Equation (1). Column (2) of Table 7, Panel C, reports the results, which shows that the coefficient on *Ties×Related_party* is positive and significant. The findings suggest that the effect of fund manager-firm auditor social connections on mutual fund stockholdings is more pronounced when there are more related party transactions.

Overall, the results in this section are consistent with our conjecture that fund managers are more inclined to obtain private information through connected auditors when investing in firms with high business opacity.

5.4. The Effect of Stock Price Synchronicity

Stock price synchronicity is the phenomenon of stock price comovement, reflecting the amount of firm-specific information incorporated into stock prices. The higher stock price synchronicity, the lower amount of firm-specific information incorporated into stock prices (Durnev et al., 2003, 2004; Gul, Kim, and Qiu, 2010). For firms with high stock price synchronicity, mutual funds have greater incentives to acquire firm-specific private information from connected auditors to undertake informed trading. Consequently, we expect that the effect of fund manager-firm auditor connections on fund stockholdings is greater for firms with high stock price synchronicity.

Following Durnev et al. (2003), we define stock price synchronicity (*Synch*) as the R-square of the regression on firm stock returns against market and industry returns. We then include *Synch* and the interaction term *Ties×Synch* in the regression specification in Equation (1). Panel D of Table 7 reports the results, which shows that the coefficient on *Ties×Synch* is positive

¹³ We also use the 75th percentile as the cutoff points for the variable measuring relationship-based transactions to define *Related_party* and obtain similar results.

and statistically significant. The findings are consistent with our expectation that mutual funds have greater incentives to acquire private information from connected auditors when there are less firm-specific information incorporated into stock prices.

5.5. The Effect of Systematic Risk

As sophisticated investors, fund managers consider systematic risk when formulating their investment strategy as they can effectively diversify non-systematic risk. Consistent with prior theoretical research (Brunnermeier and Pedersen, 2009), mutual funds are usually risk-averse because investing in high-risk firms increases the likelihood of fund underperformance and triggers costly withdrawals of fund investors. Given their compensation incentive to “beat the market” as well as their fear of investor exodus, we expect fund managers to be more likely to acquire private information through connected auditors when investing in high-risk firms.

We measure firm risk (*Risk*) as the systematic risk estimated by the CAPM model. We include *Risk* and the interaction term *Ties*×*Risk* in Equation (1). The results are reported in Panel E of Table 7. The coefficient on *Ties*×*Risk* is positive and significant, suggesting that the effect of fund manager-firm auditor social connections on mutual fund stockholdings is stronger when the firm has higher risk. The results are consistent with our expectation that fund managers are more likely to acquire private information through connected auditors when investing in high-risk firms.

[Insert Table 7 about here]

6. Social Connections and Mutual Fund Trading and Performance

So far, we have examined the impact of fund manager-firm auditor social connections on mutual fund stockholdings. In this section, we conduct analyses to shed light on how connected auditors affect mutual fund stock trading and performance.

6.1. Mutual Fund Stock Trading

If fund managers obtain private information from connected auditors,

we would expect their trading on firms with connected auditors to be more closely related with upcoming earnings news than on firms without connected auditors. To empirically validate this conjecture, we follow Cheng et al. (2018) by estimating this regression.

$$\begin{aligned}
Trading_{j,i,t} = & \beta_0 + \beta_1 \Delta ROA_{i,t+1} + \beta_2 Ties_{j,i,t} \times \Delta ROA_{i,t+1} + \beta_3 Ties_{j,i,t} + \beta_4 \Delta Size_{i,t} \\
& + \beta_5 \Delta BM_{i,t} + \beta_6 \Delta EP_{i,t} + \beta_7 \Delta DP_{i,t} + \beta_8 \Delta Leverage_{i,t} + \beta_9 \Delta Growth_{i,t} \\
& + \beta_{10} \Delta TraShare_{i,t} + \beta_{11} Risk_{i,t-1} + \beta_{12} Return_{i,t-1} + \beta_{13} Volume_{i,t-1} \\
& + \beta_{14} Stockhold_{j,i,t-1} + \sum Fundtype + \sum Year + \varepsilon_{j,i,t}
\end{aligned} \tag{2}$$

The dependent variable is fund trading (*Trading*), calculated as the annual change in the number of the firm's stocks held by the fund, divided by the firm's total number of tradable shares. The independent variable of interest is the interaction term *Ties* × ΔROA , where ΔROA is calculated as change in return on assets from the previous year to the current year. We use one-year ahead ΔROA to capture firm future performance. The control variables are selected following Bushee and Noe (2000), Chen, Harford, and Li (2007) and Cheng et al. (2018). These variables include change in firm size ($\Delta Size$), change in book-to-market ratio (ΔBM), change in earnings yield (ΔEP), change in dividend yield (ΔDP), change in leverage ($\Delta Leverage$), change in sales growth ($\Delta Growth$), change in tradable shares ($\Delta TraShare$), firm risk (*Risk*), stock returns (*Return*), trading volume (*Volume*), and stocks held by the fund (*Stockhold*). We provide detailed variable definitions in Appendix B.

The regression results are reported in Table 8. In Column (1), we perform test on the full sample. The coefficient on ΔROA is positive and significant, indicating that mutual funds in general have good trading skills. They buy stocks with good future performance and sell stocks with poor future performance. More importantly, the coefficient on *Ties* × ΔROA is positive and marginally significant, suggesting that mutual funds have even better stock trading on firms with connected auditors. The findings are consistent with our argument that mutual funds are able to obtain private information from connected auditors, which helps their stock trading activities.

Moreover, we investigate how different information (i.e., bad vs. good news) affects mutual fund trading on firms with connected auditors. In Columns (2) and (3), we perform test on the subsample of firms with negative ΔROA (i.e., bad news) and positive ΔROA (i.e., good news), respectively. The columns show that the coefficient on $Ties \times \Delta ROA$ is positive and significant in the bad news sample, while insignificant in the good news sample. The difference of coefficients is statistically significant at the 1% level for the two samples. These results indicate that the bad news transferred by connected auditors to mutual funds has a greater impact on mutual funds' trading than good news.

[Insert Table 8 about here]

In addition to future earnings news, we investigate mutual fund trading prior to the issuance of audit opinions, which is under auditors' direct control. Because the release of an unfavorable audit opinion typically engenders a highly negative stock market reaction (Chen, Su, and Zhao, 2000), we expect mutual fund to be able to trade on upcoming release of audit opinions for firms with connected auditors than firms without connected auditors. The regression model for the test is as follows.

$$\begin{aligned}
Trading_{j,i,t} = & \beta_0 + \beta_1 Opinion_{i,t} + \beta_2 Ties_{j,i,t} \times Opinion_{i,t} + \beta_3 Ties_{j,i,t} + \beta_4 \Delta Size_{i,t} \\
& + \beta_5 \Delta BM_{i,t} + \beta_6 \Delta EP_{i,t} + \beta_7 \Delta DP_{i,t} + \beta_8 \Delta Leverage_{i,t} + \beta_9 \Delta Growth_{i,t} \\
& + \beta_{10} \Delta TraShare_{i,t} + \beta_{11} Risk_{i,t-1} + \beta_{12} Return_{i,t-1} + \beta_{13} Volume_{i,t-1} \\
& + \beta_{14} Stockhold_{j,i,t-1} + \sum Fundtype + \sum Year + \varepsilon_{j,i,t}
\end{aligned} \tag{3}$$

The dependent variable is fund trading (*Trading*), calculated in the same way as in Equation (2). The independent variable of interest is the interaction term $Ties \times Opinion$, where *Opinion* represents *Opinion_dum* and *Opinion_order*. In China, available audit opinions include an unqualified opinion, an unqualified opinion with explanatory notes, a qualified opinion, a disclaimed opinion, and an adverse opinion. Consistent with prior research (DeFond, Wong, and Li, 2000; Chen, Su, and Zhao., 2000; Wang, Wong, and Xia, 2008; Gul, Wu, and Yang, 2013), we classify audit opinions that are unqualified with explanatory notes, qualified, disclaimer, and adverse, as unfavorable

opinions. We define *Opinion_dum* as a dummy variable equal to one if the firm receives an unfavorable opinion, and zero otherwise. We define *Opinion_order* as an ordinal variable equal to zero if the firm receives an unqualified opinion, one if the firm receives an unqualified opinion with explanatory notes, two if the firm receives a qualified opinion, and three if the firm receives an adverse or disclaimed opinion. Because audit opinions are released after the end of the fiscal year and mutual fund trading is measured as the annual change in fund stockholdings from the beginning to the end of the fiscal year, the regression model captures fund trading before the issuance of audit opinions.¹⁴ The control variables are the same as Equation (2).

The regression results are reported in Table 9. The coefficients on *Opinion_dum* and *Opinion_order* are both negative and significant, suggesting that mutual funds sell stocks of firms that are going to receive unfavorable audit opinions. Moreover, the coefficients on *Ties×Opinion_dum* and *Ties×Opinion_order* are both negative and significant as well, suggesting that fund managers are even better able to identify firms that are going to receive unfavorable opinions when they are socially connected to firm auditors. The findings indicate that mutual funds are able to obtain private information about audit opinions from connected auditors, which enables them to sell stocks of firms that are going to receive unfavorable opinions. Overall, the findings provide evidence that fund managers who are socially connected with firm auditors have privilege information about the firms, which helps the trading activities of fund managers.

[Insert Table 9 about here]

6.2. Mutual Fund Performance

We show in the previous section that fund managers trade on the private information obtained from connected auditors. When this information is eventually incorporated into stock prices, mutual funds elicit excessive returns by trading on these stocks, which results in higher fund performance. In this section, we examine whether social connections between

¹⁴ All Chinese listed firms have the same fiscal year from 1st January to 31st December.

fund managers and firm auditors offer superior performance to the mutual funds. First, we compare abnormal returns around earnings announcements for firms with and without the fund manager-firm auditor social connections. The regression model is as follows.

$$\begin{aligned}
 Portfolio_CAR_{j,t} = & \beta_0 + \beta_1 Portfolio_ties_{j,t} + \beta_2 Fund_size_{j,t} + \beta_3 Fund_fee_{j,t} \\
 & + \beta_4 Fund_age_{j,t} + \beta_5 Fundcomp_size_{j,t} + \beta_6 Fundmgr_career_{j,t} \\
 & + \beta_7 Fundmgr_tnr_{j,t} + \beta_8 Fundmgr_gender_{j,t} \\
 & + \beta_9 FundMgr_edu_{j,t} + \sum Fundtype + \sum Year + \varepsilon_{j,t}
 \end{aligned} \tag{4}$$

The dependent variable *Portfolio_CAR* is calculated as the average cumulative daily abnormal return around the earnings announcement window (i.e., [-1, 1] and [-2, 2]) for firms in the mutual funds' portfolios.¹⁵ The independent variable of interest is *Portfolio_ties*, a dummy variable equal to one for the portfolio of firms with fund manager-firm auditor school ties, and zero for the portfolio of firms without fund manager-firm auditor school ties. The control variables include fund size (*Fundsize*), fund management fees (*Fundfee*), fund age (*Fundage*), fund company size (*Fundcomp_size*), fund manager experience (*Fundmgr_career*), fund manager tenure (*Fundmgr_tnr*), fund manager gender (*Fundmgr_gender*), and fund manager education (*Fundmgr_edu*). Detailed variable definitions are available in Appendix B.

The regression results are reported in Table 10. Column (1) presents the results for the window [-1, 1] and Column (2) presents the results for the window [-2, 2]. In both columns, the coefficient on *Portfolio_ties* is positive and statistically significant, suggesting that compared to the portfolios of firms without fund manager-firm auditor social connections, the portfolios of firms with such connections offer higher earnings announcement returns to mutual funds.

[Insert Table 10 about here]

¹⁵ We set the earnings announcement date as event day 0 and estimate the parameters of the market model using stock returns over the 120 trading day period [-150, -30]. Then, we calculate daily abnormal return as the difference between the firm's raw daily return and the predicted daily return based on the market model.

Next, we explore whether mutual funds earn higher returns through holding firms audited by auditors with whom they are socially connected. The regression model is as follows.

$$\begin{aligned}
Fund\ returns_{j,t} = & \beta_0 + \beta_1 Fund_tieshold_{j,t} + \beta_2 Fund\ returns_{j,t-1} + \beta_3 Fund_size_{j,t-1} \\
& + \beta_4 Fund_fee_{j,t-1} + \beta_5 Fund_age_{j,t-1} + \beta_6 Fund_flow_{j,t-1} \\
& + \beta_7 Fundcomp_size_{j,t} + \beta_8 Fundmgr_career_{j,t} \\
& + \beta_9 Fundmgr_tnr_{j,t} + \beta_{10} Fundmgr_gender_{j,t} \\
& + \beta_{11} Fundmgr_edu_{j,t} + \sum Fundtype + \sum Year + \varepsilon_{j,t}
\end{aligned} \tag{5}$$

The dependent variable is fund returns, including fund raw returns (*Fund_raw*) and the Jensen index (*Fund_jensen*). *Fund_raw* is the annualized rate of return of the fund during the year. *Fund_jensen* is calculated as the difference between the actual and predicted fund returns during the year.¹⁶ The independent variables of interest is fund school tie holdings (*Fund_tieshold*), calculated as the proportion of the fund's net assets invested in firms for which at least one of the signing auditors graduated from the same university as the fund manager. We control for lagged value of fund returns and fund flow (*Fund_flow*), as well as other control variables in Equation (4).

Table 11 presents the regression results. Column (1) reports the results of fund raw returns. The coefficient on *Fund_tieshold* is positive and significant, indicating that mutual funds earn higher raw returns when they hold stocks of firms whose signatory auditors are socially connected with fund managers. The results in Column (2) are similar, which show that mutual funds have higher Jensen index by holding stocks of firms with auditors that are socially connected with fund managers. Overall, the findings provide evidence that being socially connected with firm auditors helps fund managers acquiring private information about their portfolio firms, which offers funds excessive portfolio returns and better fund performance.

[Insert Table 11 about here]

¹⁶ Following Jensen (1968), we calculate the Jensen index in each year using the equation $(R_i - R_f) - [\beta \times (R_m - R_f)]$, where R_i is a fund portfolio return, R_f is risk-free rate, R_m is market portfolio return, and β is the measure of systematic risk, equaling to $cov(R_i, R_m) / \sigma^2(R_m)$.

7. Social Connections and Benefits to Connected Auditors

Divulging client firms' private information to fund managers is costly for signatory auditors since violating client confidentiality may undermine their reputations and contravene professional standards. It follows that auditors would insist on some form of compensation in return for breaching confidentiality by transferring their private information to fund managers.

7.1. Audit Business

We first examine whether mutual funds use their influence over firm management to help auditors retain existing clients and attract new clients. We expect that connected auditors are less likely to lose client firms in which they have social connections with managers of the firms' fund stockholders. We also expect that these auditors are more likely to attract new client firms that are held by fund managers with whom auditors are socially connected. To test whether connected auditors are more likely to retain existing clients, we follow prior studies (Stice, 1991; Carcello and Palmrose, 1994; Krishnan and Krishnan, 1997; DeFond, Lim, and Zang, 2016) and estimate the regression model as follows.

$$\begin{aligned} Auditor_retain_{i,t+1} = & \beta_0 + \beta_1 Ties_hold_{i,t} + \beta_2 Assets_{i,t} + \beta_3 ROA_{i,t} + \beta_4 Leverage_{i,t} \\ & + \beta_5 Growth_{i,t} + \beta_6 Receivable_{i,t} + \beta_7 Inventory_{i,t} + \beta_8 Liquidity_{i,t} \\ & + \beta_9 Loss_{i,t} + \beta_{10} BM_{i,t} + \beta_{11} Firsthold_{i,t} + \beta_{12} SOE_{i,t} + \beta_{13} Opinion_{i,t} \\ & + \beta_{14} Big4_{i,t} + \sum Industry + \sum Year + \varepsilon_{i,t} \end{aligned} \quad (6)$$

The dependent variable is the firm auditor retain dummy (*Auditor_retain*), defined as a dummy variable equal to one if a firm retains its auditor in the next year, and zero otherwise. The independent variable of interest is the fund holding school ties dummy (*Ties_hold*), defined as a dummy variable equal to one if at least one of fund managers that hold the firm's stock have school ties with the firm's signing auditors, and zero otherwise. The control variables include firm total assets (*Assets*), return on assets (*ROA*), sales growth (*Growth*), accounts receivable (*Receivable*), inventory (*Inventory*), asset liquidity (*Liquidity*), the loss dummy (*Loss*), top shareholding (*Firsthold*), the

state-ownership dummy (*SOE*), and the Big 4 dummy (*Big4*). *Industry* is industry fixed effect and *Year* is year fixed effect. Detailed variable definitions are available in Appendix B.

In Table 12, we report the regression results in Column (1). The column shows that the coefficient on *Ties_hold* is positive and marginally significant, implying that auditors are more likely to retain clients whose stocks are held by fund managers with whom these auditors are socially connected.

Further, we examine whether connected auditors are more likely to attract new clients. The regression model is as follows.

$$\begin{aligned}
 Auditor_hire_{i,t+1} = & \beta_0 + \beta_1 Ties_auditcomp_{i,t} + \beta_2 Assets_{i,t} + \beta_3 ROA_{i,t} + \beta_4 Leverage_{i,t} \\
 & + \beta_5 Growth_{i,t} + \beta_6 Receivable_{i,t} + \beta_7 Inventory_{i,t} + \beta_8 Liquidity_{i,t} \\
 & + \beta_9 Loss_{i,t} + \beta_{10} BM_{i,t} + \beta_{11} Firsthold_{i,t} + \beta_{12} SOE_{i,t} + \beta_{13} Opinion_{i,t} \\
 & + \beta_{14} Big4_{i,t} + \sum Industry + \sum Year + \varepsilon_{i,t}
 \end{aligned} \tag{7}$$

The dependent variable is the firm auditor hire dummy (*Auditor_hire*), defined as a dummy variable equal to one if a firm employs a particular audit company in the next year, and zero otherwise. The independent variable of interest is the audit company school tie dummy (*Ties_auditcomp*), defined as a dummy variable equal to one if the fund manager graduated from the same university as one of the signatory auditors in an audit company, and zero otherwise. The control variables are the same as Equation (6).

One empirical challenge of this test is that while we can observe auditor choice by client firms, we are unable to determine the pool of auditors from which the clients can choose. Thus, we design our tests assuming that clients are able to choose any of the audit firms in our sample. We perform the test on a sample of fund-firm-year observations in which the firm changes its auditor.¹⁷ We then pair each firm-fund-year with every available audit firm during the same year, which generate a large sample of 2,387,824 firm-audit firm-year observations. The regression results are reported in Column (2) of Table 12. The results show that the coefficient on *Ties_auditcomp* is positive

¹⁷ Since most firms are held by more than one fund, a given firm can appear multiple times in our analysis.

and significant, suggesting that when changing auditors, firms are likely to employ auditor companies that are socially connected with the managers of their fund stockholders.

7.2. Fees to Auditors

In addition to audit business, connected auditors could also elicit benefits from the fees that firms pay them. We explore this issue by examining whether auditors that are socially connected with fund managers receive higher audit and non-audit fees from the mutual funds' portfolio firms. The regression model is as follows.

$$\begin{aligned}
 Fee_{i,t+1} = & \beta_0 + \beta_1 Ties_hold_{i,t} + \beta_2 Assets_{i,t} + \beta_3 ROA_{i,t} + \beta_4 Leverage_{i,t} \\
 & + \beta_5 Growth_{i,t} + \beta_6 Receivable_{i,t} + \beta_7 Inventory_{i,t} + \beta_8 Liquidity_{i,t} \\
 & + \beta_9 Loss_{i,t} + \beta_{10} BM_{i,t} + \beta_{11} Firsthold_{i,t} + \beta_{12} SOE_{i,t} + \beta_{13} Opinion_{i,t} \\
 & + \beta_{14} Big4_{i,t} + \sum Industry + \sum Year + \varepsilon_{i,t}
 \end{aligned} \tag{8}$$

In successive estimations, the dependent variable *Fee* is firm audit fees (*Audit_fee*) and non-audit fees (*Nonaudit_fee*), calculated as the natural logarithm of audit fees and non-audit fees that a firm pays its auditor, respectively.¹⁸ The independent variable of interest is fund holding school ties dummy (*Ties_hold*). The control variables are the same as Equation (6). The regression results are reported in Columns (3) and (4) of Table 12, which shows that the coefficient on *Ties_hold* is positive and significant in both regressions. The results suggest that firms pay more audit and non-audit fees to their auditors when the signatory auditors have school ties with managers of the firms' fund stockholders.

[Insert Table 12 about here]

Overall, the findings suggest that as compensation for the private information revealed by connected auditors, mutual funds use their influence over management of the firms they invest in to help these auditors retain existing clients and attract new clients. They also leverage their influence to induce firms to pay higher audit and non-audit fees to connected auditors.

¹⁸ Our sample for the non-audit fee analysis shrinks to 4,680 observations since many firms do not disclose the non-audit fees paid to their auditors.

The evidence in this section perhaps explains why auditors are willing to reveal information about the client firms to their socially connected fund managers.

8. Conclusion

In this study, we examine how social connections between mutual fund managers and auditors of public firms affect mutual fund stockholdings in the Chinese market. We find that mutual funds whose managers are socially connected with firm auditors hold more shares of these firms. The effect of fund manager-firm auditor social connections on mutual fund stockholdings is more pronounced when the social connections are stronger, for small audit firms, and for public firms with greater business opacity, stock price synchronicity, and systematic risk. We further show that mutual funds with socially connected auditors engage more in informed trading and such trading generates superior returns to the funds. Last, we find evidence that as compensation to connected auditors, mutual funds use their influence over executives of the firms they invest in to help these auditors retain existing clients and attract new clients. They also induce firms to pay higher audit and non-audit fees to connected auditors. Collectively, our findings suggest that mutual funds acquire private information about public firms through social connections with auditors of these firms, which helps their stock investments.

Our study extends the literature about the effect of social connections in the financial market by examining the effect of social connections between fund managers and firm signatory auditors on mutual fund stockholdings. Our study also extends the mutual fund literature by documenting that mutual funds try to attain an informational advantage over other investors through socially connected auditors. Because auditors are supposed to keep client information confidential, our study documents a “grey” channel through which mutual funds acquire proprietary information. Our findings have policy implications by suggesting small investors to be aware of such

information leakage and alerting regulators of the mutual fund and auditing industries to an issue that could potentially damage the two industries.

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Appendix A. Distribution of Top 10 Universities with Fund Manager-Firm Auditor Connection

Rank	University Name	Location	No. of unique connections
1	Shanghai University of Finance and Economics	Shanghai	3,164
2	Fudan University	Shanghai	1,845
3	Renmin University of China	Beijing	1,033
4	Xiamen University	Xiamen	620
5	Shanghai Jiao Tong University	Shanghai	611
6	Peking University	Beijing	411
7	Central University of Finance and Economics	Beijing	378
8	Tsinghua University	Beijing	374
9	Nankai University	Tianjin	300
10	Sun Yat-Sen University	Guangzhou	237

Appendix B. Variable Definition

Variable	Definition
Variables in the baseline analysis in Table 3	
<i> Holding </i>	Fund stockholding, defined as fund investment in a stock divided by the total net assets of the fund then multiply by 100. Fund investment in a stock is to the number of shares held by the fund times the year-end closing stock price.
<i> Ties </i>	School tie dummy, defined as a dummy variable equal to one if the fund manager graduated from the same university as one of the signatory auditors of a firm, and zero otherwise.
<i> Size </i>	Firm size, defined as the natural logarithm of the firm's market value of equity.
<i> BM </i>	Book-to-market ratio, defined as the firm's book value of equity divided by its market value of equity.
<i> Leverage </i>	Leverage ratio, defined as the ratio of firm's total liabilities to total assets.
<i> Turnover </i>	Stock turnover, defined as the annual trading volume divided by total number of shares outstanding.
<i> Volatility </i>	Return volatility, defined as the standard deviation of the firm's daily stock returns in a year.
<i> Analyst </i>	Analyst coverage, defined as the natural logarithm of one plus the number of analysts following the firm during the year.
<i> Return </i>	Stock returns, defined as cumulative stock returns over the year.
<i> Fund_size </i>	Fund size, defined as the natural logarithm of total net assets of the fund.
<i> Fund_fee </i>	Fund management fees, defined as 100 times the rate of the management fees charged by the fund.
<i> Fund_age </i>	Fund age, defined as the number of years since the fund is founded.
Additional variables in Table 5	
Δ <i> Holding </i>	Change in fund stockholding (<i> Holding </i>) from the previous year to the current year.
<i> Ties_rise </i>	School tie rise dummy, defined as a dummy variable equal to one if a firm switches from an auditor without school ties with the fund manager to an auditor with such ties, and zero otherwise.
<i> Ties_fall </i>	School tie fall dummy, defined as a dummy variable equal to one if a firm switches from an auditor with school ties with the fund manager to an auditor without such ties, and zero otherwise.
Δ <i> Size </i>	Change in firm size (<i> Size </i>) from the previous year to the current year.
Δ <i> BM </i>	Change in book-to-market ratio (<i> BM </i>) from the previous year to the current year.
Δ <i> Leverage </i>	Change in leverage ratio (<i> Leverage </i>) from the previous year to the current year.
Δ <i> Turnover </i>	Change in stock turnover (<i> Turnover </i>) from the previous year to the current year.
Δ <i> Volatility </i>	Change in idiosyncratic volatility (<i> Volatility </i>) from the previous year to the current year.
Δ <i> Analyst </i>	Change in analyst coverage (<i> Analyst </i>) from the previous year to the current year.
Δ <i> Return </i>	Change in stock returns (<i> Return </i>) from the previous year to the current year.
Δ <i> Fund_size </i>	Change in fund size (<i> Fundsize </i>) from the previous year to the current year.
Δ <i> Fund_fee </i>	Change in fund management fee (<i> Fundfee </i>) from the previous year to the current year.
Δ <i> Fund_age </i>	Change in fund age (<i> Fundage </i>) from the previous year to the current year.
Additional variables in Table 6	

<i>Fundfirm_ties</i>	Fund manager-firm management school tie dummy, defined as a dummy variable equal to one if the fund manager graduated from the same university as one of executives or board members of a firm, and zero otherwise.
<i>Same_city</i>	Fund-firm same city dummy, defined as a dummy variable equal to one if the firm and the mutual fund are in the same city, and zero otherwise.

Additional variables in Table 7

<i>Ties_samedegree</i>	Same major tie dummy, defined as a dummy variable equal to one if the fund manager graduated from the same university and has the same degree as one of the signatory auditors of a firm, and zero otherwise.
<i>Ties_diffdegree</i>	Different major tie dummy, defined as a dummy variable equal to one if the fund manager graduated from the same university but has a different degree as one of the signatory auditors of a firm, and zero otherwise.
<i>Ties_topuni</i>	Top university tie dummy, defined as a dummy variable equal to one if the fund manager graduated from the same university as one of the signatory auditors of a firm and the university is a top university in China, and zero otherwise.
<i>Ties_nontopuni</i>	Non-top university tie dummy, defined as a dummy variable equal to one if the fund manager graduated from the same university as one of the signatory auditors of a firm and the university is a non-top university in China, and zero otherwise.
<i>Small_auditfirm</i>	Small audit firm dummy, defined as a dummy variable equal to one if the firm is audited by one of the non-top 4 international audit firms and non-top 10 local audit firms, and zero otherwise.
<i>Complexity</i>	Business complexity dummy, defined as a dummy variable equal to one if the firm operates in more than one industry, and zero otherwise.
<i>Related_party</i>	Related-party transaction dummy, defined as a dummy variable equal to one if a firm's percentage of related-party transactions, including related-party purchase and sales as a proportion of its revenue, is higher than 90%, and zero otherwise.
<i>Synch</i>	Stock return synchronicity, calculated as the R-square of the regression on firm stock returns against market and industry returns.
<i>Risk</i>	Stock beta, defined as the firm systematic risk estimated by the CAPM model.

Additional variables in Tables 8 and 9

<i>Trading</i>	Fund trading, calculated as the annual change in the number of the firm's stocks held by the fund, divided by the firm's total number of tradable shares.
ΔROA	Change in return on assets (<i>ROA</i>) from the previous year to the current year.
<i>Opinion_dum</i>	Audit opinion dummy, defined as a dummy variable equal to one if the firm receives an unfavorable opinion, and zero otherwise. Unfavorable opinions include unqualified opinion with explanatory notes, qualified opinion, adverse opinion, and disclaimed opinion.
<i>Opinion_order</i>	Audit opinion order, defined as an ordinal variable equal to zero if the firm receives an unqualified opinion, one if the firm receives an unqualified opinion with explanatory notes, two if the firm receives a qualified opinion, and three if the firm receives an adverse or disclaimed opinion.
ΔEP	Change in earnings yield (<i>EP</i>) from the previous year to the current year. Earnings yield (<i>EP</i>) is calculated as the firm's earnings per share divided by its share price at the end of the year.
ΔDP	Change in dividend yield (<i>DP</i>) from the previous year to the current year. Dividend yield (<i>DP</i>) is calculated as the firm's dividend per

	share divided by its share price at the end of the year.
$\Delta Growth$	Change in sales growth (<i>Growth</i>) from the previous year to the current year.
$\Delta TraShare$	Change in tradable shares, calculated as the natural logarithm of the number of tradable shares in the current year minus the natural logarithm of the number of tradable shares in the previous year.
<i>Volume</i>	Trading volume, calculated as the monthly trading volume of the firm's stocks divided by its number of tradable shares.
<i>Stockhold</i>	Stocks held by the fund, calculated as the number of the firm's shares (in millions) held by the fund.
<hr/>	
Additional variables in Tables 10 and 11	
<i>Portfolio_CAR</i>	Portfolio CAR, calculated as the average cumulative abnormal return around the annual report announcement window (i.e., [-1, 1] and [-2, 2]) for firms in the portfolio.
<i>Portfolio_ties</i>	Portfolio school tie dummy, defined as a dummy variable equal to one for the portfolio of firms with fund manager-firm auditor school ties, and zero for the portfolio of firms without such ties.
<i>Fund_raw</i>	Fund raw returns, calculated as the annualized rate of return of the fund during the year.
<i>Fund_jensen</i>	Fund Jensen index, calculated as the difference between the actual and predicted fund returns during the year.
<i>Fund_tieshold</i>	Fund school tie holding, defined as the proportion of the fund's net assets invested in firms for which at least one of the signing auditors graduated from the same university as the fund manager.
<i>Fundcomp_size</i>	Fund company size, calculated as the natural logarithm of the total assets of the fund company.
<i>Fundmgr_career</i>	Fund manager career, defined as the number of years since the fund manager is first in charge of a fund.
<i>Fundmgr_tnr</i>	Fund manager tenure, defined as the number of years since the fund manager works in the current fund.
<i>Fundmgr_gender</i>	Fund manager gender, defined as a dummy variable equal to one if the fund manager is male, and zero otherwise.
<i>Fundmgr_edu</i>	Fund manager education, defined as a dummy variable equal to one if the fund manager has a master degree or above, and zero otherwise.
<i>Fund_flow</i>	Fund flow, calculated as $(TNA_t - TNA_{t-1} * (1 + Funddraw_t)) / TNA_{t-1}$, where <i>TNA</i> is the fund's total net assets.
<hr/>	
Additional variables in Table 12	
<i>Auditor_retain</i>	Firm auditor retain dummy, defined as a dummy variable equal to one if a firm retains its auditor in the next year, and zero otherwise.
<i>Auditor_hire</i>	Firm auditor hire dummy, defined as a dummy variable equal to one if a firm employs a particular auditor in the next year, and zero otherwise.
<i>Audit_fee</i>	Firm audit fees, calculated as the natural logarithm of audit fees that a firm pays its auditors.
<i>Nonaudit_fee</i>	Firm non-audit fees, calculated as the natural logarithm of non-audit fees that a firm pays its auditors.
<i>Ties_hold</i>	Fund holding school tie dummy, defined as a dummy variable equal to one if at least one of fund managers that hold the firm's stock have school ties with the firm's signing auditors, and zero otherwise.
<i>Ties_auditcomp</i>	Audit company school ties dummy, defined as a dummy variable equal to one if the fund manager graduated from the same university as one of the signatory auditors in an audit company, and zero otherwise.
<i>Assets</i>	Firm total assets, defined as the natural logarithm of the firm's total assets.
<i>ROA</i>	Return on assets, defined as the firm's net income divided by its total assets.

<i>Growth</i>	Sales growth, defined as the annual growth rate of the firm's sales.
<i>Receivable</i>	Accounts receivable, defined as the firm's total accounts receivable divided by its total assets.
<i>Inventory</i>	Inventory, defined as the firm's total inventory divided by its total assets.
<i>Liquidity</i>	Asset liquidity, defined as the firm's current assets divided by its current liabilities.
<i>Loss</i>	Loss dummy, defined as a dummy variable equal to one if the firm's net income is negative, and zero otherwise.
<i>Firsthold</i>	Top shareholding, defined as the proportion of shares held by the firm's largest shareholder.
<i>SOE</i>	State-ownership dummy, defined as a dummy variable equal to one if the firm is state-owned, and zero otherwise.
<i>Big4</i>	Big 4 dummy, defined as a dummy variable equal to one if the firm is audited by a Big 4 auditor, and zero otherwise.

Table 1. Sample Distribution

The table presents the annual distribution of sample in the analysis.

Year	No. of obs.	No. of unique funds	No. of unique firms	No. of obs. with social connections	% of obs. with social connections
	(1)	(2)	(3)	(4)	(5)
2004	2,542	65	406	79	3.11%
2005	3,840	96	490	112	2.92%
2006	5,286	138	554	159	3.01%
2007	9,514	195	658	374	3.93%
2008	10,376	225	665	332	3.20%
2009	18,437	314	1,003	414	2.25%
2010	21,958	397	1,172	417	1.90%
2011	25,649	478	1,311	461	1.80%
2012	38,385	553	1,633	680	1.77%
2013	46,447	652	1,897	1,122	2.42%
2014	60,013	815	2,181	1,591	2.65%
2015	73,990	1,214	2,318	1,462	1.98%
2016	85,829	1,490	2,399	1,516	1.77%
2017	98,415	1,788	2,488	1,646	1.67%
Total	500,681	2,239	2,796	10,365	2.07%

Table 2. Descriptive Statistics

The table presents the summary statistics and correlation matrix of the variables in the analysis. Variable definitions are available in Appendix B. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Panel A. Summary Statistics

Variable	Obs.	Mean	Median	S.D.	P25	P75
<i> Holding </i>	500,681	0.912	0.390	1.248	0.130	1.150
<i> Ties </i>	500,681	0.021	0.000	0.142	0.000	0.000
<i> Size </i>	500,681	16.499	16.439	1.131	15.698	17.305
<i> BM </i>	500,681	0.557	0.526	0.275	0.327	0.789
<i> Leverage </i>	500,681	0.493	0.502	0.202	0.334	0.669
<i> Turnover </i>	500,681	4.329	3.333	3.376	1.920	5.799
<i> Volatility </i>	500,681	0.028	0.026	0.010	0.021	0.033
<i> Following </i>	500,681	2.513	2.708	0.972	1.946	3.258
<i> Return </i>	500,681	0.318	0.127	0.719	-0.149	0.573
<i> Fund_size </i>	500,681	20.157	20.203	1.966	18.793	21.658
<i> Fund_fee </i>	500,681	1.106	1.200	0.421	0.700	1.500
<i> Fund_age </i>	500,681	4.402	4.000	3.096	2.000	6.000

Panel B. Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) <i> Holding </i>	1.000											
(2) <i> Ties </i>	0.012***	1.000										
(3) <i> Size </i>	0.187***	0.032***	1.000									
(4) <i> BM </i>	-0.063***	0.031***	0.227***	1.000								
(5) <i> Leverage </i>	0.031***	0.027***	0.276***	0.601***	1.000							
(6) <i> Turnover </i>	-0.054***	-0.022***	-0.361***	-0.331***	-0.144***	1.000						
(7) <i> Volatility </i>	-0.010***	-0.011***	-0.217***	-0.367***	-0.096***	0.673***	1.000					
(8) <i> Following </i>	0.219***	0.017***	0.478***	-0.002*	0.052***	-0.268***	-0.217***	1.000				
(9) <i> Return </i>	0.035***	0.004***	-0.063***	-0.242***	-0.055***	0.200***	0.367***	-0.012***	1.000			
(10) <i> Fund_size </i>	0.019***	0.008***	-0.083***	-0.065***	0.010***	0.035***	0.092***	0.072***	0.112***	1.000		
(11) <i> Fund_fee </i>	0.286***	0.000	-0.144***	-0.154***	-0.055***	0.065***	0.106***	0.087***	0.089***	0.239***	1.000	
(12) <i> Fund_age </i>	0.033***	0.005***	0.094***	-0.025***	-0.001	-0.010***	-0.002	0.065***	-0.009***	0.242***	0.169***	1.000

Table 3. Social Connections and Mutual Fund Stockholdings

The table presents the regression results of the relation between fund manager-firm auditor social connections and mutual fund stockholdings. The regressions are performed using ordinary least squares (OLS), with standard errors (in parentheses) clustered at the fund and firm levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in Appendix B.

Variable	<i> Holding_t</i>		
	Baseline analysis	Analysis on semi-annual stockholdings	Adding observations with zero fund stockholdings
	(1)	(2)	(3)
<i>Ties_t</i>	0.042*** (0.014)	0.047*** (0.013)	0.002*** (0.001)
<i>Size_t</i>	0.262*** (0.003)	0.251*** (0.003)	0.036*** (0.001)
<i>BM_t</i>	-0.445*** (0.011)	-0.450*** (0.010)	-0.039*** (0.002)
<i>Leverage_t</i>	0.251*** (0.013)	0.222*** (0.011)	0.011*** (0.000)
<i>Turnover_t</i>	0.010*** (0.001)	0.009*** (0.001)	0.001*** (0.000)
<i>Volatility_t</i>	-1.672*** (0.434)	-1.661*** (0.391)	-0.663*** (0.044)
<i>Following_t</i>	0.109*** (0.002)	0.117*** (0.002)	0.010*** (0.000)
<i>Return_{t-1}</i>	0.027*** (0.003)	0.049*** (0.003)	0.002*** (0.000)
<i>Fund_size_t</i>	-0.053*** (0.001)	-0.061*** (0.001)	0.000 (0.000)
<i>Fund_fee_t</i>	0.791*** (0.006)	0.776*** (0.005)	0.017*** (0.001)
<i>Fund_age_t</i>	-0.004*** (0.001)	0.001 (0.001)	0.000*** (0.000)
<i>Constant</i>	-3.080*** (0.052)	-2.773*** (0.048)	-0.552*** (0.011)
<i>Fund type fixed effect</i>	Yes	Yes	Yes
<i>Year fixed effect</i>	Yes	Yes	Yes
<i>Obs.</i>	500,681	956,405	18,380,270
<i>Adj. R²</i>	0.171	0.170	0.026

Table 4. Propensity Score Matched Sample

The table presents the regression results of the relation between fund manager-firm auditor social connections and mutual fund stockholdings based on the propensity score matched sample. The regressions are performed using ordinary least squares (OLS), with standard errors (in parentheses) clustered at the fund and firm levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in Appendix B.

Variable	<i> Holding_t</i>	
	1:1 matching	1:5 matching
	(1)	(3)
<i>Ties_t</i>	0.038** (0.018)	0.030** (0.015)
<i>Size_t</i>	0.279*** (0.011)	0.277*** (0.007)
<i>BM_t</i>	-0.451*** (0.048)	-0.440*** (0.029)
<i>Leverage_t</i>	0.396*** (0.056)	0.336*** (0.034)
<i>Turnover_t</i>	0.015*** (0.004)	0.015*** (0.002)
<i>Volatility_t</i>	-5.657*** (2.024)	-5.474*** (1.237)
<i>Following_t</i>	0.124*** (0.010)	0.133*** (0.006)
<i>Return_{t-1}</i>	0.029* (0.016)	0.028*** (0.010)
<i>Fund_size_t</i>	-0.057*** (0.005)	-0.058*** (0.003)
<i>Fund_fee_t</i>	0.746*** (0.025)	0.753*** (0.014)
<i>Fund_age_t</i>	-0.004 (0.003)	-0.002 (0.002)
<i>Constant</i>	-3.243*** (0.230)	-3.114*** (0.141)
<i>Fund type fixed effect</i>	Yes	Yes
<i>Year fixed effect</i>	Yes	Yes
<i>Obs.</i>	20,730	62,190
<i>Adj. R²</i>	0.176	0.172

Table 5. Mandatory Auditor Partner Rotation

The table presents the regression results of the changes in mutual fund stockholdings around mandatory rotations of signatory auditors. The regressions are performed using ordinary least squares (OLS), with standard errors (in parentheses) clustered at the fund and firm levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in Appendix B.

Variable	$\Delta Holding_t$ (1)
<i>Ties_rise_t</i>	0.069** (0.029)
<i>Ties_fall_t</i>	-0.103* (0.055)
$\Delta Size_t$	0.490*** (0.056)
ΔBM_t	-0.526** (0.186)
$\Delta Leverage_t$	-0.142 (0.124)
$\Delta Turnover_t$	-0.007 (0.006)
$\Delta Volatility_t$	1.378 (1.861)
$\Delta Analyst_t$	0.084** (0.030)
$\Delta Return_{t-1}$	0.009 (0.028)
$\Delta Fund_size_t$	-0.026*** (0.007)
$\Delta Fund_fee_t$	0.495*** (0.128)
$\Delta Fund_age_t$	-0.041** (0.015)
Constant	0.147*** (0.048)
<i>Fund type fixed effect</i>	Yes
<i>Year fixed effect</i>	Yes
Obs.	40,976
<i>Adj. R²</i>	0.106

Table 6. Tests on Alternative Explanations

The table presents the regression results of tests on alternative explanations. The regressions are performed using ordinary least squares (OLS), with standard errors (in parentheses) clustered at the fund and firm levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in Appendix B.

Variable	<i> Holding_t</i>			
	Exclude obs. with fund manager-firm management social connections	Control for fund manager-firm management social connections	Exclude obs. with same location between fund and firm	Control for same location between fund and firm
	(1)	(2)	(3)	(4)
<i>Ties_t</i>	0.037** (0.014)	0.040*** (0.014)	0.053*** (0.016)	0.037*** (0.014)
<i>Fundfirm_ties_t</i>		0.054*** (0.012)		
<i>Same_city_t</i>				0.045*** (0.008)
<i>Size_t</i>	0.261*** (0.003)	0.262*** (0.003)	0.257*** (0.003)	0.261*** (0.003)
<i>BM_t</i>	-0.458*** (0.011)	-0.447*** (0.011)	-0.464*** (0.012)	-0.448*** (0.011)
<i>Leverage_t</i>	0.249*** (0.013)	0.249*** (0.013)	0.232*** (0.013)	0.252*** (0.013)
<i>Turnover_t</i>	0.010*** (0.001)	0.010*** (0.001)	0.008*** (0.001)	0.010*** (0.001)
<i>Volatility_t</i>	-1.497*** (0.439)	-1.686*** (0.434)	-0.944** (0.453)	-1.720*** (0.434)
<i>Following_t</i>	0.107*** (0.002)	0.109*** (0.002)	0.103*** (0.002)	0.109*** (0.002)
<i>Return_{t-1}</i>	0.027*** (0.003)	0.027*** (0.003)	0.022*** (0.003)	0.027*** (0.003)
<i>Fund_size_t</i>	-0.053*** (0.001)	-0.053*** (0.001)	-0.054*** (0.001)	-0.053*** (0.001)
<i>Fund_fee_t</i>	0.788*** (0.006)	0.791*** (0.006)	0.788*** (0.006)	0.791*** (0.006)
<i>Fund_age_t</i>	-0.004*** (0.001)	-0.004*** (0.001)	-0.003*** (0.001)	-0.004*** (0.001)
<i>Constant</i>	-3.044*** (0.053)	-3.067*** (0.052)	-2.982*** (0.055)	-3.066*** (0.052)
<i>Fund type fixed effect</i>	Yes	Yes	Yes	Yes
<i>Year fixed effect</i>	Yes	Yes	Yes	Yes
<i>Obs.</i>	481,931	500,681	453,851	500,681
<i>Adj. R²</i>	0.171	0.171	0.171	0.171

Table 7. Cross-Sectional Analysis

The table presents the regression results of the cross-sectional analysis. The regressions are performed using ordinary least squares (OLS), with standard errors (in parentheses) clustered at the fund and firm levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in Appendix B.

Panel A. The Effect of the Strength of Social Connections

Variable	<i> Holding_t</i>	
	(1)	(2)
<i>Ties_samedegree_t</i>	0.150** (0.064)	
<i>Ties_diffdegree_t</i>	0.036** (0.014)	
<i>Ties_topuni_t</i>		0.045*** (0.014)
<i>Ties_nontopuni_t</i>		-0.099 (0.072)
Controls	Yes	Yes
Fund type fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
Obs.	500,681	500,681
Adj. R ²	0.171	0.171
<i>t</i> -test of difference in coefficients	<i>Prob>F</i> =0.079	<i>Prob>F</i> =0.048

Panel B. The Effect of Audit Firm Size

Variable	<i> Holding_t</i>
	(1)
<i>Ties_t</i>	0.003 (0.020)
<i>Ties_t × Small_auditfirm_t</i>	0.058** (0.026)
<i>Small_auditfirm_t</i>	0.030*** (0.004)
Controls	Yes
Fund type fixed effect	Yes
Year fixed effect	Yes
Obs.	500,681
Adj. R ²	0.171
<i>F</i> -test of <i>Ties</i> +interaction term	<i>Prob>F</i> =0.001

Panel C. The Effect of Firm Business Opacity

Variable	<i> Holding_t</i>	
	(1)	(2)
<i>Ties_t</i>	-0.015 (0.016)	0.038*** (0.014)
<i>Ties_t × Complexity_t</i>	0.133*** (0.028)	
<i>Complexity_t</i>	0.019*** (0.004)	
<i>Ties_t × Related_party_t</i>		0.259** (0.105)
<i>Related_party_t</i>		-0.042*** (0.014)
Controls	Yes	Yes
Fund type fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
Obs.	499,237	500,681
Adj. R ²	0.172	0.171
F-test of <i>Ties</i> +interaction term	<i>Prob>F=0.000</i>	<i>Prob>F=0.000</i>

Panel D. The Effect of Stock Price Synchronicity

Variable	<i> Holding_t</i>
	(1)
<i>Ties_t</i>	0.051*** (0.015)
<i>Ties_t × Synchron_t</i>	0.035*** (0.014)
<i>Synchron_t</i>	0.038*** (0.002)
Controls	Yes
Fund type fixed effect	Yes
Year fixed effect	Yes
Obs.	500,681
Adj. R ²	0.172
F-test of <i>Ties</i> + <i>Ties</i> ×interaction term	<i>Prob>F=0.000</i>

Panel E. The Effect of Systematic Risk

Variable	<i> Holding_t</i>
	(1)
<i>Ties_t</i>	-0.038 (0.050)
<i>Ties_t × Risk_t</i>	0.078* (0.045)
<i>Risk_t</i>	-0.162*** (0.008)
Controls	Yes
Fund type fixed effect	Yes
Year fixed effect	Yes
Obs.	500,681
Adj. R ²	0.172
F-test of <i>Ties</i> + <i>Ties</i> ×interaction term	<i>Prob>F=0.000</i>

Table 8. Social Connections and Mutual Fund Trading on Future Earnings News

The table presents the regression results of the relation between fund manager-firm auditor social connections and mutual fund trading on earnings news. The regressions are performed using ordinary least squares (OLS), with standard errors (in parentheses) clustered at the fund and firm levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in Appendix B.

Variable	<i>Trading_t</i>		
	Full sample	Bad news sample	Good news sample
	(1)	(2)	(3)
ΔROA_{t+1}	0.131*** (0.014)	0.156*** (0.018)	-0.032 (0.027)
$Ties_t \times \Delta ROA_{t+1}$	0.141* (0.085)	0.371*** (0.107)	-0.121 (0.165)
$Ties_t$	0.005 (0.003)	0.012** (0.005)	0.005 (0.004)
$\Delta Size_t$	0.068*** (0.002)	0.067*** (0.003)	0.071*** (0.003)
ΔBM_t	-0.074*** (0.007)	-0.054*** (0.010)	-0.092*** (0.010)
ΔEP_t	0.109*** (0.012)	0.055*** (0.019)	0.136*** (0.016)
ΔDP_t	0.323*** (0.060)	0.385*** (0.080)	0.260*** (0.086)
$\Delta Leverage_t$	0.025*** (0.007)	0.025** (0.010)	0.028*** (0.010)
$\Delta Growth_t$	0.002* (0.001)	0.003*** (0.001)	-0.001 (0.001)
$\Delta TraShare_t$	-0.003 (0.002)	-0.000 (0.002)	-0.006** (0.003)
$Risk_{t-1}$	-0.008*** (0.002)	-0.004* (0.002)	-0.010*** (0.002)
$Return_{t-1}$	-0.006*** (0.001)	-0.009*** (0.001)	-0.002 (0.002)
$Volume_{t-1}$	-0.011*** (0.002)	-0.009*** (0.003)	-0.005 (0.004)
$Stockhold_{t-1}$	-0.175*** (0.001)	-0.185*** (0.001)	-0.164*** (0.001)
Constant	0.508*** (0.014)	0.484*** (0.019)	0.530*** (0.019)
<i>Fund type fixed effect</i>	Yes	Yes	Yes
<i>Year fixed effect</i>	Yes	Yes	Yes
Obs.	624,760	330,837	293,923
Adj. R ²	0.208	0.221	0.194
<i>SUE test between (2) and (3) for $Ties_t \times \Delta ROA_{t+1}$</i>	<i>Chi</i> ² = 6.66 <i>Prob</i> > <i>Chi</i> ² = 0.010		

Table 9. Social Connections and Mutual Fund Trading before the Release of Audit Opinions

The table presents the regression results of the relation between fund manager-firm auditor social connections and mutual fund trading on audit opinions. The regressions are performed using ordinary least squares (OLS), with standard errors (in parentheses) clustered at the fund and firm levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in Appendix B.

Variable	<i>Trading_t</i>	
	(1)	(2)
<i>Opinion_dum_t</i>	-0.008** (0.004)	
<i>Ties_t×Opinion_dum_t</i>	-0.089*** (0.024)	
<i>Opinion_order_t</i>		-0.007*** (0.002)
<i>Ties_t×Opinion_order_t</i>		-0.046*** (0.012)
<i>Ties_t</i>	0.005* (0.003)	0.005* (0.003)
Δ <i>Size_t</i>	0.068*** (0.002)	0.067*** (0.002)
Δ <i>BM_t</i>	-0.081*** (0.007)	-0.082*** (0.007)
Δ <i>EP_t</i>	0.088*** (0.012)	0.087*** (0.012)
Δ <i>DP_t</i>	0.378*** (0.059)	0.378*** (0.059)
Δ <i>Leverage_t</i>	0.031*** (0.007)	0.032*** (0.007)
Δ <i>Growth_t</i>	0.002** (0.001)	0.002** (0.001)
Δ <i>TraShare_t</i>	-0.004** (0.002)	-0.004** (0.002)
<i>Risk_{t-1}</i>	-0.009*** (0.002)	-0.009*** (0.002)
<i>Return_{t-1}</i>	-0.007*** (0.001)	-0.007*** (0.001)
<i>Volume_{t-1}</i>	-0.009*** (0.002)	-0.009*** (0.002)
<i>Stockhold_{t-1}</i>	-0.174*** (0.001)	-0.175*** (0.001)
<i>Constant</i>	0.508*** (0.014)	0.508*** (0.014)
<i>Fund type fixed effect</i>	Yes	Yes
<i>Year fixed effect</i>	Yes	Yes
<i>Obs.</i>	625,946	625,946
<i>Adj. R²</i>	0.207	0.207

Table 10. Social Connections and Earnings Announcement Returns

The table presents the regression results of the relation between fund manager-firm auditor social connections and earnings announcement returns. The regressions are performed using ordinary least squares (OLS), with standard errors (in parentheses) clustered at the fund level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in Appendix B.

Variable	<i>Portfolio_CAR_t</i>	
	Window [-1, 1]	Window [-2, 2]
	(1)	(2)
<i>Portfolio_ties_t</i>	0.190** (0.078)	0.161* (0.084)
<i>Fund_size_t</i>	-0.002 (0.015)	0.005 (0.017)
<i>Fund_fee_t</i>	0.055 (0.068)	0.062 (0.075)
<i>Fund_age_t</i>	0.014 (0.010)	0.011 (0.011)
<i>Fundcomp_size_t</i>	0.049* (0.029)	0.068** (0.031)
<i>Fundmgr_career_t</i>	-0.010 (0.007)	-0.009 (0.008)
<i>Fundmgr_tnr_t</i>	-0.027 (0.019)	-0.031 (0.021)
<i>Fundmgr_gender_t</i>	-0.013 (0.089)	0.032 (0.097)
<i>Fundmgr_edu_t</i>	0.463*** (0.155)	0.398** (0.176)
<i>Constant</i>	-1.613** (0.752)	-1.930** (0.801)
<i>Fund type fixed effect</i>	Yes	Yes
<i>Year fixed effect</i>	Yes	Yes
<i>Obs.</i>	11,660	11,660
<i>Adj. R²</i>	0.036	0.051

Table 11. Social Connections and Fund Returns

The table presents the regression results of the relation between fund manager-firm auditor social connections and fund returns. The regressions are performed using ordinary least squares (OLS), with standard errors (in parentheses) clustered at the fund level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in Appendix B.

Variable	<i>Fund_raw_t</i>	<i>Fund_jensen_t</i>
	(1)	(2)
<i>Fund_tieshold_t</i>	0.472*** (0.100)	0.120** (0.057)
<i>Fund_raw_{t-1}</i>	-0.107*** (0.012)	
<i>Fund_jensen_{t-1}</i>		-0.018 (0.013)
<i>Fund_size_{t-1}</i>	-0.918*** (0.154)	-0.642*** (0.101)
<i>Fund_fee_{t-1}</i>	7.679*** (0.708)	4.052*** (0.418)
<i>Fund_age_{t-1}</i>	-0.435*** (0.079)	-0.221*** (0.053)
<i>Fund_flow_{t-1}</i>	0.020 (0.077)	-0.027 (0.050)
<i>Fundcomp_size_t</i>	0.192 (0.257)	0.181 (0.159)
<i>Fundmgr_career_t</i>	-0.095 (0.066)	-0.018 (0.041)
<i>Fundmgr_tnr_t</i>	1.786*** (0.161)	0.729*** (0.089)
<i>Fundmgr_gender_t</i>	1.850** (0.915)	0.604 (0.535)
<i>Fundmgr_edu_t</i>	0.660 (1.403)	0.339 (1.036)
Constant	7.057 (5.921)	13.740*** (3.830)
<i>Fund type fixed effect</i>	Yes	Yes
<i>Year fixed effect</i>	Yes	Yes
Obs.	7,625	7,625
Adj. R ²	0.658	0.300

Table 12. Social Connections and Benefits to Connected Auditors

The table presents the regression results of the relation between fund manager-firm auditor social connections and the benefits to connected auditors. The regressions are performed using the logit model in Columns (1) and (2), and the ordinary least squares (OLS) in Columns (3) and (4). Standard errors (in parentheses) are clustered at the firm and year levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in Appendix B.

Variable	<i>Auditor_retain</i> _{t+1} (1)	<i>Auditor_hire</i> _{t+1} (2)	<i>Audit_fee</i> _t (3)	<i>Nonaudit_fee</i> _t (4)
<i>Ties_hold</i> _t	0.122* (0.071)		0.091*** (0.012)	0.089*** (0.022)
<i>Ties_auditcomp</i> _t		0.879*** (0.036)		
<i>Assets</i> _t	0.101*** (0.035)	0.030 (0.026)	0.463*** (0.007)	0.383*** (0.012)
<i>ROA</i> _t	1.540** (0.610)	-0.693 (0.510)	-0.489*** (0.106)	-0.811*** (0.221)
<i>Leverage</i> _t	-0.495*** (0.186)	0.082 (0.132)	-0.192*** (0.032)	-0.042 (0.063)
<i>Growth</i> _t	-0.068* (0.041)	-0.000 (0.029)	-0.016** (0.007)	0.011 (0.013)
<i>Receivable</i> _t	-0.103 (0.287)	-0.024 (0.173)	0.140*** (0.043)	0.020 (0.093)
<i>Inventory</i> _t	-0.138 (0.189)	-0.070 (0.161)	-0.102*** (0.029)	-0.212*** (0.053)
<i>Liquidity</i> _t	-0.036*** (0.013)	-0.002 (0.010)	-0.023*** (0.002)	-0.019** (0.008)
<i>Loss</i> _t	-0.115 (0.106)	-0.065 (0.066)	0.039** (0.018)	0.026 (0.031)
<i>BM</i> _t	0.100 (0.157)	-0.340*** (0.123)	-0.184*** (0.028)	-0.288*** (0.056)
<i>Firsthold</i> _t	-0.157 (0.165)	0.409*** (0.124)	-0.082*** (0.027)	0.110* (0.058)
<i>SOE</i> _t	-0.212*** (0.053)	0.066 (0.042)	-0.026*** (0.008)	-0.003 (0.018)
<i>Opinion</i> _t	-0.698*** (0.139)	0.114** (0.058)	0.087*** (0.025)	-0.007 (0.048)
<i>Big4</i> _t	0.129** (0.056)	0.143*** (0.036)	0.222*** (0.009)	0.173*** (0.017)
<i>Constant</i>	-0.119 (0.687)	-5.624*** (0.537)	3.528*** (0.128)	3.212*** (0.306)
<i>Industry fixed effect</i>	Yes	Yes	Yes	Yes
<i>Year fixed effect</i>	Yes	Yes	Yes	Yes
<i>Obs.</i>	16,010	2,387,824	16,025	4,680
<i>Pseudo/Adj. R²</i>	0.074	0.043	0.560	0.466