

Big Brother Is Watching You: The Effect of the CSISC Shareholding Program on Insider Trading Profitability

Finance Working Paper N° 1065/2025

May 2025

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Abstract

In 2016, the China Securities Regulatory Commission authorized the China Securities Investor Services Center (CSISC) to purchase 100 common shares of each publicly traded company in three pilot regions. We hypothesize that the CSISC's shareholdings made insiders trade more cautiously in their firm's shares, which reduced their gains from insider trading. Using a difference-in-differences approach, we find support for our hypothesis. The program also reduced losses avoided by insider sales, which experienced a statistically and economically significant drop. The program reduced the profitability of insider trades via greater minority shareholder dissent at shareholder meetings.

Keywords: Insider trading, Corporate governance, Corporate control and ownership, Minority shareholder protection, China

JEL Classifications: G14, G18, G34, G38

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Abstract

In 2016, the China Securities Regulatory Commission authorized the China Securities Investor Services Center (CSISC) to purchase 100 common shares of each publicly traded company in three pilot regions. We hypothesize that the CSISC's shareholdings made insiders trade more cautiously in their firm's shares, which reduced their gains from insider trading. Using a difference-in-differences approach, we find support for our hypothesis. The program also reduced losses avoided by insider sales, which experienced a statistically and economically significant drop. The program reduced the profitability of insider trades via greater minority shareholder dissent at shareholder meetings.

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1. Introduction

On February 19, 2016, the China Securities Regulatory Commission (CSRC) authorized the China Securities Investor Services Center (CSISC) to conduct a pilot program. The program consisted of the CSISC buying and holding 100 common shares, the smallest holding that can be held in a listed Chinese company (Xu, 2000), of each publicly traded firm incorporated in Shanghai and the provinces of Hunan and Guangdong (excluding Shenzhen). As the CSISC was not allowed to purchase more shares or trade any of its 100 shares, it effectively became a long-term minority shareholder of each listed company in the pilot regions, allowing it to exercise various shareholder rights to protect minority shareholder interests. In contrast to traditional public enforcement measures that focus on whether insiders violate laws and regulations, the CSISC acts as a voice for minority shareholders, protecting their interests even when insiders are not violating any regulations but are nevertheless engaging in behavior that is harmful to minority shareholders. Importantly, the CSISC can file lawsuits on behalf of other minority shareholders (i.e., launch class actions), which significantly reduces minority shareholder litigation costs against listed firms and corporate insiders.

Trading in their firm's shares is one way in which insiders may expropriate minority shareholder funds. As insiders tend to have better information about their firms than outsiders, including minority shareholders, they have an unfair advantage when trading in their firm's shares (Leland, 1992). Hence, while insider trading is legal in many countries, it raises ethical concerns, including concerns about its fairness. We argue that the presence of the CSISC as a shareholder makes insiders more cautious when trading in their firm's shares.

Conversely, one might argue that the program has merely resulted in the CSISC holding a symbolic stake in the firms in the pilot regions, with little or no effect on how insiders behave. Still, according to the social impact theory proposed by Latané (1981), the real, implied, or imagined presence of others may be sufficient to affect human behavior, such as reducing antisocial behavior or increasing prosocial behavior.¹ More specifically, three theoretical perspectives predict that being watched or merely having the impression of being watched reduces antisocial and even criminal behavior (Jansen et al., 2018). First, according to the rational choice

¹ Empirical support for social impact theory has been provided by several experiments. Nettle et al. (2012) found that displaying signs with prying eyes and the text "Cycle thieves – We are watching you" in three locations of a university campus significantly reduced bicycle theft compared to control areas. Similarly, the presence of a picture with a pair of eyes tripled the amount of money paid into an honesty box (Bateson et al., 2006) and increased prosocial behavior in the form of charitable donations (Ekström, 2012).

perspective, criminal behavior is the outcome of a rational cost–benefit analysis wherein the agent concludes that the expected benefits of the illegal action outweigh its costs (Clarke and Felson, 1993). Accordingly, the CSISC holding 100 shares in a firm should act as a credible deterrent for insiders not to engage in what could be perceived as objectionable insider trading. Second, the routine activity theory predicts that a crime or antisocial behavior can be prevented by a capable guardian (Cohen and Felson, 1979; Felson, 1998; Felson, 2006). Given the many activities carried out by the CSISC to protect minority shareholders, the CSISC is likely to qualify as a capable guardian. Finally, according to the social control theory developed by Hirschi (2002), a capable guardian should be an authority figure with the power to punish perpetrators. In Section 2, we provide evidence that, on several occasions, the CSISC has requested that the CSRC punish those engaging in behavior that it considered harmful to minority shareholders.

Adopting an alternative theoretical lens to the above, namely principal–agency theory (Jensen and Meckling, 1976), one might conclude that the presence of the CSISC can solve the following free-rider problem (Grossman and Hart, 1980). Grossman and Hart (1980) argue that small shareholders lack the incentive to take action against managers who do not maximize shareholder value or large shareholders who extract excessive private benefits of control from the firm (Shleifer and Vishny, 1997). If individual small shareholders were to take such action, they would bear all the costs of doing so, which could be substantial given their limited resources, while sharing the benefits of doing so with all shareholders. As the CSISC has substantial resources, and its remit includes the promotion and protection of minority shareholder interests, it may provide a solution to the free-rider problem—a problem that would otherwise result in a lack of monitoring of the management or large shareholders.

The CSISC is undoubtedly a large organization with substantial resources. It has five shareholders: the Shanghai Stock Exchange, the Shenzhen Stock Exchange, the Shanghai Futures Exchange, the China Financial Futures Exchange, and the China Securities Depository and Clearing Corporation. It has seven directors, including a CEO and several vice-CEOs. The CSISC has 10 different departments and a wholly owned subsidiary.² In 2021, it had 125 full-time employees and temporarily employed many specialists, such as asset valuation experts and lawyers.³

² The 10 departments include a disciplinary office, a party committee office, and departments in charge of administration, law, dispute mediation, investor education, rights protection affairs, internal management, investigation and monitoring, and research. The wholly owned subsidiary is the China Securities Legal Services Center Co., Ltd.

³ For example, on July 19, 2023, the CSISC published a list of 42 asset valuation experts from universities, accounting firms, and the two stock exchanges who had assisted the CSISC with its securities litigation cases. On January 1, 2023, the CSISC

Apart from having access to substantial resources, the CSISC has actively engaged in various activities to protect minority shareholder interests. As of November 2021, the CSISC held shares in 4,634 listed companies and had exercised shareholder rights 3,977 times in the form of, for example, suggestions, interpellations, voting, inspections, proposals, lawsuits, and convening extraordinary shareholder meetings. More specifically, by November 2021, the CSISC had participated in 171 shareholder meetings and 304 media and investor briefings and had conducted 42 inspections. Concerning the exercise of offsite shareholder rights, it had voted 211 times online, submitted 2,334 inquiry letters, and made 55 public denouncements (*China Securities Journal*, 2022-1-4).⁴ Furthermore, by June 25, 2024, the CSISC had initiated 82 lawsuits and supported nearly 60,000 investors in obtaining compensation of nearly RMB 3 billion (US\$282.4 million).⁵ While some of these activities predate the CSISC pilot program, they confirm that the CSISC is an active and vocal minority shareholder. In addition, the CSISC's mere presence may encourage other minority shareholders to participate and vote at shareholder meetings; given that the CSISC shares minority shareholder status with them, the latter may feel empowered, resulting in a greater propensity for collective action (Fireman and Gamson, 1979; Rowley and Moldoveanu, 2003). Put differently, as a powerful and resource-rich minority shareholder, the CSISC assumes a leadership role, thereby uniting the other minority shareholders around it, resulting in an effective and pervasive deterrent, which may be termed "supervising via enrollment".

Hence, we expect insiders to have traded more cautiously since the launch of the CSISC pilot program, thereby reducing the profitability of their trades. In addition, we expect this effect to be stronger for insider sales than insider purchases. This is because existing minority shareholders are likely to be more concerned about insiders selling their shares just before a drop in the stock price than about insiders buying more shares just before an increase in the stock price. That is, an increase in the stock price benefits all the shareholders, including the existing minority shareholders, whereas insiders jumping ship just before the stock price drops will likely upset minority shareholders.

We find strong and consistent support for our main hypothesis. Using the same measures of insider trading profitability as those used by Skaife et al. (2013), we find that the CSISC pilot program reduced the total profitability of insider trades. Following the launch of the pilot program, the total profitability of insider trades dropped by between 1.1 and 1.2 basis points of the market

disclosed the names of 216 not-for-profit lawyers it had employed.

⁴ See <https://finance.eastmoney.com/a/202201042235772984.html>. (accessed on May 16, 2025)

⁵ See https://www.thepaper.cn/newsDetail_forward_27851179. (accessed on October 10, 2024)

capitalization for the firms affected by the program compared to the control firms with similar characteristics (i.e., those not subject to the pilot program). When distinguishing between insider sales and insider purchases, losses avoided via insider sales dropped by between 1.4 and 1.5 basis points. This amounts to an average reduction in losses avoided via insider sales of CNY 1,677,696–1,797,531 (US\$236,328–252,982). As expected, the economic significance of the program’s impact on the profitability of insider purchases was relatively low, as its magnitude in absolute value was typically a seventh of its impact on sales. In addition, in some robustness tests, the statistical significance of the interaction for purchases drops or disappears altogether.

Our results for insider sales are confirmed via a battery of robustness tests, including the use of alternative windows for the profitability measures of insider trades, a parallel trends analysis, alternative approaches to identification, and two placebo tests, as well as the use of an alternative control group and alternative post-treatment periods. Further analysis suggests that the negative effect of the CSISC pilot program on insider trading profitability is only observed for non-state-owned enterprises (non-SOEs) and firms with weak governance. When it comes to the channel through which the CSISC pilot program may have affected the profitability of insider trades, we find evidence that the pilot program significantly increased minority shareholder dissent at the shareholder meetings of the firms targeted by the pilot program. The greater likelihood of dissent might have made insiders more cautious, which may have made them more cautious when trading in their firm’s shares.

Our paper makes three major contributions to the literature. First, it contributes to the literature on insider trading (for recent reviews, see Patwardhan, 2022; Cheng et al., 2023). While it has been argued that insider trading regulation is useful in the presence of frictions (e.g., incomplete contracts; Fischer, 1992), such regulation has been found not to improve market efficiency in emerging markets (Fernandes and Ferreira, 2009). As a result, Bhattacharya (2014, p. 399) called for innovative “methodologies (such as natural experiments) to evaluate the efficacy of current and future insider trading rules”. Benefiting from a natural experiment, we identify a novel way in which regulators can ensure that insiders do not expropriate minority shareholders via their trades in the firm’s shares. Although the CSISC is a small shareholder in listed companies, it is a quasi-government agency with substantial resources and power, including government support. Holding 100 shares in listed companies allows it to monitor insiders. We demonstrate that this mechanism is effective.

Second, we contribute to a large body of literature on protecting shareholder rights when insider trading occurs. For example, Dai et al. (2015) find that media coverage of insider trades reduces the future profitability of such trades. We demonstrate that, via a relatively inexpensive holding of 100 shares in every A-share listed company, the CSISC was able to affect the profitability of insider trades.⁶ Importantly, we also find evidence that the percentage of votes exercised by minority shareholders increased significantly in firms subject to the pilot program following its launch, with this pattern suggesting a plausible channel through which the CSISC program affected insider trading. This result is in line with that of Cao et al. (2025), who focus on dissenting votes from independent directors and find a positive effect of the pilot program on such votes. As stated above, we conjecture that the greater likelihood of dissent made insiders more cautious, which may have made them more cautious when trading in their firm's shares.

Finally, our paper contributes to the emerging literature that has yet to reach a consensus regarding the effects of the CSISC pilot program on corporate behavior and corporate outcomes. On the one hand, several studies have documented the positive effects of the pilot program. For example, the CSISC program reduced earnings management and tunneling by controlling shareholders (Ge et al., 2022). In addition, firms subject to the CSISC pilot program made better acquisition decisions than did firms that were not subject to it (Wang et al., 2023). Firms with a CSISC shareholding were also significantly less likely to engage in fraud and, if they did, were more likely to get caught (Zhao et al., 2024). Cao et al. (2025) find that firms subject to the pilot program experienced an increase in dissenting votes from independent directors. Still, these studies find that the CSISC pilot program only affects firms with weak governance. On the other hand, Chen et al. (2023a, 2023b) report an overall negative effect of the pilot program on the target firms, as the CSISC's rights exercises increased the cost of equity and reduced innovation output. Our results reinforce the case for the CSISC's positive role in firms, especially those with weak governance.

The structure of this paper is as follows: The next section reviews China's corporate governance system and regulations on insider trading. Section 3 explains the sample selection and research design, while Section 4 discusses the empirical results. The subsequent two sections focus on robustness tests and further analysis, respectively. Finally, Section 7 presents our conclusions.

⁶ We estimate that the total cost of the pilot program to the CSISC amounts to CNY 956,582 (US\$147,300).

2. Background

2.1. China's Corporate Governance System

Over the past few decades, China has transitioned from a planned economy to a socialist market economy. A landmark change was the creation of the Shanghai and Shenzhen Stock Exchanges in the early 1990s. By the end of 2023, there were over 5,000 domestically listed firms.⁷ To govern these listed firms, as well as intermediaries and the stock markets, the *Company Law* and the *Securities Law* were decreed in 1993 and 1998, respectively. The *Company Law* requires stock corporations to establish a two-tier board system comprising a board of directors (the decision-making body) and a supervisory board (which monitors the directors and management).

An important part of the institution-building exercise was the creation of the CSRC in 1992. Following the powers conferred onto it by the *Securities Law*, the CSRC performs regulatory and enforcement functions to ensure that the securities and futures markets are run in an orderly and legal manner. As a major objective of the *Securities Law* is to “protect the legitimate rights and interests of investors” (Article 1 of the *Securities Law*, 1998), the CSRC bears important responsibilities in this regard. To this end, the CSRC has taken many measures. It issued *Guidelines on the Appointment of Independent Directors in Listed Chinese Companies* in 2001, which required one-third of the directors on any given board to be independent after 2003. As a result, the percentage of independent directors increased from only 0.8% in 1999 to 32.8% by 2012 (Jiang and Kim, 2015), reaching 37.8% by 2021. In addition, the CSRC issued the first *Code of Corporate Governance* in 2002. The first provision of the code sets the protection of investors as a major motivation for the code. It specifies the requirements for the establishment and operation of shareholder meetings and the duties of the board of directors and supervisory board. Additionally, it stipulates regulations for the relationship between the controlling shareholder and the listed firm to prevent minority shareholder expropriation.

Nevertheless, the development of the Chinese capital market has been marred by multiple corporate frauds (Chen et al., 2011). Thus, China is typically portrayed as having weak corporate governance and low levels of investor protection (Allen et al., 2005; Jiang and Kim, 2015; Jiang and Kim, 2020). Jiang and Kim (2015, 2020, 2024) identify several additional characteristics set

⁷ See <https://view.officeapps.live.com/op/view.aspx?src=http%3A%2F%2Fwww.csrc.gov.cn%2Fcsrc%2Fc105936%2Fc7456463%2F7456463%2Ffiles%2F2023%25E5%25B9%25B412%25E6%259C%258829%25E6%2597%25A5%25E8%25AF%2581%25E5%2588%25B8%25E5%25B8%2582%25E5%259C%25BA%25E5%25BF%25AB%25E6%258A%25A5.doc&wdOrigin=BROWSELINK> (accessed on November 17, 2024).

Chinese corporate governance apart from other corporate governance systems. First, SOEs accounted for about 70% of the market capitalization in China in 2021 (Jiang and Kim, 2024). They are very different from non-SOEs in terms of their objectives and governance. For example, executive pay packages typically do not incentivize SOE managers to generate shareholder value. Second, the ownership of Chinese listed companies is highly concentrated—82% of firms in 2021 had at least one large shareholder holding more than 20% of the shares—and thus the risk of minority shareholder expropriation is pronounced. As a result, the market for corporate control is an ineffective external governance mechanism. Third, because bankruptcy costs are minimal, debt is not a disciplining device for managers. Meanwhile, banks—owing to their ownership by the state and institutional investors—tend not to play an effective monitoring role, though they now monitor their borrowers more than they used to. Fourth, the primary role of independent directors is the provision of social and political connections rather than monitoring, and the supervisory board is ineffective in most cases. Similarly, state-owned media, analysts, and auditors are ineffective monitors of firms. Finally, the market for managerial talent is still nascent, though product market competition may act as an alternative monitoring device. All the above features and weaknesses of the Chinese corporate governance system suggest that the CSISC’s pilot program could have a significantly positive effect on corporate governance.

2.2. Insider Trading

Article 74 of the *Securities Law* (2014) defines insiders as individuals or organizations that have access to inside information relating to securities trading. The first group of insiders includes the firm’s directors, supervisors, and senior management (DSMs) and anyone who may obtain inside information about the company in connection with their employment. Importantly, Article 6 of the “Guidelines for the identification of insider trading behavior in security markets” also includes the relatives of physical persons included in the above group as insiders. Our empirical analysis focuses on this first group, including their relatives.⁸

The second group consists of companies’ substantial shareholders (holding 5% or more of the shares), actual controlling shareholders, and DSMs, as well as any of the firms’ subsidiaries and their DSMs. The third group consists of people who may obtain inside information about the firm due to their position, duties, or work in relation to relevant securities market intermediaries

⁸ See <https://www.055110.com/law/1/10408.html>. (accessed on November 16, 2024)

(i.e., sponsors, securities companies engaging in underwriting, stock exchanges, securities registration and settlement institutions, and securities service agencies) and regulatory agencies and government departments.⁹ Again, as in the first group, the above definitions of insiders extend to the relatives of physical persons included in the previous two groups.

The *Securities Law* (2014) prohibits any insider from using inside information to engage in securities transactions (Articles 43, 47, 74, and 80). It also requires the parties to any insider transaction using inside information or any other undisclosed information that has caused losses to investors to bear compensatory liability (Articles 76 and 77).

Securities laws and regulations are enforced in two ways in China: publicly and privately (Huang, 2020). Public enforcement is initiated by a state agency, such as the CSRC, the CSISC, or a prosecutor. Enforcement initiated by the CSRC may lead to administrative liability, while the criminal court may impose criminal liability on securities law violators. By contrast, private enforcement is initiated by investors or other securities market participants who resort to the civil court for compensation for their losses in trading securities.

Huang (2023) provides a useful overview of the administrative and criminal insider trading cases in China between 1991 and 2019. While there were only 37 insider trading cases in the 20 years from 1991 to 2010, this number increased to 150 between 2011 and 2015 and further rose to 223 in the four years from 2016 to 2019. Moreover, among the 410 cases, 342 were administrative and 68 were criminal. This indicates that the number of insider trading cases in China has increased significantly in recent years and that public enforcement efforts have been continuously strengthened.

2.3. *The China Securities Investor Services Center (CSISC)*

2.3.1. *Background*

The CSISC was established in Shanghai on December 5, 2014. It is the only nonprofit investor protection institution under the direct authority of the CSRC in China. The CSISC's main responsibilities consist of exercising shareholder rights as a minority shareholder (with the aim of protecting the rights of the other minority shareholders); providing education, mediation, and settlement services to individual investors; monitoring and identifying investors' needs; and acting

⁹ The *Securities Law* (2019) extends the scope of insiders. The first group now also includes people who may obtain inside information about the firm in connection with their business relations with the firm (business partners and their employees). In addition, insiders also include the acquirers of a listed firm and the parties to material asset transactions with the listed firm, and their controlling shareholder, actual controlling shareholders, directors, supervisors, and the senior management.

as the investors' voice in its dealings with the government and regulators. Again, this makes the CSISC a potential solution to the free-rider problem (Grossman and Hart, 1980).

Zheng et al. (2021) review the 401 actions undertaken by the CSISC between 2016 and 2018. Importantly, insider trading was among the top 10 issues dealt with by the CSISC. Specifically, 10 of the 401 actions (2.49%) referred to insider trading—i.e., the selling of shares by DSMs. Note that all these actions referred only to insider sales rather than both insider sales and purchases. The other top 10 issues included material asset restructuring (111 actions, 27.68%), information disclosure (61 actions, 15.21%), inappropriate antitakeover provisions (22 actions, 5.49%), non-compliance with the *State Council 110 Document*¹⁰ about the protection of small- and medium-sized investors (21 actions, 5.24%), a change in the controlling shareholder (18 actions, 4.49%), cash dividends (15 actions, 3.74%), the duties performed by independent directors (13 actions, 3.24%), compliance and legal risks (10 actions, 2.49%), and internal control (9 actions, 2.24%).

2.3.2. The CSISC shareholding program

The CSISC's pilot program was announced on February 19, 2016. It consisted of purchasing 100 ordinary shares in each listed A-share company registered in three regions: Shanghai, Guangdong (excluding Shenzhen), and Hunan. Although we are unable to identify the reasons for selecting these three regions for the pilot program, we find no evidence that there were more violations of regulations in these regions¹¹ before the pilot program was launched. The objectives of the pilot program included (i) demonstrating how to exercise shareholder rights, raise awareness about shareholder rights, create a healthy equity investment culture, and enhance investors'—especially small- and medium-sized investors'—ability to protect themselves and (ii) participating in the governance of firms as a minority shareholder to ensure that investee companies comply with investor protection policies and regulations while carrying out their day-to-day operations.

The pilot program proved to be a success, as on May 11, 2016, the chairman of the CSISC announced that the CSISC owned a stake of 100 shares in nearly 500 listed firms, accounting for over 95% of all listed firms in the three pilot regions. Within a year, the CSRC concluded that the pilot program had achieved the expected results, including a positive effect on the investee companies' compliance with governance standards and related regulations, while the CSISC was exemplifying and demonstrating to small- and medium-sized investors how to exercise their rights

¹⁰ This document was issued by the State Council in December 2013 and is titled "Further Enhancing the Protection of Small and Medium-Sized Investors' Legal Rights". It specifically requires listed firms to improve their governance, profitability, and ability to pay dividends.

¹¹ We use the China Stock Market and Accounting Research (CSMAR) violations filing database for this purpose.

under the law.¹² As a result, the CSRC decided to extend the program to all listed A-share companies across the country in 2017. By the end of July 2021, the CSISC owned shares in 4,413 listed firms.¹³

2.3.3. The CSISC as an activist shareholder

The CSISC can file lawsuits on behalf of other minority shareholders, which significantly alleviates the free-rider problem. The CSISC is well placed to initiate lawsuits against corporations in the event of securities fraud, as it employs many specialists, such as asset valuation experts and lawyers. Although the CSISC was set up as a nonprofit organization, it is under the direct administration of the CSRC. Importantly, the CSRC's support of the CSISC in its endeavor to exercise shareholder rights and initiate lawsuits may have caused the CSISC to have a significant impact on listed firms' insiders.

However, the CSISC is not a typical nonprofit organization, as it engages in both enforcement and nonenforcement activities. It engages in enforcement activities by providing minority investors with securities support, acting as their special representative, and filing shareholder lawsuits.¹⁴ Before the implementation of the *Securities Law* (amended in 2019), the CSISC initiated lawsuits via securities support lawsuits. Securities support consists of the CSISC, as a supporting institution, accepting the applications and appointments by minority investors to protect their legal rights by employing pro bono lawyers or staff as legal agents to sue listed firms in the event of securities fraud. The CSISC filed a total of 52 securities support lawsuits between July 2016 and September 2023, with investors being compensated for by approximately CNY 62.11 million (US\$8.62 million).¹⁵

3. Sample Selection and Research Design

3.1 Sample Selection and Data

The CSISC pilot program enables us to undertake a difference-in-differences (DiD) analysis to investigate its effect on insider trading profitability. Therefore, the post-introduction period consists of the second, third, and fourth quarters of 2016 as well as the first quarter of 2017,

¹² See <http://www.csrc.gov.cn/csrc/c100028/c1001548/content.shtml>. (accessed on May 16, 2025)

¹³ See <http://www.isc.com.cn/html/mtbd/20211102/4136.html>. (accessed on May 16, 2025)

¹⁴ In a special representative lawsuit, the CSISC is entrusted by and acts on behalf of at least fifty investors. The CSISC can also file a shareholder lawsuit to protect the company's or shareholders' legitimate rights and interests.

¹⁵ See <http://www.isc.com.cn/tsyw/wqfw/>. (accessed on May 17, 2025)

whereas the pre-introduction period covers the four quarters of 2015. Our initial treatment group includes listed firms in the pilot regions—Shanghai, Guangdong (excluding Shenzhen), and Hunan—from the first quarter of 2015 to the first quarter of 2017, excluding the introductory period (i.e., the first quarter of 2016).

Consistent with Ge et al. (2022), we use the following sample selection procedure: First, for each pilot region, we select one or two adjacent provinces with a similar economy and culture as control regions. Specifically, we select the provinces of Jiangsu and Zhejiang as the control regions for the city of Shanghai because all three are in the Yangtze River Delta. The city of Shenzhen in Guangdong province is selected as the control region for the other cities of the province because they all have close economic ties with Shenzhen. The province of Hubei is selected as the control region for the Hunan province because they border each other and have similar economic conditions and cultures. Listed firms registered in these control regions constitute the initial control group. Second, we exclude the observations for the first quarter of 2016, when the CSISC began to buy shares of listed firms in the pilot regions.¹⁶ Note that we do not have the exact dates when the CSISC bought 100 shares in each firm. However, all stakes were acquired during the first quarter of 2016. Third, firms operating in the financial and insurance industries are excluded because their financial statements are different from those of firms from other industries. Fourth, as the CSISC was unable to buy shares of firms that had been suspended from trading during the first quarter of 2016, we exclude such observations. Fifth, we exclude firms that went public after September 30, 2015 to ensure that all firms have observations preceding the pilot program. Sixth, we omit observations for firms that had been listed for less than one year because their insiders could not sell their shares during the first year after listing in China. Seventh, to ensure the quality of matching the treatment observations with the control observations, we exclude observations for firms in industries that cannot be matched with control firms from the same industry. We use the subcategories from the 2012 CSRC industry classification as our industry classification. Finally, we exclude observations with missing values for the variables used in the tests.¹⁷

We end up with 2,525 firm-quarter observations for 442 treatment firms and 4,281 firm-quarter observations for 741 control firms, amounting to a total of 6,806 firm-quarter observations

¹⁶ Our results remain qualitatively the same when we include the first quarter of 2016. These results are available from the authors upon request.

¹⁷ We do not exclude firm-quarter observations without insider trades as the absence of insider trading could itself be a reflection of the impact of the CSISC pilot program.

for 1,183 listed firms over the eight quarter sample period. All data are obtained from the China Stock Market and Accounting Research (CSMAR) database.

Panel A of Table 1 describes the sample selection process in detail. Panel B of Table 1 presents the distribution of our sample across the treatment and control regions, while Panel C reports the sample distribution by industry category.¹⁸ Most observations are from the manufacturing industry, accounting for 67.03% of all observations, consistent with most listed firms in China being manufacturing firms (Ge et al., 2022). Finally, Panel D presents the sample distribution across the eight quarters. To mitigate the potential effect of outliers on the results, we winsorize all continuous variables at the 1st and 99th percentiles.

[INSERT TABLE 1 ABOUT HERE]

3.2. Research Design

Following previous studies on insider trading (e.g., Skaife et al., 2013; Chung et al., 2019), we construct the following DiD model to examine the effect of the CSISC shareholding program on insider trading:

$$\begin{aligned} & PROFIT\%_{i,t}(PROFIT_S\%_{i,t} \text{ or } PROFIT_P\%_{i,t}) \\ &= \alpha_0 + \alpha_1 TREAT_i \times POST_t + CONTROL_{i,t} + \delta_i + \epsilon_{j,t} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

The dependent variable is measured by *PROFIT%*, *PROFIT_S%*, and *PROFIT_P%*, which are the total insider trading profitability, insider sale profitability, and insider purchase profitability, respectively. As per Section 2.2, we define insiders as DSMs (i.e., directors, supervisors, and executives) and their relatives.¹⁹ Following prior literature on insider trading (e.g., Huddart and Ke, 2007; Skaife et al., 2013), we define insider trading profitability as the (unrealized) gains earned from purchases and the losses avoided by selling shares. Aggregate trading profitability over a particular period is measured by (i) the stock returns after each insider transaction, (ii) the value of each insider transaction, and (iii) the frequency of these insider transactions (Huddart and Ke, 2007; Skaife et al., 2013).

¹⁸ We provide more details about the sample distribution by the industry subcategories in Appendix A.

¹⁹ While insider regulation also considers large shareholders to be insiders, we do not have data on the share transactions undertaken by them. However, when we use changes in the holdings of large shareholders as a proxy for their insider transactions, we do not find an effect of the CSISC program on the profitability of such trades.

Specifically, the measure of insider trading profitability ($PROFIT\%_{i,t}$) of firm i during quarter t is constructed as follows: First, for firm i on transaction day j , we aggregate all insider transactions on that day and calculate the total value of insider sales ($VALUE_S$) and insider purchases ($VALUE_P$). Second, we compute the one-year (i.e., the 250-trading-day) buy-and-hold abnormal (market-adjusted) return ($ABRET$)²⁰ starting with the business day following the transaction date.²¹ Third, we calculate the gain realized from purchases by multiplying the abnormal return by the value purchased. For insider sales, we follow Huddart and Ke (2007) by multiplying the product of the abnormal return and the value sold by -1 . This ensures that losses avoided from sales have the same positive sign as gains on purchases. Finally, we aggregate individual transactions at the firm-quarter level and scale both sale and purchase profits by the market value (MV) of the firm at the end of the previous quarter to obtain an aggregate profitability measure of all insider trades during quarter t for firm i :

$$PROFIT\%_{i,t} = \frac{\sum_{j=1}^n (ABRET_{i,t,j} \times VALUE_P_{i,t,j}) - \sum_{j=1}^n (ABRET_{i,t,j} \times VALUE_S_{i,t,j})}{MV_{i,t-1}} \times 100 \quad (2)$$

where $ABRET_{i,t,j}$ is equal to the one-year (250-trading-day) buy-and-hold abnormal return computed for the period starting with the business day after the transaction date j , $VALUE_P_{i,t,j}$ ($VALUE_S_{i,t,j}$) is equal to the total value of the shares purchased (sold) by all insiders on day j , n is the total number of firm-days with insider trading activity for firm i in quarter t , and $MV_{i,t-1}$ is the market value of equity at the end of quarter $t-1$. We multiply the insider trading profitability measure by 100 and label this figure $PROFIT\%$, following Skaife et al. (2013). Finally, we label the profitability of sales (purchases) as $PROFIT_S\%$ ($PROFIT_P\%$).

The question arises as to whether we should distinguish between opportunistic and routine insider trades. Cohen et al. (2012) define routine trades as those that occur every year in the same month for at least two consecutive years, whereas all other trades are opportunistic trades. Although we identify very few routine trades,²² we rerun our DiD analysis excluding these trades and find qualitatively similar results.

²⁰ We use the A-share index of the Shanghai and Shenzhen Stock Exchanges to compute the buy-and-hold abnormal returns. In robustness tests (see Appendix C), we base $ABRET$ on the 90- and 180-trading-day period, respectively, starting with the business day immediately after the transaction date.

²¹ Generally, the literature shows that insider trading is profitable when trading profit is measured over periods of one year or longer (Lakonishok and Lee, 2001; Ke et al., 2003). Following Skaife et al. (2013) and Chung et al. (2019), we use the one-year post-transaction window to compute insider trading profitability in the main analysis. When we use the alternative windows of 90 trading days, 180 trading days, and the window starting 15 trading days before the transaction and ending 235 trading days after the transaction as robustness tests, we find qualitatively similar results.

²² Among the 6,806 observations, only 180 observations (2.64%) involve both routine sales and purchases, 140 (2.06%) involve routine sales, and 45 (0.66%) involve routine purchases.

TREAT is an indicator variable that equals one for a firm belonging to one of the pilot regions—i.e., Shanghai, Hunan, and Guangdong (excluding Shenzhen)—and zero otherwise. *POST* is an indicator variable that equals one for the introductory period—i.e., the four quarters from April 1, 2016 to March 31, 2017—and zero otherwise. Our primary variable of interest is the interaction term *TREAT*×*POST*, which captures the effect of the CSISC shareholdings on the profitability of insider trading.

We include an extensive set of control variables that the literature has shown to affect insider trading profitability. Specifically, we control for firm size (*LnMV_LAG*) at the beginning of the quarter because prior literature has shown that larger firms tend to have better governance; thus, insiders trade less, and their trades are less profitable (Lakonishok and Lee, 2001). As prior studies have shown that insiders are likely to be contrarian investors (Huddart and Ke, 2007; Piotroski and Roulstone, 2005), we control for the book-to-market ratio (*BTM_LAG*) at the beginning of the quarter, the cumulative monthly stock returns over the prior quarter (*RET_LAG*), past sales growth (*GROWTH*), and the earnings-to-price ratio (*EP*), following Skaife et al. (2013) and Chung et al. (2019). The buy-and-hold abnormal returns, based on the A-share index of the Shanghai and Shenzhen Stock Exchanges, over the one-year period ending one business day before the first insider transaction during the quarter under consideration (*BHARPRE*) are included to control for momentum in the returns (Skaife et al., 2013).

Following prior literature (e.g., Huddart and Ke, 2007; Skaife et al., 2013; Chung et al., 2019), we also include a set of proxies for information asymmetry and other characteristics of the firm's information environment—i.e., number of analysts following the firm for the fiscal year preceding the annual earnings announcement (*FOLLOW*), financial statement informativeness (*FSINFORM*), institutional ownership at the end of quarter *t* (*INS*), the number of years the firm has been listed (*AGE*), the median of the absolute market reactions to earnings announcements over a minimum of eight quarterly observations and a maximum of 20 quarters (*MAG_AR*), research and development expenditure (*RD*), return volatility (*RETVOL*), and accruals management (*|DA|*) in quarter *t*. We follow Gao et al. (2014) and include share turnover in quarter *t* (*TURNOVER*) to control for investor interest and the market visibility of the firm's stock.

Finally, we include the following variables to control for various firm characteristics, all based on quarter *t*: the number of reported business segments (*SEGMENTS*); an indicator variable set to one if net income before extraordinary items is negative and zero otherwise (*LOSS*); the return on assets (*ROA*); the leverage ratio (*LEV*); charges for merger, acquisition, and restructuring activities

(*MA*); internal control quality (*ICQ*); an indicator variable set to one for SOEs (*SOE*) and zero otherwise; ownership concentration (*HHI*); and managerial ownership (*MShrs*). *LOSS*, *ROA*, and *MA* are based on the entire quarter t , whereas *LEV*, *HHI*, and *MShrs* are measured at the end of quarter t . Finally, *SEGMENTS*, *ICQ*, and *SOE* are based on the end of year t . See Appendix B for detailed definitions of all the variables.

In all the regressions, we include firm fixed effects (δ_i) to control for unobservable time-invariant factors that could cause a spurious association between the CSISC shareholdings and insider trading profitability. Following Ni et al. (2021), we also include industry-by-year-quarter fixed effects ($\epsilon_{j,t}$) based on the subcategories of the 2012 CSRC industry classification to control for time-varying heterogeneity across industries (e.g., demand shocks).²³ Finally, to control for potential serial correlation and heteroskedasticity, we cluster the standard errors at the firm level.

4. Empirical Results

4.1. Descriptive Statistics and Univariate Tests

Table 2 reports summary statistics for our dependent and independent variables. On average, *PROFIT%*, which expresses the sum of profits from insider purchases and the losses avoided from insider sales for a given quarter as a percentage of the firm’s market value at the end of the quarter, is 0.0060%. This figure might seem somewhat small, as Skaife et al. (2013) find an average profitability of 0.0462%. However, their measure is based on the entire fiscal year, whereas ours is based on a single quarter. When annualizing our quarterly average by multiplying it by four, we find that the average profitability of insider trades in China is about half the equivalent value for the United States. Still, the average for profits from insider purchases and losses avoided from insider sales is only 0.0019%. This suggests that, in most quarters, insiders both purchase and sell shares in their firms. Moreover, insider sales tend to be more frequent than insider purchases. We find that the average frequency of insider sales is 0.5689, while the average frequency of insider purchases is 0.4195. Institutional ownership is, on average, 6.53%, while 32.4% of the firms are SOEs. The mean Herfindahl index of the proportions of shares owned by the top 10 shareholders, which can range from 0 to 1, is 0.1509.

²³ Given that we control for firm and time fixed effects, we exclude *TREAT* and *POST* from Eq. (1).

[INSERT TABLE 2 ABOUT HERE]

Table 3 reports the means for all the variables for both the pre- and post-introduction periods, distinguishing between the treatment and the control firms. The penultimate column reports the difference in differences between the control firms and the treatment firms—i.e., the difference between the differences between the post- and pre-introduction periods for the treatment firms and the equivalent differences for the control firms.

The following patterns emerge from the table. First, the overall profit earned from insider transactions (*PROFIT%*) increased in the post-introduction period for both the treatment firms and the control firms. However, the difference in differences is negative and significant at the 5% level. This suggests that the increase in insider profit is significantly smaller for the treatment firms than for the control firms. Similarly, when focusing on the losses avoided by insider sales, the difference in differences is negative. It is also significant but at a higher significance level of 1%. The difference in differences is also economically significant given that it amounts to -0.015% . This suggests that insiders of firms subject to the CSISC pilot program saw the losses avoided by insider sales drop compared to firms that were not subject to the pilot program. By contrast, the difference in differences for profits earned from insider purchases is positive while also being significant at the 1% level. This implies that the increase in these profits from the pre- to the post-introduction period was significantly larger for the treatment firms than for the control firms. However, the value for the difference in differences is not economically significant, as it amounts to only 0.002% , representing roughly a tenth of the absolute value of the equivalent figure for insider sales.

[INSERT TABLE 3 ABOUT HERE]

4.2. Regression Results

Table 4 reports the results of the DiD analysis. For each of the three different dependent variables—*PROFIT%*, *PROFIT_S%*, and *PROFIT_P%*—we run a first regression containing solely our primary variable of interest—the interaction term *TREAT*×*POST* (as shown in Columns 1, 3, and 5). The second regression, in addition to our primary variable of interest, includes the full set of control variables (as shown in Columns 2, 4, and 6). All regressions contain industry-year-quarter fixed effects and firm fixed effects.

The coefficient on the interaction term $TREAT \times POST$ is significant (at the 10% level or better) and negative in columns (1) and (2), suggesting that the CSISC program reduced total insider trading profitability for firms involved in the pilot program after its introduction. Similarly, the losses avoided via insider sale transactions in the treatment firms dropped significantly (at the 1% level) after the introduction of the program (as shown in Columns 3 and 4). By contrast, we find a slight, significant (at the 5% level or better) increase in the gains earned from insider purchase transactions for the treatment firms following the introduction of the program (as shown in Columns 5 and 6). However, similar to the univariate tests the difference is not economically significant as it only amounts to a seventh of the difference in losses avoided by insider sales.

[INSERT TABLE 4 ABOUT HERE]

While several of the control variables are (highly) significant, their inclusion has little effect on the predictive power of the regressions. At best, the adjusted R^2 increases from 0.090 (as shown in Column 3) to 0.126 (as shown in Column 4).

5. Robustness Tests

In this section, we perform several robustness tests, including the use of alternative windows for insider profitability measures, a parallel trends analysis, alternative approaches to identification, a couple of placebo tests, an alternative control group, and alternative post-treatment periods. Our results are upheld.

5.1. *Alternative Windows for Insider Profitability Measures*

We experiment with alternative windows for the profitability measures using the 90-trading-day and the 180-trading-day windows following the day of the transaction, respectively. In addition, as insider sales (but not insider purchases) must be disclosed at least 15 days in advance, we use the $[-15, 235]$ day window. The results, which are reported in Appendix C, are not qualitatively different.

5.2. Parallel Trends Analysis

To validate our DiD research design, we conduct a parallel trends analysis. Specifically, we re-estimate Eq. (1) by replacing *POST* with separate indicator variables—i.e., *FY15Q2*, *FY15Q3*, *FY15Q4*, *FY16Q2*, *FY16Q3*, *FY16Q4*, and *FY17Q1* (and their interaction with *TREAT*). *FY15Q1* is the benchmark year-quarter. For example, *FY15Q2* is equal to one for the firm-quarter observations belonging to the second quarter of fiscal year 2015 and zero otherwise. Fig. 1 presents the coefficients on the interaction of *TREAT* with each of the separate time variables—*TREAT*×*FY15Q2*, *TREAT*×*FY15Q3*, *TREAT*×*FY15Q4*, *TREAT*×*FY16Q2*, *TREAT*×*FY16Q3*, *TREAT*×*FY16Q4*, and *TREAT*×*FY17Q1*—with the dependent variable *PROFIT_S%*. The parallel trends analysis confirms the validity of our DiD research design. We find similar trends for total insider profitability. For the profitability of insider purchases, we do not find any significant trends.

[INSERT FIGURE 1 ABOUT HERE]

5.3. Alternative Approaches to Identification

Table 5 presents the robustness tests using alternative matching and weighting approaches. We employ propensity score matching (PSM), overlap weighting, and entropy balancing. Panel A presents the results using PSM. Specifically, we first run a logit regression estimating the likelihood of being treated using the observations of the fourth quarter of 2015—i.e., the quarter preceding the quarter when the program was launched. *TREAT* is the dependent variable, and the control variables in Eq. (1) and the industry fixed effects are the predictors. We then match the treatment and control firms (1:3) using nearest-neighbor matching with replacement, with the caliper set to 0.01. This process results in 238 treatment firms and 282 control firms. Furthermore, we obtain 3,618 firm-quarter observations—i.e., 1,636 treatment observations and 1,982 control observations during the full sample period. Finally, we rerun our baseline regression using the matched observations. We confirm our previous results, finding a negative and significant (at the 10% level) effect of the pilot program on total insider profitability and a negative and significant (at the 5% level) effect on the profitability of insider sales.

Panel B presents the results using the overlap weighting approach developed by Li et al. (2018) and used in prior literature (Bartram et al., 2021; Landsman et al., 2023). The overlap weighting approach uses an estimated propensity of being a treatment firm to reweight

observations and generate similar distributions of the explanatory variables for the treatment and control group observations. This method consists of the following two steps: First, we run a logit regression to estimate the probability of treatment. As explanatory variables, we employ all control variables from Eq. (1), as well as industry and year-quarter fixed effects. Second, observations are weighted with their respective treatment propensities to generate a synthetic sample with improved covariate balance. We then rerun our baseline regression using this propensity-weighted sample. Again, our results are upheld, and we can confirm the negative and significant effect of the pilot program on both total insider profitability (at the 10% level) and the profitability of insider sales (at the 5% level).

Panel C presents the results using entropy balancing (Hainmueller, 2012). We force covariate balance among the treatment firms and the control firms by including all the control variables, as well as the industry and year-quarter fixed effects, based on their first three moments. While we no longer find a significantly negative effect of the interaction term on *total* insider trading profitability, we still find a significantly negative effect on the profitability of insider sales (at the 5% level) and a significantly positive effect on the profitability of insider purchases (at the 10% level).

[INSERT TABLE 5 ABOUT HERE]

5.4. Placebo Tests

We perform a placebo test based on an artificial CSISC shareholding pilot program whose timing and target firms do not coincide with those of the true pilot program. Specifically, we randomly extract 17.67% of all non-pilot A-share firms as a treatment group²⁴ and use the remaining firms in all the non-pilot regions across China as the control group to rerun Eq. (1). We repeat the process 1,000 times. Fig. 2 reports the probability density function of the estimated coefficient of $TREAT \times POST$ from 1,000 simulations randomly assigning CSISC shareholding status to firms using $PROFIT_S\%$ as the dependent variable.²⁵ The results of this placebo test indicate that the program does not have an effect on the profitability of insider sales, suggesting that our key results are not spurious.

²⁴ We adopt an approach similar to Ge et al. (2022). Because firms in the pilot regions represent 17.67% of all A-share firms in China, we use this same percentage of non-pilot firms for the placebo test.

²⁵ We obtain similar results when we use $PROFIT\%$ and $PROFIT_P\%$ as the dependent variable, respectively.

[INSERT FIGURE 2 ABOUT HERE]

Table 6 shows the results of a different placebo test in which we take the last quarter of 2014 as the placebo launch or introductory quarter of the pilot program. To do so, we extend our sample period to 2013—i.e., from January 2013 to March 2017. *POST* equals one for the introductory period—i.e., from January 2015 to March 2017—and zero otherwise. We then rerun the regressions from Table 4. The placebo test results in Table 6 show that there is no effect of the placebo CSISC program on the profitability of insider trading. Given that the two placebo tests do not find an effect, it is unlikely that our key results are spurious.

[INSERT TABLE 6 ABOUT HERE]

5.5. *Alternative Control Group*

Table 7 reruns the DiD analysis using an alternative control group. To alleviate any potential concerns regarding our main results being driven by the way the control firms were selected, we use all the A-share firms other than those covered by the pilot program as an alternative control group. The first three columns of the table are based on the entire sample, whereas the last three columns are based on a PSM sample. We apply the same procedure used in Section 5.3 to construct a PSM sample. Specifically, we first run a logit regression to estimate the likelihood of being treated (i.e., being selected to participate in the pilot program) using the observations of the fourth quarter of 2015—i.e., the quarter preceding the quarter when the program was launched. *TREAT* is the dependent variable and the control variables from Eq. (1), and the industry fixed effects are the predictors. We then match the treatment and control firms (1:1) using nearest-neighbor matching with replacement, with the caliper set to 0.01.

Overall, our previous results are confirmed. For the full sample, we still find a negative and significant effect of the pilot program on the total profitability of insider trading (at the 10% level) and the losses avoided by insider sales (at the 5% level). For the PSM sample, while we find a nonsignificant effect of the CSISC pilot program on the total profitability of insider trading, the significantly negative effect (at the 10% level) of the CSISC pilot program on the profitability of insider sales persists. We find similar results when using overlap weighting and entropy balancing.

[INSERT TABLE 7 ABOUT HERE]

5.6. Alternative Pre- and Post-Treatment Periods

Table 8 presents the regression results using a time-varying DiD approach, using both the pilot program and the rollout of the program throughout China after April 2017. We proceed by selecting A-share listed firms from 2014 to 2019 as our sample. We amend the definition of the *POST* indicator variable as follows: *POST* is now equal to one not only for the firms in Shanghai, Guangdong (excluding Shenzhen), and Hunan after the first quarter of 2016 but also for firms from all other regions after the first quarter of 2017 and zero otherwise. Note that we now focus on *POST* in isolation rather than *TREAT*×*POST*, as all firms are eventually treated.

[INSERT TABLE 8 ABOUT HERE]

We find results that are qualitatively similar to the results from the main regression analysis in Table 4. We find that the CSISC program had a negative effect on total insider trading profitability and insider sale profitability, whereas it had a positive effect on insider purchase profitability. Note that the significance level for both insider sale profitability and insider purchase profitability has now improved and is 1%, whereas for insider trading profitability, it is 10%.

Given that the pilot program was followed by a nationwide rollout, we adopt the estimation technique proposed by Borusyak et al. (2024) for a DiD with staggered treatment adoption to alleviate the limitations of conventional regression-based estimators, which may be unable to produce unbiased estimates of relevant estimands absent strong restrictions on treatment-effect homogeneity. The results reported in Table 9 indicate that while the coefficient of *POST* is not significant at any conventional levels for total insider profitability, it is significantly negative (at the 5% level) for *PROFIT_S%* and significantly positive (at the 1% level) for *PROFIT_P%*.²⁶ Still, in line with our previous results, the effects of the CSISC programs are not economically significant for insider purchases.

²⁶ The Borusyak et al. (2024) estimation technique aggregates separate group-tie effect estimates and, therefore, does not generate R^2 statistics for single regressions.

In addition, we analyze the parallel trends for the above tests based on the method of Borusyak et al. (2024). The results are reported in Fig. 3. They are broadly consistent with those shown in Fig. 1 and Table 9.

[INSERT TABLE 9 ABOUT HERE]

[INSERT FIGURE 3 ABOUT HERE]

Finally, as China experienced a stock market crash between June 2015 and early 2016, we also amend the pre-treatment period to confirm the robustness of our results by excluding the observations during the last three quarters of 2015 while extending the sample period to 2014. The results (presented in Appendix D) remain consistent when rerunning the main regression analysis.

5.7. *Illegal insider trading*

It could be the case that our main results are driven by illegal insider trading. We treat all violation cases recorded in the CSMAR database as illegal insider trades. We find 193 observations relating to illegal insider trades and distinguish these from the 1,901 observations relating to legal insider trades. The subsample of illegal insider trades consists of 193 observations with illegal insider trades and 4,712 observations without insider trades, whereas the subsample of legal insider trades consists of 1,901 observations with legal insider trades and 4,712 observations without insider trades. When we rerun the baseline regression on the two subsamples with legal and illegal insider trades, we find results (reported in Appendix E) for the subsample of legal insider trades similar to those from the main analysis: The coefficient on the interaction term $TREAT \times POST$ is negative and significant for $PROFIT\%$ (at the 10% level) and $PROFIT_S\%$ (at the 1% level), whereas it is positive and significant at the 5% level for $PROFIT_P\%$. Therefore, our main results do not appear to be driven by illegal insider trading.

5.8. *Short Selling*

During the sample period, China deregulated short selling. To mitigate concerns that short sellers might have reduced the profitability of insider sales, in the first instance, we exclude firms whose stock is available for short selling, and in the second instance, we use an indicator variable for such firms (the results are reported in Appendix F). Our main results remain unchanged.

6. Further Analysis

6.1. SOEs Versus Non-SOEs

Chinese SOEs differ markedly from Chinese non-SOEs in terms of their governance. Prior studies have documented that insiders of SOEs are less likely to profit from insider trading, as their managers typically own little or no shares in their firms. Indeed, such managers have to follow strict rules on stock trading (Chen et al., 2013; Jiang and Kim, 2015). Moreover, the Chinese government's unique promotion system for SOE executives incentivizes the latter to pursue political motives more strongly than economic profits (Cao et al., 2019; Bradshaw et al., 2019). By contrast, the insiders of non-SOEs can trade their stocks more freely and have stronger incentives to maximize their personal wealth through opportunistic insider trading. Therefore, we expect that the effect of the CSISC program on insider trading profitability is stronger for non-SOEs than for SOEs.

To confirm this conjecture, we divide our sample into SOE and non-SOE subsamples, respectively, and rerun Eq. (1). Consistent with our conjecture, Table 10 shows that the coefficient on $TREAT \times POST$ is significant and negative for both total insider trading and insider sale profitability for the non-SOEs only. This indicates that the effect of the CSISC program on the profitability of total insider trading and insider sales is only observed for firms whose insiders are more likely to profit from insider trading. Similarly, the coefficient on $TREAT \times POST$ is only significantly positive for insider purchase profitability for non-SOEs. The Fisher's Permutation tests using 1000 bootstraps suggest that the differences in the coefficients on $TREAT \times POST$ between the two SOE and non-SOE subsamples are all statistically significant for total insider trading, insider sale profitability and insider purchase profitability.

[INSERT TABLE 10 ABOUT HERE]

6.2. Corporate Governance Quality

We expect to observe an effect of the CSISC program on insider trading profitability only among firms with weak governance. For example, prior studies have found that financial analysts following a firm play an important role in inhibiting opportunistic insider trading by improving its informational environment (Frankel and Li, 2004; Ellul and Panayides, 2018). Hence, we predict

that financial analysts weaken the effect of the CSISC program on the profitability of insider trading.

Furthermore, previous studies have found that institutional investors possess superior information compared to other investors via their monitoring of management. As a result, the profitability of insider trading is reduced (Bricker and Markarian, 2015; Cheng et al., 2016; Fu et al., 2020). Moreover, the positive effect of institutional ownership on insider trading is largely due to pressure-resistant institutional investors rather than pressure-sensitive institutional investors, as the latter have business ties with their investee firms (Li and Ji, 2021).²⁷

Finally, previous studies have emphasized the importance of board independence for corporate governance. When managers' interests diverge from shareholders' interests, independent directors might be able to protect the interests of the latter (Rosenstein and Wyatt, 1990; Quan and Zhang, 2021). As a result, we expect the relationship between the implementation of the CSISC program and the profitability of insider trading to be stronger among firms with low board independence.

To test the validity of our conjectures, we use the following three measures of governance quality: *FOLLOW*, *INSR*, and *ID*. *FOLLOW* is the natural logarithm of one plus the number of individual earnings forecasts for the current fiscal year before the annual earnings announcement. *INSR* is the number of shares held by pressure-resistant institutional shareholders expressed as a proportion of the total number of shares outstanding at the end of the quarter. Pressure-resistant institutional investors are defined as those who do not have a business relationship with their investee firm and are therefore unlikely to have conflicts of interest. We consider qualified foreign institutional investors and social security funds to be pressure-resistant institutional shareholders. *ID* is the number of independent directors scaled by the total number of directors at the end of the fiscal year. To conduct the sub-sample analysis, we first calculate the mean of the four firm-quarter observations for *INSR* before the pilot program (*Mean_INSR*). We use the firm-year values of *FOLLOW* and *ID* before the pilot program, as there are no quarterly data. We then employ the sample median of each governance proxy to split the sample firms into two subsamples. For example, if a firm's *Mean_INSR* before the pilot program is above the median of all firms'

²⁷ Following prior literature (e.g., Chen et al., 2007; Li and Ji, 2021), we classify qualified foreign institutional investors and social security funds as pressure-resistant institutional investors, while banks, insurance companies, investment trusts, and finance companies are classified as pressure-sensitive institutional investors. We also classify mutual funds as pressure-sensitive institutional investors, as prior studies document that mutual funds are ineffective monitors in China (e.g., Firth et al., 2010).

Mean_INSR, it is allocated to the sub-sample with high governance quality; otherwise, it is allocated to the sub-sample with low governance quality.

Table 11 presents the results of the subsample analysis. Overall, the effect of the CSISC program on the profitability of insider trades is only observed for firms with low-quality governance, which is in line with previous studies (e.g., Ge et al., 2022; Wang et al., 2023; Zhao et al., 2024).

[INSERT TABLE 11 ABOUT HERE]

6.3. Channel Analysis

The CSISC pilot program may have affected insider trading by generating greater dissent by minority shareholders at annual and extraordinary shareholder meetings. The greater likelihood of dissent might have made insiders more cautious when trading in their firm's shares. We hand-collect the data on the number of votes cast at such meetings and construct the following dependent variables: *MinSHOpin* and *MinSHOpin_online*. *MinSHOpin* is defined as the number of dissenting and abstention votes cast by minority shareholders at meetings divided by the total votes cast (owned) by the minority shareholders attending meetings and multiplied by 100. *MinSHOpin_online* is the number of dissenting and abstention votes cast online by minority shareholders over the total votes cast (owned) by minority shareholders attending the meetings multiplied by 100. We add the following control variables to Eq. (1) that may affect minority shareholder dissent at meetings: an indicator variable for extraordinary shareholder meetings (*ExtraMt*), the percentage of shares held by minority shareholders in attendance (*MinSHRatio*), the percentage of shares held by minority shareholders who attended online (*MinSHRatio_online*), the natural logarithm of one plus the number of minority shareholders in attendance (*MinSHNub*), an indicator variable if the votes cast online by minority shareholders are not disclosed (*MinSHOpin_online_miss*), and an indicator variable if the largest shareholder holds a supermajority (i.e., 66.67%) of the votes (*SuperTop*). The results presented in Table 12 show that the CSISC pilot program improved minority shareholder participation in the meetings.²⁸ This is

²⁸ This positive effect of the CSISC pilot program on minority shareholder voting at meetings is further confirmed by anecdotal evidence from newspapers about greater minority shareholder engagement (see https://m.sohu.com/a/208850037_115124, <http://www.zqrb.cn/toufu/jigoudongtai/2021-07-02/A1625229386473.html>, and <http://www.nbd.com.cn/articles/2017-03-30/1089920.html>).

consistent with the CSISC uniting other minority shareholders around it, resulting in a more effective deterrent.

To sum up, we find evidence that the CSISC program reduced the profitability of insider trades via increases in minority shareholder dissent.

[INSERT TABLE 12 ABOUT HERE]

7. Conclusion

We argue that the introduction of the pilot program, which consisted of the CSISC holding 100 common shares in every listed firm in three pilot regions, affected the behavior of insiders of firms subject to the pilot program when trading in the shares of their firms. More specifically, we expect the pilot program to reduce the profitability of insider trades, especially the losses avoided from insider sales.

We find strong and consistent evidence in support of our hypothesis. When compared to a control group of firms not subject to the pilot program but otherwise identical to the treated firms, a DiD analysis suggests that the losses avoided by insider trades dropped, on average, by between 1.4 and 1.5 basis points of the market capitalization of the firms affected by the program. Our results are upheld when conducting a battery of robustness tests. Further analysis suggests that the CSISC pilot program only reduced the profitability of insider trades in non-SOEs and firms with weak governance, with no such effect in SOEs and firms with strong governance. Finally, the CSISC pilot program resulted in greater dissent by minority shareholders at the shareholder meetings of the treated firms. This suggests that the negative effect of the CSISC pilot program on insider trading profitability was caused by its positive effect on minority shareholder engagement.

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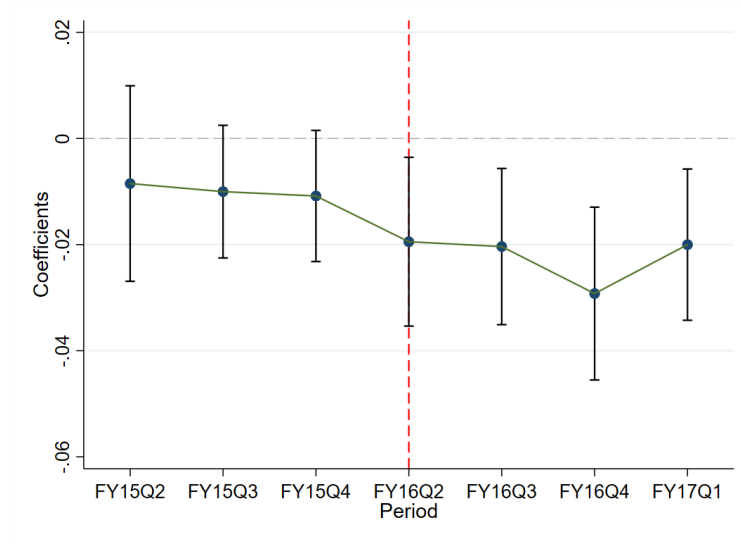


Fig. 1. Parallel Trends Tests (dependent variable = *PROFIT_S%*).

Note: In this figure, the parallel trends test consists of rerunning Eq. (1) by replacing *POST* with separate indicator variables—*FY15Q2*, *FY15Q3*, *FY15Q4*, *FY16Q2*, *FY16Q3*, *FY16Q4*, and *FY17Q1*—and their interaction with *TREAT*. *FY15Q1* is the benchmark year.

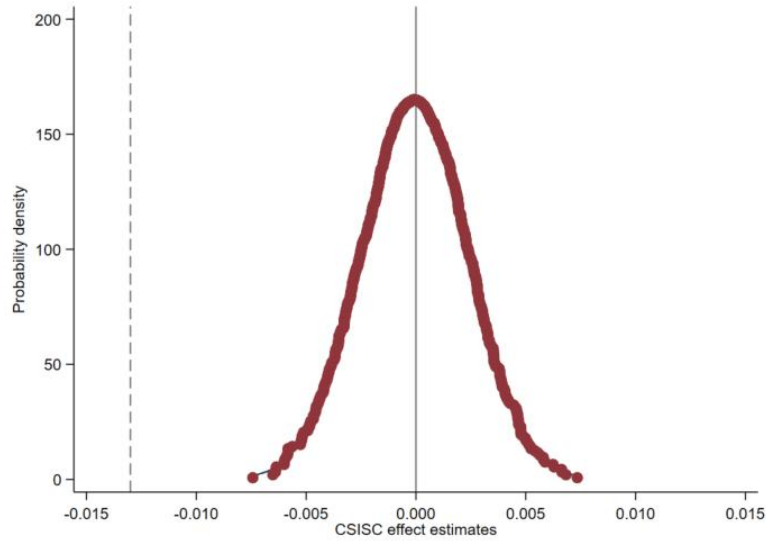


Fig. 2. Distribution of the Estimated Coefficient of *TREAT*×*POST* in the Placebo Test (Dependent Variable = *PROFIT_S%*).

Note: In this figure, the placebo test consists of an artificial CSISC shareholding pilot program whose timing and target companies do not coincide with those of the true pilot program. We randomly select 17.67% of all non-pilot A-share firms as a treatment group and use the remaining firms in all the non-pilot regions across China as the control group to rerun Eq. (1). The figure shows the probability density function of the estimated coefficient of *TREAT*×*POST* from 1,000 simulations randomly assigning CSISC shareholding status to firms, using *PROFIT_S%* as the dependent variable. *TREAT* is an indicator variable that equals one for an artificial CSISC shareholding pilot firm, and zero otherwise. *Post* equals one for the four quarters from April 1, 2016 to March 31, 2017, and zero otherwise.

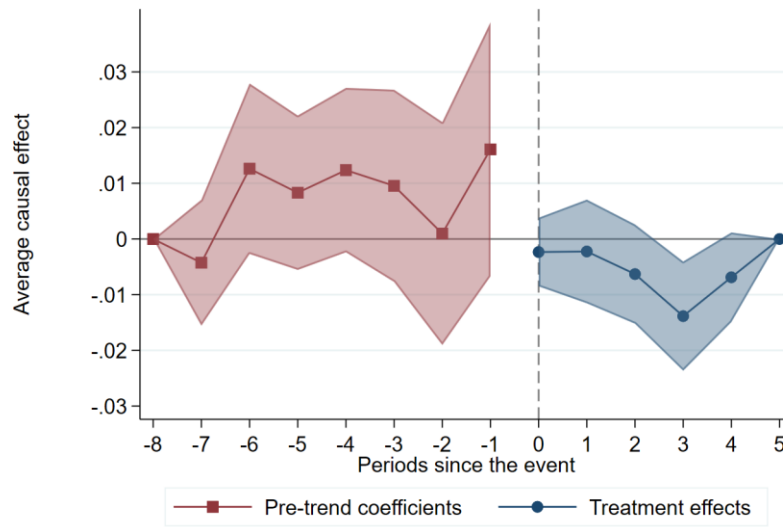


Fig. 3. Parallel Trends Analysis of the Profitability of Insider Sales Based on Borusyak et al. (2024).

Note: This figure revisits Table 8, which uses both the pilot program and the rollout of the program throughout China after April 2017. The parallel trends analysis is performed by adopting the Borusyak et al. (2024) framework for a DiD with staggered treatment adoption.

Table 1

Sample Selection Procedure and Distribution of Firm-Quarter Observations.

Panel A. Sample selection

	Treatment group	Control group	Total
Initial A-share listed firm-quarter observations from 2015Q1 to 2017Q1			24,599
Less:			
Firm-quarter observations located outside the control and treatment provinces			12,509
Firm-quarter observations for 2016Q1	519	862	1,381
Firm-quarter observations in the financial and insurance industry	109	100	209
Firm-quarter observations for firms suspended from trading during the first quarter of 2016	16	29	45
Firm-quarter observations for firms that went public after September 30, 2015	60	152	212
Firm-quarter observations for firms listed less than one year	79	154	233
Firm-quarter observations that cannot be matched by industry	332	469	801
Firm-quarter observations with missing variables	882	1521	2,402
Remaining firm-quarter observations	2,525	4,281	6,806

Panel B. Distribution across regions

	Region	No.	%
Treatment group:	Shanghai	1,139	16.74
	Guangdong	1,012	14.87
	Hunan	374	5.50
Control group:	Jiangsu	1,330	19.54
	Zhejiang	1,511	22.20
	Shenzhen	972	14.28
	Hubei	468	6.88
Total firm-quarter observations		6,806	100.00

Panel C. Distribution of firm-quarter observations across industries

Industry	Obs. for treatment group	Obs. for control group	Total obs.	%
Manufacturing (C)	1,524	3038	4,562	67.03
Electricity, Heat, Gas, and Water Supply (D)	85	68	153	2.25
Construction (E)	62	94	156	2.29
Wholesale and Retail (F)	190	316	506	7.43
Transportation, Storage, and Postal Services (G)	150	95	245	3.60
Accommodation and Restaurant Services (I)	172	190	362	5.32
Real Estate (K)	194	250	444	6.52
Leasing and Business Services (L)	34	81	115	1.69
Scientific Research and Technical Services (M)	25	15	40	0.59
Water Conservation, Environment, and Public Facilities (N)	20	12	32	0.47
Culture, Sports, and Entertainment (R)	40	69	109	1.60
Conglomerates (S)	29	53	82	1.20
Total firm-quarter observations	2,525	4,281	6,806	100

Panel D. Distribution of firm-quarter observations over time

Quarter	Treatment group		Control group		Full sample	
	No.	%	No.	%	No.	%
2015Q1	295	11.68	502	11.73	797	11.71
2015Q2	270	10.69	453	10.58	723	10.62
2015Q3	297	11.76	501	11.70	798	11.72
2015Q4	290	11.49	461	10.77	751	11.03
2016Q2	330	13.07	561	13.10	891	13.09
2016Q3	350	13.86	603	14.09	953	14.00
2016Q4	332	13.15	583	13.62	915	13.44
2017Q1	361	14.30	617	14.41	978	14.37
Total firm-quarter observations	2,525	100	4,281	100	6,806	100

This table presents the sample selection procedure (Panel A) and the sample distribution of firm-quarter observations by region (Panel B), by industry (Panel C), and by year-quarter (Panel D).

Table 2

Summary Statistics.

Variables	N	Mean	SD	Min	P25	Median	P75	Max
PROFIT%	6,806	0.0060	0.1089	-0.5686	0.0000	0.0000	0.0000	0.6855
PROFIT_S%	6,806	0.0019	0.0936	-0.5536	0.0000	0.0000	0.0000	0.5746
PROFIT_P%	6,806	0.0019	0.0141	-0.0211	0.0000	0.0000	0.0000	0.1143
<i>FREQ_S</i>	6,806	0.5689	1.6438	0.0000	0.0000	0.0000	0.0000	10.0000
<i>FREQ_P</i>	6,806	0.4195	1.4573	0.0000	0.0000	0.0000	0.0000	10.0000
<i>LnMV_LAG</i>	6,806	23.2068	0.8719	21.7046	22.5792	23.0818	23.6901	26.0410
<i>BTM_LAG</i>	6,806	0.3608	0.1980	0.0389	0.2172	0.3260	0.4667	1.0330
<i>RET_LAG</i>	6,806	0.0378	0.2962	-0.4942	-0.1520	-0.0093	0.1753	1.0825
<i>EP</i>	6,806	0.0047	0.0062	-0.0143	0.0014	0.0038	0.0072	0.0315
<i>GROWTH</i>	6,806	0.2193	0.5336	-0.0771	0.0345	0.0734	0.1684	3.9277
<i>BHARPRE</i>	6,806	0.0694	0.2476	-0.4397	0.0000	0.0000	0.0000	1.1710
<i>FOLLOW</i>	6,806	2.9856	1.4933	0.0000	2.0794	3.2581	4.1431	5.4638
<i>FSINFORM</i>	6,806	0.3041	0.2821	-0.1636	0.0564	0.2828	0.5339	0.8918
<i>INS</i>	6,806	0.0653	0.0592	0.0000	0.0191	0.0485	0.0962	0.2768
<i>AGE</i>	6,806	2.3402	0.6349	0.6931	1.7918	2.3026	2.9444	3.2189
<i>MAG AR</i>	6,806	0.0006	0.0081	-0.0182	-0.0047	0.0002	0.0057	0.0236
<i>RD</i>	6,806	0.8332	0.3728	0.0000	1.0000	1.0000	1.0000	1.0000
<i>RETVOL</i>	6,806	0.0324	0.0169	0.0097	0.0193	0.0273	0.0423	0.0760
<i> DA </i>	6,806	0.0252	0.0267	0.0004	0.0079	0.0172	0.0323	0.1527
<i>TURNOVER</i>	6,806	1.3222	0.9689	0.1192	0.5995	1.0553	1.8028	4.6041
<i>SEGMENTS</i>	6,806	2.7432	0.8842	0.6931	2.1972	2.7081	3.2958	5.0689
<i>LOSS</i>	6,806	0.1964	0.3973	0.0000	0.0000	0.0000	0.0000	1.0000
<i>ROA</i>	6,806	0.0108	0.0152	-0.0403	0.0029	0.0090	0.0175	0.0667
<i>LEV</i>	6,806	0.1311	0.1228	0.0000	0.0182	0.1039	0.2126	0.4874
<i>MA</i>	6,806	0.3024	0.4593	0.0000	0.0000	0.0000	1.0000	1.0000
<i>ICQ</i>	6,806	6.3833	1.2841	0.0000	6.2043	6.6145	6.9656	8.1528
<i>SOE</i>	6,806	0.3240	0.4680	0.0000	0.0000	0.0000	1.0000	1.0000
<i>HHI</i>	6,806	0.1509	0.1027	0.0150	0.0722	0.1226	0.2068	0.5022
<i>MShrs</i>	6,806	0.1071	0.1653	0.0000	0.0000	0.0062	0.1764	0.6094

This table presents the descriptive statistics of all the variables. See Appendix B for the definitions of the variables.

Table 3

Univariate Comparison of the Treatment and Control Firms.

Variables	<i>Treatment firms</i>		<i>Control firms</i>		<i>Diff. in Diff.</i> (b – d) – (a – c)	<i>p-value</i>
	Pre	Post	Pre	Post		
	(N = 1,152)	(N = 1,373)	(N = 1,917)	(N = 2,364)		
	(a)	(b)	(c)	(d)		
PROFIT%	-0.0014	0.0123	-0.0074	0.0170	-0.011	0.049**
PROFIT_S%	-0.0079	0.0115	-0.0175	0.0168	-0.015	0.001***
PROFIT_P%	0.0031	-0.0001	0.0054	-0.0002	0.002	0.000***
<i>FREQ_S</i>	0.5035	0.4618	0.7376	0.5262	0.170	0.040**
<i>FREQ_P</i>	0.5260	0.1661	0.8112	0.1971	0.254	0.000***
<i>LnMV_LAG</i>	23.2409	23.2959	23.0957	23.2285	-0.078	0.076*
<i>BTM_LAG</i>	0.3487	0.3743	0.3522	0.3657	0.012	0.224
<i>RET_LAG</i>	0.1079	-0.0340	0.1127	-0.0155	-0.014	0.346
<i>EP</i>	0.0043	0.0052	0.0041	0.0051	-0.000	0.741
<i>GROWTH</i>	0.2487	0.2707	0.2019	0.1893	0.034	0.199
<i>BHARPRE</i>	0.0483	0.0592	0.0790	0.0778	0.012	0.328
<i>FOLLOW</i>	2.8039	2.8931	2.9743	3.1370	-0.074	0.327
<i>FSINFORM</i>	0.2872	0.3120	0.3087	0.3040	0.029	0.038**
<i>INS</i>	0.0558	0.0663	0.0638	0.0706	0.004	0.217
<i>AGE</i>	2.4376	2.4237	2.2867	2.2875	-0.015	0.645
<i>MAG AR</i>	0.0003	0.0006	0.0002	0.0010	-0.001	0.187
<i>RD</i>	0.7691	0.7968	0.8477	0.8739	0.001	0.939
<i>RETVOL</i>	0.0451	0.0216	0.0453	0.0219	-0.000	0.744
<i> DA </i>	0.0263	0.0257	0.0235	0.0258	-0.003	0.031**
<i>TURNOVER</i>	1.8236	0.9117	1.8006	0.9284	-0.040	0.361
<i>LOSS</i>	0.2231	0.2017	0.2118	0.1679	0.023	0.260
<i>SEGMENTS</i>	2.7884	2.8396	2.6246	2.7614	-0.086	0.054*
<i>ROA</i>	0.0096	0.0107	0.0104	0.0118	-0.000	0.791
<i>LEV</i>	0.1401	0.1247	0.1408	0.1228	0.003	0.673
<i>MA</i>	0.3177	0.2782	0.3427	0.2762	0.027	0.243
<i>ICQ</i>	6.3691	6.4004	6.3769	6.3854	0.023	0.725
<i>SOE</i>	0.4922	0.4057	0.2739	0.2352	-0.048	0.038**
<i>HHI</i>	0.1543	0.1437	0.1564	0.1488	-0.003	0.575
<i>MShrs</i>	0.0788	0.0890	0.1148	0.1252	-0.000	0.996

This table reports the mean values of all the variables for the treatment and control firms for both the pre- and post-introduction period of the CSISC pilot program. The penultimate column contains the difference in differences—i.e., the difference in the differences between the post- and pre-introduction means for the treatment firms and the equivalent differences for the control firms. The final column contains the equivalent p-value. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Table 4

The Effect of CSISC Shareholdings on Insider Trading Profitability.

Dependent variable	<i>PROFIT%</i>		<i>PROFIT_S%</i>		<i>PROFIT_P%</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>TREAT</i> × <i>POST</i>	-0.011*	-0.012**	-0.014***	-0.015***	0.002***	0.002**
	(-1.89)	(-2.14)	(-2.67)	(-2.92)	(2.82)	(2.40)
<i>LnMV_LAG</i>		0.025***		0.036***		-0.005***
		(2.62)		(4.54)		(-4.01)
<i>BTM_LAG</i>		-0.028		-0.039**		0.006***
		(-1.52)		(-2.45)		(2.97)
<i>RET_LAG</i>		-0.014*		-0.014**		0.001
		(-1.84)		(-2.15)		(0.77)
<i>EP</i>		-0.001		0.002		-0.001
		(-0.20)		(0.45)		(-0.85)
<i>GROWTH</i>		-0.501		-0.653*		0.143***
		(-1.30)		(-1.93)		(2.70)
<i>BHARPRE</i>		0.044***		0.045***		-0.001
		(3.97)		(4.53)		(-1.12)
<i>FOLLOW</i>		0.001		-0.000		0.000
		(0.30)		(-0.13)		(0.05)
<i>FSINFORM</i>		-0.006		-0.006		-0.000
		(-0.52)		(-0.54)		(-0.38)
<i>INS</i>		0.000		0.000		-0.000
		(0.23)		(0.75)		(-1.44)
<i>AGE</i>		0.088**		0.117***		-0.018***
		(2.55)		(4.01)		(-4.33)
<i>MAG_AR</i>		0.188		0.055		0.060
		(0.34)		(0.11)		(1.04)
<i>RD</i>		-0.014		-0.006		-0.002
		(-1.32)		(-0.88)		(-0.92)
<i>RETVOL</i>		0.049		0.202		-0.019
		(0.19)		(0.93)		(-0.51)
<i> DA </i>		-0.087		-0.077		-0.001
		(-1.46)		(-1.52)		(-0.10)
<i>TURNOVER</i>		0.007**		0.004		0.000
		(2.16)		(1.36)		(0.44)
<i>SEGMENTS</i>		-0.021***		-0.019**		-0.001
		(-2.66)		(-2.17)		(-0.85)
<i>LOSS</i>		0.004		0.004		-0.000
		(0.76)		(0.83)		(-0.26)
<i>ROA</i>		0.392*		0.276		-0.014
		(1.72)		(1.46)		(-0.48)
<i>LEV</i>		0.094***		0.076***		0.006
		(3.16)		(2.88)		(1.52)
<i>MA</i>		0.017***		0.013***		0.002***
		(4.27)		(3.72)		(3.95)
<i>ICQ</i>		-0.000		0.001		-0.000
		(-0.19)		(0.63)		(-1.04)

<i>SOE</i>		-0.020 (-0.43)		-0.027 (-0.62)		0.003 (1.01)
<i>HHI</i>		-0.181** (-2.22)		-0.154** (-2.43)		-0.002 (-0.20)
<i>MShrs</i>		-0.068 (-1.27)		-0.098** (-2.11)		0.019*** (2.89)
<i>_cons</i>	0.008*** (6.96)	-0.687*** (-2.96)	0.005*** (4.39)	-1.032*** (-5.41)	0.001*** (9.29)	0.164*** (5.20)
<i>Industry FEs # Year-Quarter FEs</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Firm FEs</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	6,806	6,806	6,806	6,806	6,806	6,806
<i>Adjusted R²</i>	0.068	0.093	0.090	0.127	0.138	0.157

This table reports the OLS regression results from a DiD analysis investigating the effect of CSISC shareholdings on insider trading profitability. The dependent variables *PROFIT%*, *PROFIT_S%*, and *PROFIT_P%* are total insider trading profitability, insider sale profitability, and insider purchase profitability, respectively. *TREAT* is an indicator variable that equals one for a firm belonging to one of the pilot regions—Shanghai, Hunan, and Guangdong (excluding Shenzhen)—and zero otherwise. *POST* is an indicator variable that equals one for the four quarters from April 1, 2016 to March 31, 2017 and zero otherwise. All the variables are defined in Appendix B. Standard errors are adjusted for heteroskedasticity and clustering at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Table 5

Alternative Matching and Weighting Approaches.

<i>Panel A. Propensity score matching</i>			
Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)
<i>TREAT</i>×<i>POST</i>	-0.014**	-0.015**	0.001
	(-2.02)	(-2.41)	(1.19)
<i>Controls</i>	YES	YES	YES
<i>Industry FEs#Year-Quarter FEs</i>	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES
<i>N</i>	4,768	4,768	4,768
<i>Adjusted R</i> ²	0.104	0.148	0.181
<i>Panel B. Overlap weighting</i>			
Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)
<i>TREAT</i>×<i>POST</i>	-0.011*	-0.013**	0.001*
	(-1.75)	(-2.38)	(1.81)
<i>Controls</i>	YES	YES	YES
<i>Industry FEs#Year-Quarter FEs</i>	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES
<i>N</i>	6,806	6,806	6,806
<i>Adjusted R</i> ²	0.100	0.130	0.166
<i>Panel C. Entropy balancing</i>			
Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)
<i>TREAT</i>×<i>POST</i>	-0.008	-0.012**	0.001*
	(-1.28)	(-2.18)	(1.64)
<i>Controls</i>	YES	YES	YES
<i>Industry Fes # Year-Quarter FEs</i>	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES
<i>N</i>	6,806	6,806	6,806
<i>Adjusted R</i> ²	0.116	0.135	0.170

This table presents the results of robustness tests using alternative matching and weighting approaches. Panel A presents the results using propensity score matching. Panel B presents the results using overlap weighting. Panel C presents the results using entropy balancing. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Table 6

Placebo Test.

Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)
<i>TREAT×POST</i>	0.000 (0.03)	0.002 (0.58)	-0.000 (-1.10)
<i>LnMV_LAG</i>	0.033*** (6.03)	0.037*** (7.10)	-0.002*** (-4.27)
<i>BTM_LAG</i>	-0.019** (-2.01)	-0.022** (-2.36)	0.001** (1.97)
<i>RET_LAG</i>	-0.002 (-0.33)	-0.001 (-0.19)	-0.001 (-1.04)
<i>EP</i>	-0.001 (-0.34)	-0.000 (-0.22)	0.000 (0.30)
<i>GROWTH</i>	-0.206 (-0.73)	-0.200 (-0.73)	0.025 (1.14)
<i>BHARPRE</i>	0.008 (0.87)	0.007 (0.77)	0.000 (0.07)
<i>FOLLOW</i>	0.001 (0.53)	0.001 (0.55)	0.000 (0.67)
<i>FSINFORM</i>	-0.007 (-1.40)	-0.009* (-1.78)	-0.000 (-0.33)
<i>INS</i>	-0.000 (-1.36)	-0.000 (-1.45)	-0.000 (-0.85)
<i>AGE</i>	0.028* (1.78)	0.021 (1.40)	0.003*** (3.28)
<i>MAG_AR</i>	0.400 (1.39)	0.307 (1.09)	0.015 (0.88)
<i>RD</i>	-0.000 (-0.08)	0.001 (0.21)	-0.001 (-0.62)
<i>RETVOL</i>	0.367* (1.77)	0.393* (1.93)	0.004 (0.27)
<i> DA </i>	0.008 (0.19)	0.015 (0.37)	-0.001 (-0.25)
<i>TURNOVER</i>	0.003 (1.19)	0.002 (0.96)	-0.000 (-1.20)
<i>SEGMENTS</i>	-0.001 (-0.15)	-0.000 (-0.05)	-0.000 (-0.34)
<i>LOSS</i>	0.003 (0.84)	0.003 (0.85)	0.000 (0.01)
<i>ROA</i>	0.090 (0.51)	0.021 (0.13)	0.008 (0.60)
<i>LEV</i>	0.004 (0.23)	0.007 (0.42)	0.001 (0.48)
<i>MA</i>	-0.010*** (-2.84)	-0.014*** (-4.14)	0.002*** (7.53)
<i>ICQ</i>	-0.003** (-2.04)	-0.002* (-1.82)	-0.000 (-1.45)

<i>SOE</i>	-0.001 (-0.11)	0.008 (0.60)	-0.001 (-0.90)
<i>HHI</i>	-0.033 (-1.02)	-0.039 (-1.20)	0.003 (1.42)
<i>MShrs</i>	-0.078** (-2.38)	-0.085** (-2.57)	0.004** (2.55)
<i>_cons</i>	-0.789*** (-6.35)	-0.885*** (-7.33)	0.031*** (3.60)
<i>Industry FEs # Year-Quarter FEs</i>	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES
<i>N</i>	14,002	14,002	14,002
<i>Adjusted R²</i>	0.100	0.115	0.151

This table presents the results of a placebo test that takes the last quarter of 2014 as the placebo introductory quarter of the pilot program. We extend our sample period to 2013 (i.e., from January, 2013 to March, 2017). The dependent variables *PROFIT%*, *PROFIT_S%*, and *PROFIT_P%* are total insider trading profitability, insider sale profitability, and insider purchase profitability, respectively. *TREAT* is an indicator variable that equals one for firms belonging to one of the pilot regions—Shanghai, Hunan, and Guangdong (excluding Shenzhen)—and zero otherwise. *POST* is an indicator variable that equals one for the nine quarters from January 1, 2015 to March 31, 2017 and zero otherwise. All the variables are defined in Appendix B. Standard errors are adjusted for heteroskedasticity and clustering at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Table 7

Alternative Control Group.

Dependent variable	Full sample			PSM		
	PROFIT%	PROFIT_S%	PROFIT_P%	PROFIT%	PROFIT_S%	PROFIT_P%
	(1)	(2)	(3)	(4)	(5)	(6)
TREAT×POST	-0.007* (-1.68)	-0.007** (-2.00)	0.001 (1.14)	-0.010 (-1.50)	-0.011* (-1.87)	0.001 (0.74)
<i>LnMV_LAG</i>	0.020*** (3.71)	0.026*** (6.08)	-0.004*** (-6.26)	-0.004 (-0.37)	0.011 (1.41)	-0.004*** (-3.18)
<i>BTM_LAG</i>	-0.019** (-2.07)	-0.027*** (-3.42)	0.004*** (3.68)	-0.029 (-1.40)	-0.039** (-2.34)	0.005** (2.57)
<i>RET_LAG</i>	-0.013*** (-2.97)	-0.012*** (-3.62)	0.001 (1.62)	-0.010 (-0.94)	-0.009 (-1.20)	0.001 (0.73)
<i>EP</i>	-0.000 (-0.02)	0.000 (0.07)	-0.000 (-0.15)	0.000 (0.52)	0.000 (0.29)	0.000 (0.23)
<i>GROWTH</i>	-0.377** (-2.11)	-0.469*** (-3.18)	0.065*** (3.10)	0.182 (0.43)	0.042 (0.12)	0.124* (1.91)
<i>BHARPRE</i>	0.046*** (6.51)	0.040*** (6.86)	-0.001 (-0.90)	0.041*** (2.92)	0.043*** (3.47)	-0.002 (-1.28)
<i>FOLLOW</i>	-0.001 (-0.30)	-0.000 (-0.30)	0.000 (0.02)	0.007 (1.40)	0.003 (0.88)	0.001 (1.50)
<i>FSINFORM</i>	-0.013** (-2.31)	-0.011** (-2.48)	-0.001 (-1.07)	-0.028** (-2.47)	-0.021** (-2.35)	-0.001 (-0.65)
<i>INS</i>	0.000 (0.12)	0.000 (1.16)	-0.000 (-1.60)	-0.001 (-1.60)	-0.001 (-1.38)	-0.000 (-1.00)
<i>AGE</i>	0.108*** (4.64)	0.121*** (6.15)	-0.015*** (-5.88)	0.140*** (3.01)	0.138*** (3.41)	-0.018** (-2.55)
<i>MAG_AR</i>	0.108 (0.38)	0.094 (0.40)	-0.013 (-0.44)	-0.411 (-0.78)	-0.391 (-0.89)	0.016 (0.31)
<i>RD</i>	-0.002 (-0.52)	0.002 (0.78)	-0.001 (-1.44)	-0.006 (-0.33)	0.006 (0.97)	-0.005 (-1.18)
<i>RETVOL</i>	-0.054 (-0.39)	-0.005 (-0.04)	0.004 (0.22)	-0.102 (-0.35)	0.096 (0.49)	-0.047 (-1.04)
<i> DA </i>	-0.019 (-0.56)	0.003 (0.14)	-0.003 (-0.92)	-0.045 (-0.73)	-0.001 (-0.03)	-0.015** (-2.27)
<i>TURNOVER</i>	0.006*** (3.80)	0.004*** (3.32)	-0.000 (-0.34)	0.003 (0.99)	0.001 (0.35)	0.000 (0.54)
<i>SEGMENTS</i>	-0.008** (-2.07)	-0.007* (-1.72)	-0.000 (-0.89)	-0.010 (-1.09)	-0.013 (-1.38)	0.000 (0.34)
<i>LOSS</i>	-0.000 (-0.04)	0.000 (0.01)	-0.000 (-1.05)	-0.005 (-1.02)	-0.003 (-0.75)	-0.001 (-0.93)
<i>ROA</i>	0.163 (1.44)	0.153* (1.70)	-0.020 (-1.53)	0.061 (0.24)	-0.037 (-0.18)	-0.014 (-0.42)
<i>LEV</i>	0.045*** (2.60)	0.025* (1.91)	0.002 (1.25)	0.079** (2.36)	0.049* (1.77)	0.006 (1.53)

<i>MA</i>	0.014*** (6.16)	0.010*** (5.46)	0.002*** (6.44)	0.008 (1.59)	0.005 (1.28)	0.001** (2.11)
<i>ICQ</i>	-0.000 (-0.26)	0.000 (0.31)	-0.000** (-2.05)	-0.003 (-1.25)	-0.002 (-0.94)	-0.000 (-1.09)
<i>SOE</i>	-0.004 (-0.32)	-0.002 (-0.18)	0.000 (0.36)	0.072* (1.72)	0.053 (1.62)	0.003** (2.00)
<i>HHI</i>	-0.095** (-2.42)	-0.083*** (-2.75)	0.004 (1.01)	-0.188* (-1.65)	-0.119* (-1.72)	-0.005 (-0.40)
<i>MShrs</i>	-0.016 (-0.41)	-0.053* (-1.76)	0.013*** (3.53)	0.019 (0.31)	-0.031 (-0.58)	0.011 (1.49)
<i>_cons</i>	-0.680*** (-5.08)	-0.867*** (-8.05)	0.120*** (8.83)	-0.209 (-0.77)	-0.558*** (-2.64)	0.148*** (4.46)
<i>Industry FEs #</i>	YES	YES	YES	YES	YES	YES
<i>Year-Quarter FEs</i>						
<i>Firm FEs</i>	YES	YES	YES	YES	YES	YES
<i>N</i>	15,094	15,094	15,094	3,548	3,548	3,548
<i>Adjusted R²</i>	0.109	0.143	0.153	0.096	0.099	0.203

This table presents the regression results using an alternative control sample. To mitigate potential concerns regarding our main results being driven by how the control firms were selected, we use all the A-share firms other than those covered by the pilot program as an alternative control group. Columns (1), (2), and (3) present the regression results. The dependent variables *PROFIT%*, *PROFIT_S%*, and *PROFIT_P%* are total insider trading profitability, insider sale profitability, and insider purchase profitability, respectively. *TREAT* is an indicator variable that equals one for firms belonging to one of the pilot regions—Shanghai, Hunan, and Guangdong (excluding Shenzhen)—and zero otherwise. *POST* is an indicator variable that equals one for the four quarters from April 1, 2016 to March 31, 2017 and zero otherwise. Columns (4), (5), and (6) present the PSM results. We match the treatment and control firms (1:1) using nearest-neighbor matching with replacement, with a caliper of 0.01. All the variables are defined in Appendix B. Standard errors are adjusted for heteroskedasticity and clustering at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Table 8

Time-Varying DiD.

Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)
<i>POST</i>	-0.005* (-1.90)	-0.006*** (-2.59)	0.001*** (3.68)
<i>LnMV_LAG</i>	0.017*** (6.17)	0.020*** (7.97)	-0.001*** (-6.71)
<i>BTM_LAG</i>	-0.008* (-1.71)	-0.011*** (-2.97)	0.001*** (3.34)
<i>RET_LAG</i>	-0.000 (-0.15)	-0.001 (-0.26)	0.000 (0.60)
<i>EP</i>	-0.001 (-0.62)	-0.001 (-0.75)	-0.000 (-0.19)
<i>GROWTH</i>	0.074 (0.75)	0.050 (0.60)	-0.008 (-0.91)
<i>BHARPRE</i>	0.008 (1.57)	0.007 (1.53)	-0.001 (-1.39)
<i>FOLLOW</i>	-0.001 (-1.08)	-0.002 (-1.58)	0.000 (1.56)
<i>FSINFORM</i>	-0.003 (-1.08)	-0.005* (-1.79)	0.000 (0.83)
<i>INS</i>	-0.000 (-0.68)	-0.000 (-0.78)	0.000 (0.16)
<i>AGE</i>	0.005 (0.69)	0.008 (1.20)	-0.001* (-1.80)
<i>MAG_AR</i>	-0.011 (-0.07)	-0.025 (-0.20)	0.004 (0.39)
<i>RD</i>	-0.003 (-1.35)	-0.003 (-1.36)	-0.000 (-0.68)
<i>RETVOL</i>	0.066 (0.63)	0.056 (0.64)	0.010 (1.06)
<i> DA </i>	-0.006 (-0.28)	-0.008 (-0.43)	-0.001 (-0.33)
<i>TURNOVER</i>	0.003** (2.26)	0.003** (2.00)	-0.000 (-0.59)
<i>SEGMENTS</i>	-0.001 (-0.25)	-0.000 (-0.17)	-0.000 (-0.69)
<i>LOSS</i>	0.003* (1.92)	0.003** (2.26)	-0.000 (-1.57)
<i>ROA</i>	-0.086 (-1.25)	-0.084 (-1.43)	0.010* (1.83)
<i>LEV</i>	0.011 (1.17)	0.009 (1.07)	0.001* (1.91)
<i>MA</i>	0.000 (0.11)	-0.001 (-1.10)	0.001*** (4.80)
<i>ICQ</i>	-0.001 (-1.44)	-0.001** (-2.01)	0.000* (1.87)
<i>SOE</i>	-0.004	-0.003	-0.000

	(-0.83)	(-0.55)	(-0.51)
<i>HHI</i>	-0.029*	-0.023	0.000
	(-1.65)	(-1.47)	(0.32)
<i>MShrs</i>	0.001	-0.010	0.002**
	(0.04)	(-0.64)	(2.11)
<i>_cons</i>	-0.388***	-0.455***	0.033***
	(-6.20)	(-8.04)	(7.15)
<i>Industry FEs # Year-Quarter FEs</i>	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES
<i>N</i>	24,274	24,274	24,274
<i>Adjusted R²</i>	0.056	0.068	0.093

This table presents the regression results using a time-varying DiD approach. The CSISC shareholding program was rolled out nationwide after April 2017. We select A-share listed firms from 2014 to 2019 as our sample. The dependent variables *PROFIT%*, *PROFIT_S%*, and *PROFIT_P%* are total insider trading profitability, insider sale profitability, and insider purchase profitability, respectively. *POST* is an indicator variable, which equals one for firms from Shanghai, Guangdong (excluding Shenzhen), and Hunan after the first quarter of 2016 and firms from other regions after the first quarter of 2017, and zero otherwise. All the variables are defined in Appendix B. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Table 9

Time-Varying DiD Analysis Based on Borusyak et al. (2024).

Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)
<i>POST</i>	-0.004	-0.006**	0.001***
	(-1.30)	(-2.10)	(3.38)
<i>Controls</i>	YES	YES	YES
<i>Year-Quarter FEs</i>	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES
<i>N</i>	11,770	11,770	11,770

This table revisits the time-varying DiD analysis from Table 8, which uses both the pilot program and the rollout of the program throughout China after April 2017. The table adopts the framework of Borusyak et al. (2024) for a DiD with staggered treatment adoption. As in Table 8, *POST* is an indicator variable that equals one for firms from Shanghai, Guangdong (excluding Shenzhen), and Hunan after the first quarter of 2016 and firms from other regions after the first quarter of 2017, and zero otherwise. As the Borusyak et al. (2024) estimation technique aggregates separate group-tie effect estimates, it does not generate R^2 statistics for single regressions.

Table 10

Subsample Analysis Based on the Type of Firm (SOE vs. Non-SOE).

Dependent variable	<i>PROFIT%</i>		<i>PROFIT_S%</i>		<i>PROFIT_P%</i>	
	<i>SOEs</i>	<i>Non-SOEs</i>	<i>SOEs</i>	<i>Non-SOEs</i>	<i>SOEs</i>	<i>Non-SOEs</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>TREAT</i>×<i>POST</i>	0.001	-0.020**	0.002	-0.023***	-0.000	0.002**
	(0.30)	(-2.09)	(0.70)	(-2.77)	(-0.15)	(2.03)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>Industry FEs</i> # <i>Year-Quarter FEs</i>	YES	YES	YES	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES	YES	YES	YES
<i>N</i>	2,205	4,601	2,205	4,601	2,205	4,601
<i>Adjusted R</i> ²	0.065	0.092	0.150	0.122	0.050	0.186
<i>Fisher's Permutation</i>	-0.020***		-0.025***		0.002***	
<i>Test for TREAT*POST</i>	(p-value = 0.000)		(p-value = 0.000)		(p-value = 0.000)	

This table reruns the main regression analysis from Table 4 on the subsamples of firm-quarter observations based on the type of firm—i.e., SOEs versus non-SOEs. All the variables are defined in Appendix B. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Table 11

Subsample Analysis Based on Corporate Governance Quality.

Panel A. Analyst following (FOLLOW)						
Dependent variable	PROFIT%		PROFIT_S%		PROFIT_P%	
	Below median	Above median	Below median	Above median	Below median	Above median
	(1)	(2)	(3)	(4)	(5)	(6)
TREAT×POST	-0.017**	-0.004	-0.020***	-0.007	0.003* **	0.001
	(-2.17)	(-0.47)	(-3.06)	(-0.92)	(2.92)	(0.62)
Controls	YES	YES	YES	YES	YES	YES
Industry FEs#Year- Quarter FEs	YES	YES	YES	YES	YES	YES
Firm FEs	YES	YES	YES	YES	YES	YES
N	3,170	3,167	3,170	3,167	3,170	3,167
Adjusted R ²	0.106	0.086	0.133	0.128	0.203	0.135
Fisher's Permutation Test	-0.013** (p-value = 0.021)		-0.013** (p-value = 0.018)		0.002*** (p-value = 0.003)	
Panel B. Pressure-resistant institutional ownership (INSR)						
Dependent Variable	PROFIT%		PROFIT_S%		PROFIT_P%	
	Below median	Above median	Below median	Above median	Below median	Above median
	(1)	(2)	(3)	(4)	(5)	(6)
TREAT×POST	-0.020**	-0.006	-0.024***	-0.005	0.003* **	0.000
	(-2.21)	(-0.71)	(-3.15)	(-0.76)	(2.90)	(0.15)
Controls	YES	YES	YES	YES	YES	YES
Industry FEs#Year- Quarter FEs	YES	YES	YES	YES	YES	YES
Firm FEs	YES	YES	YES	YES	YES	YES
N	3,171	3,166	3,171	3,166	3,171	3,166
Adjusted R ²	0.112	0.068	0.146	0.109	0.200	0.155
Fisher's Permutation Test	-0.014** (p-value = 0.023)		-0.019*** (p-value = 0.000)		0.003*** (p-value = 0.000)	

Panel C. The proportion of independent directors on the board (*ID*)

Dependent variable	<i>PROFIT%</i>		<i>PROFIT_S%</i>		<i>PROFIT_P%</i>	
	Below median	Above median	Below median	Above median	Below median	Above median
	(1)	(2)	(3)	(4)	(5)	(6)
<i>TREAT</i>×<i>POST</i>	-0.013*	-0.010	-0.019***	-0.009	0.003* **	0.001
	(-1.69)	(-1.17)	(-2.77)	(-1.22)	(2.69)	(0.65)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>Industry FEs</i> # <i>Year-Quarter FEs</i>	YES	YES	YES	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES	YES	YES	YES
<i>N</i>	3,251	3,086	3,251	3,086	3,251	3,086
<i>Adjusted R</i> ²	0.091	0.098	0.129	0.130	0.170	0.169
<i>Fisher's Permutation Test</i>	-0.003 (p-value = 0.310)		-0.009** (p-value = 0.042)		0.002** (p-value = 0.014)	

This table reruns the regression analysis from Table 4 on the subsamples of firm-quarter observations based on governance quality. We use the following three proxies for governance quality: *FOLLOW*, *INSR* and *ID*. The analyst following (*FOLLOW*) is the natural logarithm of one plus the number of individual earnings forecasts for the current fiscal year before the annual earnings announcement. Pressure-resistant institutional ownership (*INSR*) is the number of shares held by pressure-resistant institutional shareholders expressed as a proportion of the total number of shares outstanding at the end of the quarter. Pressure-resistant institutional investors are defined as those who do not have a business relationship with their invest firm and are therefore unlikely to have conflicts of interest. We consider qualified foreign institutional investors and social security funds to be pressure-resistant institutional shareholders. The proportion of independent directors on the board (*ID*) is the number of independent directors scaled by the total number of directors at the end of the fiscal year. To conduct the sub-sample analysis, we first calculate the mean of the four firm-quarter observations for *INSR* before the pilot program (*Mean_INSR*). We use the firm-year values of *FOLLOW* and *ID* before the pilot program, as there are no quarterly data. We then employ the sample median of each governance proxy to split the sample firms into two subsamples. For example, if a firm's *Mean_INSR* before the pilot program is above the median of all firms' *Mean_INSR*, it is allocated to the sub-sample with high governance quality; otherwise, it is allocated to the sub-sample with low governance quality. Panels A, B, and C present the sub-sample test results based on three measures of governance quality, *FOLLOW*, *INSR* and *ID*, respectively. All the variables are defined in Appendix B. Fisher's permutation test with 1000 bootstraps is used to determine significance levels of observed differences in the coefficient on *TREAT***POST* between pairs of subsamples. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Table 12

CSISC Shareholdings' Effects on Minority Shareholder Participation at Shareholder Meetings.

Dependent variable	<i>MinSHOpin</i> (1)	<i>MinSHOpin_online</i> (2)	<i>MinSHOpin</i> (3)	<i>MinSHOpin_online</i> (4)
<i>TREAT</i>×<i>POST</i>	2.431* (1.65)	1.390*** (2.61)	2.616* (1.79)	1.720* (1.77)
<i>ExtraMt</i>	-4.192*** (-3.97)	-1.083*** (-2.58)	-3.735*** (-3.56)	-2.366*** (-3.07)
<i>MinSHRatio</i>	2.473*** (4.38)	0.766*** (3.56)	2.455*** (4.28)	1.237*** (2.94)
<i>MinSHRatio_online</i>	-0.574*** (-6.17)	0.050* (1.75)	-0.622*** (-6.80)	0.001 (0.01)
<i>MinSHNub</i>	0.482*** (4.02)	0.801*** (5.34)	0.438*** (3.67)	1.623*** (5.10)
<i>MinSHOpin_online_miss</i>	9.085*** (7.82)	-12.201*** (-10.02)	8.987*** (7.72)	-19.952*** (-9.63)
<i>SuperTop</i>	-5.705 (-0.49)	-3.092** (-2.27)	-5.377 (-0.46)	-5.579 (-1.36)
<i>Controls</i>	YES	YES	YES	YES
<i>Year-Quarter FEs</i>	YES	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES	YES
<i>N</i>	5,421	5,421	5,421	5,421
<i>Adjusted R²</i>	0.189	0.717	0.196	0.716

This table presents the results on the effects of CSISC shareholdings on the participation of minority shareholders at annual and extraordinary shareholder meetings using the data at the level of the individual meetings. *MinSHOpin* is the number of dissenting and abstention votes cast by minority shareholders divided by the total votes cast by minority shareholders in column (1) (divided by the total votes owned by minority shareholders in column (3)) multiplied by 100. *MinSHOpin_online* is the dissenting and abstention votes cast online by minority shareholders divided by the total votes cast by minority shareholders in column (2) (divided by the total votes owned by the minority shareholders in column (4)) multiplied by 100. *ExtraMt* equals one if the shareholder meeting is an extraordinary shareholder meeting and zero otherwise. *MinSHRatio* is the percentage of shares held by minority shareholders who attended shareholder meetings. *MinSHRatio_online* is the percentage of shares held by minority shareholders who attended shareholder meetings online. *MinSHNub* is the natural logarithm of one plus the number of minority shareholders who attended shareholder meetings. *MinSHOpin_online_miss* equals one if the firm did not disclose data on the votes cast online by minority shareholders and zero otherwise. *SuperTop* equals one if the percentage of shares owned by the largest shareholder exceeds 66.67% and zero otherwise. All the variables are defined in Appendix B. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Appendix A

Distribution Across Industries (Based on the Subcategories of the CSRC 2012 Industry Classification System)

Industry	No. of obs. for treatment group	No. of obs. for control group	Total	%
Agricultural and sideline food processing 农副食品加工业 (C13)	19	45	64	0.94
Food manufacturing 食品制造业 (C14)	28	35	63	0.93
Beverage manufacturing 酒、饮料和精制茶制造业 (C15)	40	20	60	0.88
Textiles 纺织业 (C17)	101	35	136	2.00
Apparel 纺织服装、服饰业 (C18)	61	33	94	1.38
Furniture manufacturing 家具制造业 (C21)	1	8	9	0.13
Papermaking 造纸和纸制品业(C22)	17	28	45	0.66
Printing 印刷和记录媒介复制业 (C23)	5	8	13	0.19
文教、工美、体育和娱乐用品制造业(C24)	20	32	52	0.76
Petroleum 石油加工、炼焦和核燃料加工业 (C25)	4	8	12	0.18
Chemistry 化学原料和化学制品制造业 (C26)	275	149	424	6.23
Medicine manufacturing 医疗制造业 (C27)	241	154	395	5.80
Plastics 橡胶和塑料制品业 (C29)	90	62	152	2.23
Nonmetallic products 非金属矿物制品业(C30)	90	38	128	1.88
Ferrous metal smelting and calendaring 黑色金属冶炼和压延加工业(C31)	26	21	47	0.69
Nonferrous metal smelting and calendaring 有色金属冶炼和压延加工业(C32)	65	20	85	1.25
Metallic products 金属制品业(C33)	104	31	135	1.98
General equipment manufacturing 通用设备制造业(C34)	266	71	337	4.95
Special equipment manufacturing 专用设备制造业(C35)	222	123	345	5.07
Motor manufacturing 汽车制造业(C36)	181	78	259	3.81
Transportation equipment manufacturing 铁路、船舶、航空航天和其他运输设备制造业(C37)	49	35	84	1.23
Electrical machinery and equipment manufacturing 电气机械和器材制造业(C38)	413	244	657	9.65
Computer, communications and other electronic equipment manufacturing 计算机、通信和其他电子设备制造业 (C39)	626	202	828	12.17
Instrument and meter manufacturing 仪器仪表制造业 (C40)	68	25	93	1.37
Other manufacturing 其他制造业(C41)	26	19	45	0.66
Electricity and heat supply 电力、热力生产和供应业 (D44)	60	70	130	1.91
Gas supply 燃气生产和供应业(D45)	8	15	23	0.34
Civil engineering construction 土木工程建筑业(E48)	64	58	122	1.79
Architectural ornament and other construction 建筑装饰和其他建筑业(E50)	30	4	34	0.50

Industry	No. of obs. for treatment group	No. of obs. for control group	Total	%
Wholesale 批发业(F51)	153	77	230	3.38
Retail 零售业(F52)	163	113	276	4.06
Road transportation 道路运输业(G54)	38	71	109	1.60
Water transportation 水上运输业(G55)	29	50	79	1.16
Air transportation 航空运输业(G56)	16	15	31	0.46
Loading, unloading, handling, and transportation agency 装卸搬运和运输代理业(G58)	8	5	13	0.19
Storage 仓储业(G59)	4	9	13	0.19
Telecommunications, radio, television, and satellite transmission services 电信、广播电视和卫星传输服务(I63)	7	17	24	0.35
Internet and related services 互联网和相关服务(I64)	45	20	65	0.96
Software and information technology services 软件和技术服务业(I65)	138	135	273	4.01
Real estate 房地产业(K70)	250	194	444	6.52
Business services 商务服务业(L72)	81	34	115	1.69
Professional technical services 专业技术服务业(M74)	15	25	40	0.59
Ecological protection and environmental governance 生态保护和环境治理业(N77)	7	12	19	0.28
Public facilities 公共设施管理业(N78)	5	8	13	0.19
Press and publishing 新闻和出版业(R85)	27	24	51	0.75
Radio, television, film, and video recording production 广播、电视、电影和影视录音制作业(R86)	42	16	58	0.85
Comprehensive 综合(S90)	53	29	82	1.20
Total	4,281	2,525	6,806	100

Appendix B

Variable Definitions

Variables	Definitions
<i>PROFIT%</i>	Aggregate profitability of insider trades during the firm-year measured as a percentage of the market value at the beginning of the quarter (Skaife et al., 2013). $PROFIT\%_{i,t} = \frac{\sum_{j=1}^n (ABRET_{i,t,j} \times VALUE_P_{i,t,j}) - \sum_{j=1}^n (ABRET_{i,t,j} \times VALUE_S_{i,t,j})}{MV_{i,t-1}} \times 100$ where $ABRET_{i,t,j}$ is equal to the one-year buy-and-hold abnormal return computed for the period starting one business day after transaction date j, $VALUE_P_{i,t,j}$ ($VALUE_S_{i,t,j}$) is the total value of shares purchased (sold) by all insiders on day j, n is the total number of firm-days with insider trading activity during firm-quarter (i, t), and $MV_{i,t-1}$ is the market value of equity at the end of quarter $t-1$. We use the A-share index of the Shanghai and Shenzhen Stock Exchanges to compute the buy-and-hold abnormal returns.
<i>PROFIT_S%</i>	Aggregate profitability of all insider trades from insider sales transactions during the quarter, computed as follows: $PROFIT_S\%_{i,t} = \frac{\sum_{j=1}^n (ABRET_{i,t,j} \times VALUE_S_{i,t,j})}{MV_{i,t-1}} \times 100 \times (-1)$
<i>PROFIT_P%</i>	Aggregate profitability of all insider trades from insider purchases transactions during the quarter, computed as follows: $PROFIT_P\%_{i,t} = \frac{\sum_{j=1}^n (ABRET_{i,t,j} \times VALUE_P_{i,t,j})}{MV_{i,t-1}} \times 100$
<i>FREQ_S</i>	Number of insider sale transactions during quarter t .
<i>FREQ_P</i>	Number of insider purchase transactions during quarter t .
<i>TREAT</i>	An indicator variable that equals one for a firm belonging to one of the three pilot regions—Shanghai, Hunan, and Guangdong (excluding Shenzhen)—and zero otherwise.
<i>POST</i>	An indicator variable that equals one for the four quarters from April 1, 2016 to March 31, 2017, and zero otherwise.
<i> DA </i>	Discretionary accruals for firm i in quarter t . It is the difference between a firm's total and expected accruals, calculated using the estimated coefficients from the performance-matched modified Jones model (Kothari et al., 2005), which is estimated for each industry-quarter grouping (at least 15 observations are required).
<i>AGE</i>	Natural logarithm of one plus the number of years the firm has been listed at the end of the current fiscal year.
<i>BHARPRE</i>	Buy-and-hold market-adjusted returns over the one-year (250-day) period, ending one business day before the first insider transaction by an insider during the quarter under consideration. This is set to zero for firm-quarters without any insider trading activity.
<i>BTM_LAG</i>	Book-to-market ratio at the end of quarter $t-1$.
<i>EP</i>	Earnings-to-price ratio at the end of quarter t , defined as net income before extraordinary items divided by market value of equity.
<i>ExtraMt</i>	An indicator variable equaling one if the shareholder meeting is an extraordinary shareholder meeting and zero otherwise.
<i>FOLLOW</i>	Natural logarithm of one plus the number of earnings forecasts outstanding before the annual earnings announcement.
<i>FSINFORM</i>	Financial statement informativeness, computed as the adjusted R^2 from a firm-specific time-series regression of price per share on book value per share and earnings per share using quarterly data for the 20-quarter period ending with quarter t (at least eight quarterly observations are required).
<i>GROWTH</i>	Average sales growth over the past twenty quarters.

Variables	Definitions
<i>HHI</i>	The Herfindahl index of the proportions of shares owned by each of the top 10 shareholders at the end of quarter <i>t</i> .
<i>ICQ</i>	The quality of internal control index compiled by the DiBo Enterprise Risk Management Technology Co., Ltd.
<i>ID</i>	The number of independent directors divided by the total number of directors at the end of the fiscal year.
<i>INS</i>	Institutional ownership, calculated as the number of common shares owned by institutional shareholders divided by the total number of shares outstanding at the end of quarter <i>t</i> .
<i>INSR</i>	The number of common shares owned by pressure-resistant institutional shareholders divided by the total number of shares outstanding at the end of quarter <i>t</i> . Pressure-resistant institutional shareholders include qualified foreign institutional investors and social security funds.
<i>LEV</i>	The sum of short- and long-term debt divided by total assets at the end of quarter <i>t</i> .
<i>LnMV_LAG</i>	Natural logarithm of market capitalization at the end of quarter <i>t</i> -1.
<i>LOSS</i>	An indicator equaling one if the firm reports negative income before extraordinary item in quarter <i>t</i> and zero otherwise.
<i>MA</i>	An indicator variable equaling one if the firm reports mergers and acquisitions or restructuring charges in quarter <i>t</i> and zero otherwise
<i>MAG_AR</i>	The median of the absolute market reactions to the prior quarterly earnings announcements, where the market reaction is measured as the cumulative market-adjusted return from two days before to the day of the earnings announcement; the median is measured over the (maximum) five-year period ending with quarter <i>t</i> (at least eight quarterly observations are required).
<i>MinSHNub</i>	Natural logarithm one plus the number of minority shareholders who attended shareholder meetings.
<i>MinSHOpin</i>	The dissenting and abstention votes cast by minority shareholders divided by the total votes cast (owned) by minority shareholders at shareholder meetings and multiplied by 100.
<i>MinSHOpin_online</i>	The dissenting and abstention votes cast online by minority shareholders divided by the total votes cast (owned) by minority shareholders at shareholder meetings and multiplied by 100.
<i>MinSHOpin_online_miss</i>	An indicator variable equaling one if the firm did not disclose the data on votes cast online by minority shareholders and zero otherwise.
<i>MinSHRatio</i>	The number of shares held by minority shareholders who attended shareholder meetings divided by the total shares held by shareholders the shareholder meetings and multiplied by 100.
<i>MinSHRatio_online</i>	The number of shares held by minority shareholders who attended shareholder meetings online divided by the total shares held by shareholders at shareholder meetings and multiplied by 100.
<i>MShrs</i>	Managerial ownership, calculated as the common shares outstanding owned by the directors, supervisors, and the senior management (DSMs) divided by the total number of shares outstanding at the end of quarter <i>t</i> .
<i>RD</i>	An indicator variable equaling one if the firm reported non-zero research and development expenses in the current fiscal year and zero otherwise.
<i>RET_LAG</i>	Cumulative monthly stock returns over quarter <i>t</i> -1.
<i>RETVOL</i>	Stock return volatility in quarter <i>t</i> .

Variables	Definitions
<i>ROA</i>	Accumulated net income by quarter t scaled by the mean of total assets at the beginning and end of quarter t . Net income is accumulated over the previous quarters of the year to the current one.
<i>SEGMENTS</i>	Natural logarithm of one plus the number of business segments at the end of the fiscal year.
<i>SOE</i>	An indicator variable equaling one if the ultimate controlling shareholder of the firm is the state and zero otherwise
<i>SuperTop</i>	An indicator variable equaling one when the percentage of the largest shareholder is above 66.67% and zero otherwise.
<i>TURNOVER</i>	Number of shares traded in quarter t divided by the number of shares outstanding at the end of quarter t .

Appendix C

Alternative Measures of the Profitability of Insider Trading

<i>Panel A. Alternative window [1, 90]</i>			
Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)
<i>TREAT</i>×<i>POST</i>	-0.003	-0.005**	0.001**
	(-1.15)	(-2.12)	(2.29)
<i>Controls</i>	YES	YES	YES
<i>Industry FEs</i> # <i>Year-Quarter FEs</i>	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES
<i>N</i>	6,806	6,806	6,806
<i>Adjusted R</i> ²	0.074	0.077	0.152
<i>Panel B. Alternative window [1,180]</i>			
Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)
<i>TREAT</i>×<i>POST</i>	-0.008*	-0.009**	0.002**
	(-1.66)	(-2.31)	(2.01)
<i>Controls</i>	YES	YES	YES
<i>Industry FEs</i> # <i>Year-Quarter FEs</i>	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES
<i>N</i>	6,806	6,806	6,806
<i>Adjusted R</i> ²	0.080	0.106	0.162
<i>Panel C. Alternative window [-15, 235]</i>			
Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	
	(1)	(2)	
<i>TREAT</i>×<i>POST</i>	-0.014**	-0.016***	
	(-2.31)	(-3.04)	
<i>Controls</i>	YES	YES	
<i>Industry Fes # Year-Quarter FEs</i>	YES	YES	
<i>Firm FEs</i>	YES	YES	
<i>N</i>	6,806	6,806	
<i>Adjusted R</i> ²	0.082	0.116	

This table presents the regression results using alternative measures of the profitability of insider trading. We calculate the profitability measures over the 90 and 180 trading days following the day of the transaction, as well as the [-15, 235] day window. The dependent variables *PROFIT%*, *PROFIT_S%*, and *PROFIT_P%* are total insider trading profitability, insider sale profitability, and insider purchase profitability, respectively. *TREAT* is an indicator variable that equals one for a firm belonging to one of the pilot regions—Shanghai, Hunan, and Guangdong (excluding Shenzhen)—and zero otherwise. *POST* is an indicator that equals one for the four quarters from April 1, 2016 to March 31, 2017 and zero otherwise. All the variables are defined in Appendix B. Standard errors are adjusted for heteroskedasticity and clustering at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Appendix D.**Ignoring Observations During the Stock Market Crash of 2015–2016**

Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)
<i>TREAT</i>×<i>POST</i>	-0.013*	-0.012*	0.000**
	(-1.95)	(-1.88)	(2.38)
<i>Controls</i>	YES	YES	YES
<i>Industry FEs</i> # <i>Year-Quarter FEs</i>	YES	YES	YES
<i>Firm FEs</i>	YES	YES	YES
<i>N</i>	7,829	7,829	7,829
<i>Adjusted R</i> ²	0.121	0.133	0.101

This table presents the regression results when ignoring the observations during China's stock market crash from June 2015 to early 2016. We rerun the main regression by excluding the observations during the last three quarters of 2015 and extending the sample period to 2014. The dependent variables *PROFIT%*, *PROFIT_S%*, and *PROFIT_P%* are total insider trading profitability, insider sale profitability, and insider purchase profitability, respectively. *TREAT* is an indicator variable that equals one for a firm belonging to one of the pilot regions—Shanghai, Hunan, and Guangdong (excluding Shenzhen)—and zero otherwise. *POST* is an indicator that equals one for the four quarters from April 1, 2016 to March 31, 2017 and zero otherwise. All the variables are defined in Appendix B. Standard errors are adjusted for heteroskedasticity and clustering at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Appendix E.

Illegal Insider Trading

Dependent variable	<i>Subsample of legal insider trades</i>			<i>Subsample of illegal insider trades</i>		
	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>TREAT</i>×<i>POST</i>	-0.010*	-0.013***	0.002**	-0.004	-0.004	0.000*
	(-1.84)	(-2.73)	(2.22)	(-1.30)	(-1.49)	(1.80)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>Industry</i>	YES	YES	YES	YES	YES	YES
<i>FEs#Year-Quarter FEs</i>						
<i>Firm FEs</i>	YES	YES	YES	YES	YES	YES
<i>N</i>	6,613	6,613	6,613	4,905	4,905	4,905
<i>Adjusted R²</i>	0.090	0.118	0.160	0.050	0.063	0.058

This table presents the regression results distinguishing between legal and illegal insider trading. We rerun the main regression on the two subsamples of legal and illegal insider trades. We treat all violation cases recorded in CSMAR as illegal insider trades. The subsample of illegal insider trades consists of 193 observations with illegal insider trades and 4,712 observations without insider trades. The subsample of legal insider trades consists of 1,901 observations with legal insider trades and 4,712 observations without insider trades. The dependent variables *PROFIT%*, *PROFIT_S%*, and *PROFIT_P%* are total insider trading profitability, insider sale profitability, and insider purchase profitability, respectively. *TREAT* is an indicator variable that equals one for a firm belonging to one of the pilot regions—Shanghai, Hunan, Guangdong (excluding Shenzhen)—and zero otherwise. *POST* is an indicator that equals one for the four quarters from April 1, 2016 to March 31, 2017 and zero otherwise. All the variables are defined in Appendix B. Standard errors are adjusted for heteroskedasticity and clustering at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

Appendix F

Excluding Firms Whose Stock Is Available for Short Selling

Dependent variable	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>	<i>PROFIT%</i>	<i>PROFIT_S%</i>	<i>PROFIT_P%</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>TREAT</i> × <i>POST</i>	-0.020** (-2.16)	-0.024*** (-2.80)	0.003** (2.33)	-0.012** (-2.16)	-0.015*** (-2.94)	0.002** (2.41)
<i>ShortSell</i>				-0.012** (-2.09)	-0.013*** (-2.68)	0.000 (0.20)
<i>Controls</i>	YES	YES	YES	YES	YES	YES
<i>Industry</i>	YES	YES	YES	YES	YES	YES
<i>FEs#Year-Quarter FEs</i>						
<i>Firm FEs</i>	YES	YES	YES	YES	YES	YES
<i>N</i>	4,248	4,248	4,248	6,806	6,806	6,806
<i>Adjusted R</i> ²	0.093	0.128	0.197	0.093	0.127	0.157

This table presents the regression results when excluding firms whose stock is available for short selling and when controlling for short selling. Columns (1) to (3) present the results excluding firms whose stock is available for short selling. Columns (4) to (6) present the results when controlling for short selling. *ShortSell* is an indicator that equals one for firms whose stock is available for short selling and zero otherwise. The dependent variables *PROFIT%*, *PROFIT_S%*, and *PROFIT_P%* are total insider trading profitability, insider sale profitability, and insider purchase profitability, respectively. *TREAT* is an indicator variable that equals one for a firm belonging to one of the pilot regions—Shanghai, Hunan, and Guangdong (excluding Shenzhen)—and zero otherwise. *POST* is an indicator that equals one for the four quarters from April 1, 2016 to March 31, 2017 and zero otherwise. All the variables are defined in Appendix B. Standard errors are adjusted for heteroskedasticity and clustering at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels (based on two-tailed tests), respectively.

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