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# The monitoring role of institutional investors

## Geographical proximity and investment horizon

Xiaoqiong Wang
*School of Business, Indiana University Kokomo, Kokomo, Indiana, USA, and*
Siqi Wei
*David Nazarian College of Business and Economics, California State University, Northridge, California, USA*

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### Abstract

**Purpose** – This paper aims to examine the monitoring role of institutional investors in corporate decision-making by classifying financial institutions based on geographical proximity and investment horizon from 1980 to 2014.

**Design/methodology/approach** – By using unique data sets on firm and institution location and investor horizon measure (Gaspar *et al.*, 2005), the authors categorize institutional investors into six proximity-horizon classifications. This method captures the heterogeneity of investors. The corporate decisions assessed include firm investment, financing, payout policy, misbehavior, takeover defenses and profitability.

**Findings** – Both geographical proximity and investment horizon are directly related to institutional investors' monitoring cost. As a result, the effectiveness of institutional monitoring may vary based on geographical proximity and investment horizon. This paper collectively examines both dimensions of financial institutions and provides evidence that institutional investors present different preferences for corporate policies. Given stronger information advantage, both local and nonlocal investors that are long-term oriented fulfill better roles in monitoring corporate decisions but from different perspectives.

**Research limitations/implications** – Different from previous studies that treat institutional investors homogeneously, this paper provides empirical support that investors are indeed different in influencing firm policies.

**Originality/value** – To the authors' best knowledge, this is the first study that classifies investors based on two dimensions, geographical proximity and investment horizon, and examines their joint effects on corporate policies. This proximity-horizon classification allows the authors to better disentangle the effects of institutional ownership structure on the monitoring outcomes.

**Keywords** Local bias, Institutional investors, Corporate policies, Geographical proximity, Investment horizon

**Paper type** Research paper

## 1. Introduction

> The financial system facilitates the transfer of economic resources through time and across geographical regions [. . .]
>
> – Robert C. Merton, Nobel Prize Laureate

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Over the past decades, financial institutions hold more than 60 per cent of the market capitalization of public firms. There is growing evidence on the importance of financial intermediaries in determining asset prices (Basak and Pavlova, 2013; He and Krishnamurthy, 2012; He and Krishnamurthy, 2013; He *et al.*, 2017). Financial intermediaries represent marginal investors with the existence of information and trading frictions. Extant studies empirically emphasize the role of institutional investors to effectively monitor firms (Shleifer and Vishny, 1986, 1997; McCahery *et al.*, 2016; Ward *et al.*, 2018) and to influence stock prices (Gompers and Metrick, 2001; Hong *et al.*, 2008).

Rather than treating financial institutions homogenously, recent studies document the heterogeneity of institutional investors. Due to different investment horizons, institutions have various incentives and preferences to influence corporate decisions (Grossman and Hart, 1980; Bushee, 1998, 2001; Cremers *et al.*, 2017; McCahery *et al.*, 2016). It is widely acknowledged that long-term investors are effective monitors given the comparative advantage in motivation, timespan, and information. While short-term horizon could be a result of failure to continuously collect capital to conduct long-term strategies (Shleifer and Vishny, 1997). Additionally, location disentangles the monitoring role of financial institutions. Local investors can easily obtain and share information given geographical proximity advantages. As the monitoring and information collecting costs increase with distance, local institutions are shown to be effective monitors (Ayers *et al.*, 2011; Chhaochharia *et al.*, 2012; Bena *et al.*, 2017). However, existing literature focuses on the single dimension of incentives entailed by horizon or location. This paper proposes a new classification scheme by partitioning institutional ownership based on geographical proximity and investment horizon. We examine how both dimensions jointly influence corporate decisions. Our ownership classification explains the differences among the monitoring effects of heterogeneous institutional investors.

Sophisticated institutional investors are heterogeneous in their investment horizons for several reasons. First, investors have different objectives, legal restrictions, clienteles, liquidity needs, and competitive pressure (Yan and Zhang, 2009; Gaspar *et al.*, 2005). Moreover, agency issues underlying the delegated asset management also reflect the heterogeneity of investment horizon. Long-term investors are regarded as "activists" while short-term investors act as "speculators" (Gillan and Starks, 2007). Different horizons entitle investors diverse abilities and motivations to trade, gather information, and influence management. Long-term investors have a comparative advantage in effectively monitoring managers since they can spread both costs and benefits of ownership over a long horizon (Gaspar *et al.*, 2005; Harford *et al.*, 2017). Long-term institutions can either engage with management to initiate changes ("voice"), or exit by selling shares ("exit"). In the case of voice, long-term investors interact with managers privately or publicly to influence corporate decisions. In the case of exit, long-term investors use the threat of selling shares along with their information to impact managerial decisions. Theoretically, managers behave properly so that long-term investors hold the shares and maintain high stock prices. Thus, both "voice" and "exit" channels are effective in monitoring and disciplining management.

Previous studies document that long-term institutions are effective monitors (Bena *et al.*, 2017; Harford *et al.*, 2017; Kecskés *et al.*, 2017). First, the longer the investment horizon and the larger the institutional ownership, the more benefits institutions can obtain from effectively monitoring. Second, investors choose engagement for the concern about a firm's corporate governance or strategy rather than about short-term issues. Investors' interventions are not driven by short-term and myopic activists who aim to reap short-term gains. Third, the costs of monitoring are lower and the benefits are higher for long horizons.

Therefore, long-term investors are better positioned to monitor management due to their buy and hold investment strategies. Instead of selling poor performing firms, long-term institutions intervene more intensively than short-term ones (McCahery *et al.*, 2016). In contrast, short-term investors tend to be less motivated to allocate resources in monitoring since they are unlikely to remain long enough to reap the benefits. Thus, short-term investors are less likely to collect sufficient information to ensure quality monitoring within a limited horizon (Grossman and Hart, 1980; Shleifer and Vishny, 1986). Existing studies advocate the role of short-term investors from a speculative perspective[1]. Short-term investors are myopic because of the shortage of time, motivation, and monitoring-relevant information. Unlike short-term investors, long-term institutions have the incentive to collect information, effectively monitor management, and benefit from the monitoring outcomes over a long period (Borochin and Yang, 2017).

Another important dimension to differentiate institutional investors is location. Information advantages associated with geographical proximity have been well acknowledged to explain local bias observed in both institutional and individual investors[2]. Unlike nonlocal institutions, local investors can directly inspect local firms and obtain knowledge about the management and corporate internal operations (Lerner, 1995). In addition, local investors are more likely to be involved in social networks with local managers and get access to "soft" information (Chhaochharia *et al.*, 2012)[3]. Therefore, they exert stronger impact on corporate policies through better monitoring. Rested on these channels, Ayers *et al.* (2011) show that local firms are less likely to employ reporting discretion. Additionally, Bena *et al.* (2017) and Ferreira and Matos (2008) provide international evidence to support the information advantage view. All these information-gathering channels reduce the information asymmetry and information acquiring costs.

Taken together, both location and horizon reflect two classic issues of corporate finance: agency problems and information asymmetry. One of the main agency costs is the misuse of firms' free cash flow for the purpose of empire building or personal benefits (Jensen and Meckling, 1976). With active monitoring, managers' overinvestment and misbehavior will be disciplined. Consequently, firms will undertake less value-decreasing investment, more value-increasing investment (R&D), and carry lower inventory. With the existence of information asymmetry, Myers and Majluf (1984) propose that firms need to hold financial slack to deal with greater information asymmetry. More financial slack enables firms to undertake investment opportunities without relying on external financing, which further increases information asymmetry. Since location proximity and long investment horizon alleviate information asymmetry, firms are expected to hold less financial slack and pay more dividends. With efficient monitoring, firms tend to have higher sales growth and better-disciplined managers. Thus, it is reasonable to speculate that the monitoring outcomes can be stronger if we jointly examine location and investment horizon. Considering the above information-advantage and monitoring view, we propose the following hypothesis:

- Given geographical proximity and investment horizon, the monitoring effect of institutional investors becomes stronger as the geographical proximity gets closer and/or the investment horizon increases.

To start with, we classify institutional ownership into six proximity-horizon categories. Based on portfolio churn rates of investors (Gaspar *et al.*, 2005), we form long, medium, and short-term institutional ownership. Each ownership horizon category is further partitioned into local and nonlocal components depending on whether institutions are headquartered in the same states as firms[4]. The proximity-horizon classification is less likely to be subject to endogeneity issues as geographical location is reasonably exogenous (Gaspar and Massa, 2007; Kang and Kim, 2008).

We study a series of corporate decision outcomes to provide a synthesis of the monitoring consequences of institutional investors based on our proximity-horizon classifications. We firstly document that local long-term investors substantially reduce CAPEX but motivate R&D. As the location of financial institutions getting closer and the investment horizon getting longer, firms undertake less low-risk but more high-risk investment. The results suggest that managers exhibit less empire building behaviors and allocate resources more efficiently in the presence of local and long-term investors.

In disciplining firm financing decisions, institutional investors display different preferences. Nonlocal long-term investors have stronger effects on discouraging short-term debt and equity. In comparison, local long-term investors effectively reduce long-term debt and debt maturity. Both local and nonlocal long-term investors are effective monitors on corporate financing decisions. Additionally, long-term financial institutions motivate the distribution of dividends regardless of their locations. Long-term investors, especially nonlocal investors, correct the misbehaviors of managers leading to decrease in earnings management, fraud, and option backdating. Firms experience a lower level of takeover defenses when the presence of local institutional ownership is high. The results together imply that different categories of investors have various preferences and impacts on corporate policies.

We then examine the real effects and monitoring outcomes of investors. Firms experience higher sales growth and more cost cutting when local and long-term institutional ownership is high. To establish the causality of our results, we construct index and non-index investor ownership. We split six classifications into index and non-index investors: one is exogenous and the other is endogenous. Institutional investors that index their portfolios are considered exogenous to managerial decision-making since they do not have control over their portfolio composition and selection. Our results are consistent for both index and non-index investors. This evidence establishes the causal relation between institutional investors and corporate policies. We further employ the Heckman model to solve the potential self-selection issues. The results indicate that our sample selection is empirically relevant and that our results are not driven by sample self-selection issues.

This paper contributes to the literature in several ways. First, our findings offer insights on the monitoring role of institutional investors in corporate decisions. Considering previous studies on the geographical proximity and investment horizon of financial institutions, we propose a new method to classify the institutional ownership to fill the void in understanding institutions' heterogeneity in influencing corporate policies. Second, we study a comprehensive set of corporate decisions, including firm investment, financing, payout policy, misbehavior, takeover defenses, and profitability. Third, the monitoring role of institutional investors based on proximity-horizon classification justifies two essential corporate finance issues: agency problems and information asymmetry.

The remainder of the paper is organized as follows. Section 2 describes the data, and Section 3 provides empirical results for corporate decision-making. Section 4 deals with causality and self-selection issues and Section 5 concludes the paper.

## 2. Data and variable construction

### *2.1 Data*

Our sample combines a variety of data sources from 1980 to 2014. Institutional investor holdings data is from Thomson Reuters' 13f filings. Securities and Exchange Commission

(SEC) 13f form requires institutional investment managers whose asset under management is over $100 million to report their holdings quarterly.

We employ two datasets on firm and institution location. We define a firm's location as headquarter of the firm. Firms' state information is collected from COMPUSTAT. Furthermore, historical state information is crosschecked using Compact Disclosure. The main source of institutional investors' location is 13 F filings in the SEC. Location information from individual 13 F filings is collected and matched with holdings in Thomson Reuters dataset. Nelson's Directories of Investment Managers and Money Market Directories from 1980 to 1999 are used to complement the data collecting process.

Stock returns and volatility variables are from CRSP. Accounting information is from COMPUSTAT. Firm fraud and litigation data is hand collected from *Stanford Law School, Security Class Action Clearing house*[5]. The data is used to construct fraud variable to proxy firms' misbehavior. Option backdating data (CEO Luck) is collected from Bechuck' website[6]. Governance index comes from Andrew Metrick's website[7]. Entrenchment index data is obtained from Bebchuk's website[8]. Detailed variable constructions are described in Appendix Table AII. Financial service firms and utility firms are excluded from the analyses. Our final sample is composed of US domestic firms traded on NYSE, Amex, and NASDAQ from 1980 to 2014, which comprises 293,462 firm-year observations (Table I).

### *2.2 Measuring investment horizon*

In this paper, we construct investors' horizon following Gaspar *et al.* (2005). Investor turnover is measured using the average changes in quarterly holdings over the past four quarters. The churn rate of institutional investor $i$ holding a set of investment $Q$ is defined as:

$$CR_{i,t} = \frac{\sum_{j\in Q}\left|N_{j,i,t}P_{j,t} - N_{j,i,t-1}P_{j,t-1} - N_{j,i,t-1}\Delta P_{j,t}\right|}{\sum_{j\in Q}\frac{N_{j,i,t}P_{j,t}+N_{j,i,t-1}P_{j,t-1}}{2}} \tag{1}$$

| Variable | Obs | Mean | SD | Min | Max | P25 | P50 | P75 |
|---|---|---|---|---|---|---|---|---|
| Long IO | 12319 | 0.040 | 0.044 | 0.000 | 0.308 | 0.005 | 0.025 | 0.059 |
| Medium IO | 12319 | 0.134 | 0.135 | 0.000 | 0.672 | 0.021 | 0.091 | 0.213 |
| Short IO | 12319 | 0.073 | 0.071 | 0.000 | 0.399 | 0.012 | 0.055 | 0.115 |
| Local IO | 12319 | 0.025 | 0.042 | 0.000 | 0.274 | 0.000 | 0.005 | 0.032 |
| Non-local IO | 12319 | 0.223 | 0.211 | 0.000 | 0.934 | 0.043 | 0.161 | 0.354 |
| $GIO^{Local,\ Long}$ | 12319 | 0.004 | 0.008 | 0.000 | 0.086 | 0.000 | 0.000 | 0.004 |
| $GIO^{Local,\ Medium}$ | 12319 | 0.013 | 0.024 | 0.000 | 0.190 | 0.000 | 0.002 | 0.014 |
| $GIO^{Local,\ Short}$ | 12319 | 0.007 | 0.015 | 0.000 | 0.119 | 0.000 | 0.001 | 0.007 |
| $GIO^{Nonlocal,\ Long}$ | 12319 | 0.035 | 0.040 | 0.000 | 0.284 | 0.004 | 0.021 | 0.053 |
| $GIO^{Nonlocal,\ Medium}$ | 12319 | 0.120 | 0.126 | 0.000 | 0.641 | 0.016 | 0.078 | 0.190 |
| $GIO^{Nonlocal,\ Short}$ | 12319 | 0.065 | 0.065 | 0.000 | 0.373 | 0.010 | 0.047 | 0.102 |
| IO | 12319 | 0.300 | 0.248 | 0.001 | 1.037 | 0.084 | 0.242 | 0.479 |

**Notes:** This table presents summary statistics for institutional ownership variables. Our sample is composed of US domestic firms traded on NYSE, Amex, and NASDAQ from 1980 to 2014. Financial service firms and utility firms are excluded from the sample. The definitions of all the variables are described in Appendix Table AI

**Table I.** Descriptive statistics: institutional ownership

$$Investor\ \ Turnover = \left(\frac{1}{4}\sum_{1}^{4} CR_{i,t-r+1}\right) \tag{2}$$

where $P_{j,t}$ and $N_{j,i,t}$ represent the price and the number of shares of company $j$ held by institutional investor $i$ at quarter $t$.

Figure 1 reports churn rate and portfolio turnover ratio. The average churn rate is 0.2055 and the average turnover ratio is 0.2016.

### *2.3 Proximity-horizon institutional ownership classification*

To incorporate both horizon and geographical proximity into institutional ownership, we construct investor turnover following Gaspar *et al.* (2005) and adopt turnover ratio cutoff points of 25 per cent and 75 per cent to classify investment horizon into long term, medium term, and short term. Geographical proximity is characterized at the state level. A financial institution is considered as local if it is headquartered in the same state as a firm, nonlocal otherwise. A state represents the boundary of economic interactions and serves as a unit of geographical region. Compared with physical distance, states better define geographical proximity and measure the information advantage of local investors.

Further, our proximity-horizon classification of institutional investors defines ownership as the intersection of location and horizon. We construct six types of institutional ownership:

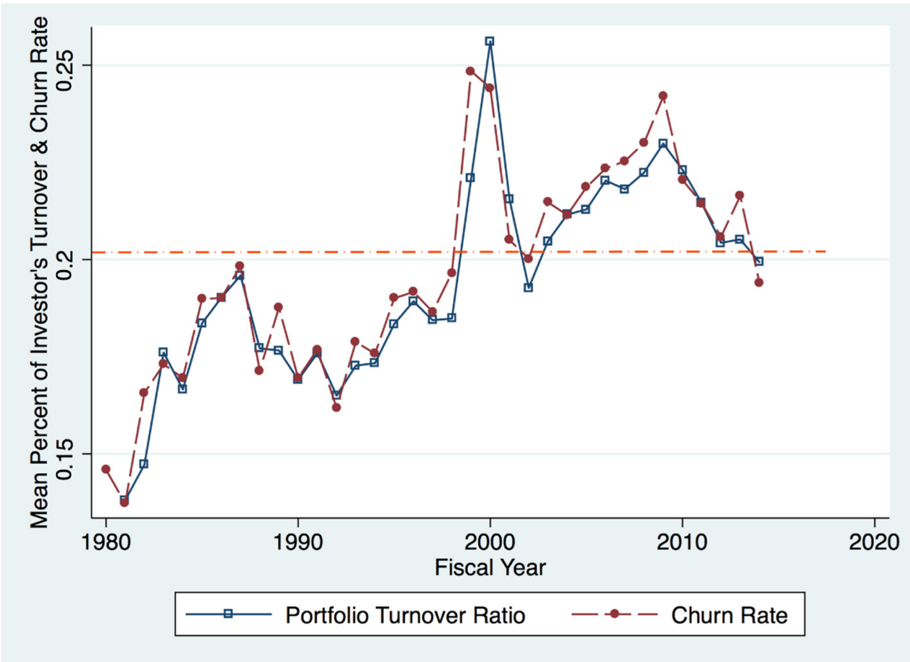



**Figure 1.**
Investors' portfolio turnover and churn rate over time

**Notes:** This figure presents the mean percent of investors' portfolio churn rate and turnover ratio for the period of 1980-2014. The construction of churn rate and portofolio turnover ratio follows Gaspar *et al.* (2005)

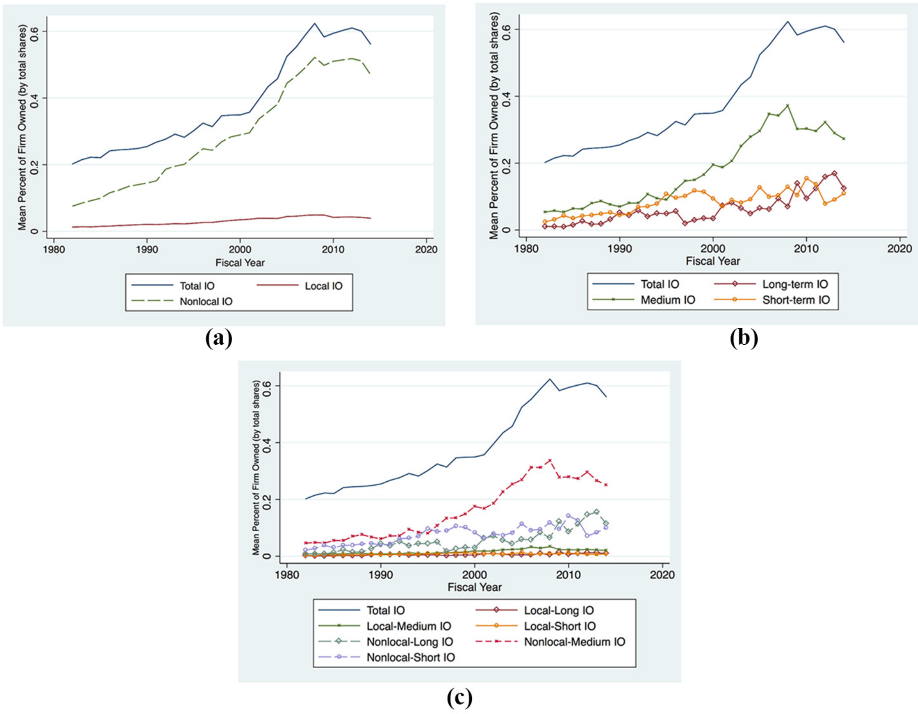
local long term, local medium term, local short term, nonlocal long term, nonlocal medium term, and nonlocal short term (we use the notation GIO*"proximity type", "horizon type"* to differentiate these six types). Figure 2 captures the trend of IO classifications.

Table I provides summary statistics of institutional ownership. The average of local IO is 2.5 per cent, whereas the sample average of nonlocal IO is 22.3 per cent (consistent with Baik *et al.*, 2010). Table II presents summary statistics of all the corporate policies defined in Appendix Table AII.

## 3. Empirical results for corporate decision-making

In this section, we examine the impact of institutional ownership on a series of corporate decisions, including firm investment, financing, payout policy, misbehavior, takeover defenses, and profitability.

We first implement univariate benchmark regressions to capture the role of institutional investors' horizon and location separately. We then examine the joint effect of geographical proximity and investment horizon of institutional ownership on corporate decisions.




**Notes:** This figure presents the mean percent of total institutional ownership, institutional ownership classified by geographical proximity, institutional ownership classified by investment horizon, and institutional ownership classified by proximity and horizon (GIO) for the period of 1980-2014. The definitions of the variables are described in Appendix Table AI. (*a*) *Local and Nonlocal Institutional Ownership over Time*; (*b*) *Long, Medium, and Short-term Ownership over Time*; (*c*) *GIO over Time*

**Figure 2.**
Institutional ownership over time

| Variable | Obs | Mean | SD | Min | Max | P25 | P50 | P75 |
|---|---|---|---|---|---|---|---|---|
| *Investment variables* | | | | | | | | |
| CAPEX | 24809 | 0.111 | 0.147 | 0.000 | 1.023 | 0.028 | 0.063 | 0.129 |
| R&D | 25215 | 0.076 | 0.179 | 0.000 | 1.101 | 0.000 | 0.000 | 0.052 |
| ΔInventory | 24981 | 0.019 | 0.058 | −0.197 | 0.468 | 0.000 | 0.001 | 0.022 |
| *Financing variables* | | | | | | | | |
| ΔSTD | 19340 | 0.030 | 0.172 | −0.424 | 1.365 | −0.006 | 0.000 | 0.015 |
| ΔLTD | 24545 | 0.051 | 0.159 | −0.363 | 1.231 | −0.004 | 0.006 | 0.056 |
| Debt Maturity | 24607 | 0.595 | 0.303 | 0.000 | 1.000 | 0.379 | 0.648 | 0.858 |
| ΔEquity | 24760 | 0.432 | 0.936 | 0.000 | 7.043 | 0.006 | 0.074 | 0.399 |
| *Payout variables* | | | | | | | | |
| Total Payout | 24329 | 0.022 | 0.043 | 0.000 | 0.357 | 0.000 | 0.005 | 0.026 |
| *Misbehavior variables* | | | | | | | | |
| Earnings Management | 22951 | −0.063 | 0.205 | −1.293 | 0.965 | −0.095 | −0.042 | −0.002 |
| Fraud | 21589 | 0.006 | 0.034 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| CEO Luck | 4548 | 0.157 | 0.286 | 0.000 | 1.000 | 0.000 | 0.000 | 0.250 |
| *Takeover defenses variables* | | | | | | | | |
| G-Index | 1757 | 8.503 | 2.498 | 2.000 | 16.000 | 6.938 | 8.333 | 10.000 |
| E-Index | 1586 | 2.272 | 1.229 | 0.000 | 6.000 | 1.294 | 2.000 | 3.000 |
| *Profitability variables* | | | | | | | | |
| Sales Growth | 21240 | 0.097 | 0.564 | −0.995 | 5.328 | −0.063 | 0.007 | 0.120 |
| Costs | 22287 | 1.575 | 1.640 | 0.028 | 10.783 | 0.600 | 1.179 | 1.922 |

**Table II.**
Descriptive statistics: dependent variables

**Notes:** This table presents summary statistics for the dependent variables. Our sample composes US domestic firms traded on NYSE, Amex, and NASDAQ from 1980 to 2014. Financial service firms and utility firms are excluded from the sample. The definitions of all the variables are described in Appendix Table AII

Following Harford *et al.* (2017) and Kecskés *et al.* (2017), we control for total institutional ownership (IO), market-to-book (MTB), cash flows (CF), annualized daily stock returns (Ret), Volatility, Share Turnover, and natural logarithm of total assets (log(TotalAssets)). Controlling for total IO captures the pure effect of institutional investors based on our classification. MTB controls for firm market value relative to book value. CF proxies for firm internal financing. Ret captures the stock market performance and Volatility controls for the variation of stock returns. Share Turnover represents stock trading frequency. log (TotalAssets) controls for difference in firm size. We employ the same set of control variables for our analyses since these variables control for the major characteristics of firms. All the control variables are lagged by one year to address the issue that corporate policy outcomes and institutional ownership may not be simultaneously determined. We estimate the following regressions across several corporate decision variables:

$$y_{i,t} = \alpha_i + \beta_{IO}{}^{*}IO_{t-1} + \gamma_{IO}{}^{*}\sum_{i}^{n} controls_{i,t-1} + \delta_t + \eta + \varepsilon_{i,t} \tag{3}$$

$$y_{i,t} = \alpha_i + \beta_{GIO}{}^{*}\ GIO_{t-1} + \gamma_{GIO}{}^{*}\sum_{i}^{n} controls_{i,t-1} + \delta_t + \eta + \varepsilon_{i,t} \tag{4}$$

where $y_{it}$ represents a comprehensive set of corporate decisions and GIO denotes one of the proximity-horizon IO categories. We first implement two sets of benchmark regressions considering location IO or horizon IO separately. Then the results from the GIO regressions are compared with the benchmark results to address the joint effect of both dimensions. The year fixed effects $\delta_t$ and the industry fixed effects $\eta$ are included. Standard errors are clustered at the firm level. We include one ownership main variable at a time to avoid multicollinearity concerns. To save space, we do not report the coefficients of the non-IO controls.

### *3.1 Investment*

We examine both long-term and short-term investment policies. Capital expenditures, R&D, and changes in inventory are proxies for firm investment decisions. Capital expenditures and R&D are long-term investment. Specifically, capital expenditures represent low-risk investment while R&D captures high-risk investment (Coles *et al.*, 2006). Additionally, changes in inventory depict firm short-term investment.

As reported in Panel A of Table III, in Column 3, the coefficient of long-term IO is −0.08 with a *t*-value of −9.61. In comparison, a positive association is observed between total IO and CAPEX. The evidence implies that institutional investors heavily rely on current earnings news. They place excessive emphasis on short-term performance and fail to serve as monitors in correcting CEO overcompensation (Callen and Fang, 2013; Graves and Waddock, 1990). The opposite signs on long-term IO and total IO highlight the monitoring role of long-term investors. Similar relation is captured between local IO and total IO. Both long-term and local investors are better monitors of CAPEX decisions.

In Columns 6 to 11, the coefficients of all the GIO variables are negatively related to capital expenditure except for nonlocal short-term investors. Furthermore, irrespective of geographical proximity, the magnitude of GIOs' coefficients declines as investment horizon becomes shorter, indicating that corporate managers are better monitored by longer-term investors with less empire building. Irrespective of investment horizon, the association between local GIOs and CAPEX are negative, which is consistent with the current findings that local institutions are more effective monitors of corporate behavior as monitoring cost reduces with geographical distance (Ayers *et al.*, 2011; Chhaochharia *et al.*, 2012).

Local long-term investors are the most effective monitors, where the coefficient of $GIO^{Local,\ Long}$ is −0.137 (significant at the 1 per cent level). The impact decreases across horizon on the local side, from −0.137 to −0.040, which supports the hypothesis that local institutions with long horizon are better motivated to obtain information and actively monitor firms. In comparison, the overall effect of nonlocal long-term investors is weaker since nonlocal investors face higher information acquiring costs.

We also investigate the impact of institutional ownership on R&D (Panel B of Table III). There are two opposite views on institutional ownership and R&D. First, firms tend to cut R&D since excessive focus has been put on short-term investment and earnings by institutional investors. Consequently, managers try to avoid short-term earnings disappointment, which may lead to temporary undervaluation and investors' exit (Graves and Waddock, 1990; McCahery *et al.*, 2016). The second view claims that sophisticated institutional investors can monitor and discipline managers to take the long-run view rather than to satisfy the short-term earnings goals (Dobrzynski, 1993).

In the univariate benchmark regressions (Panel B of Table III from Columns 1 to 5), we show that the coefficient of nonlocal IO is significantly negative while significantly positive on local IO. This indicates that local institutions are sophisticated investors and fulfill a monitoring role in reducing the incentive to decrease R&D. In addition, short-term IO is positively associated with R&D, while both long-term and medium-term IO are negatively related to R&D.

**Table III.**
The effect of geographical proximity and investment horizon of institutional investors on investment

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel A: CAPEX* | | | | | | | | | | | |
| Local IO | −0.055*** (−6.88) | | | | | | | | | | |
| Nonlocal IO | | 0.008 (1.48) | | | | | | | | | |
| Long IO | | | −0.080*** (−9.61) | | | | | | | | |
| Medium IO | | | | −0.023*** (−4.67) | | | | | | | |
| Short IO | | | | | 0.050*** (7.77) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | −0.137*** (−5.58) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | −0.068*** (−7.86) | | |
| $GIO^{Local, Medium}$ | | | | | | | −0.080*** (−7.86) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | −0.005 (−0.96) | |
| $GIO^{Local, Short}$ | | | | | | | | −0.040** (−2.11) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | 0.060*** (8.65) |
| IO | 0.008*** (2.84) | −0.003 (−0.56) | 0.012*** (4.40) | 0.015*** (3.98) | −0.008*** (−2.75) | 0.005* (1.81) | 0.007** (2.55) | 0.004 (1.62) | 0.010*** (3.65) | 0.006 (1.60) | −0.009*** (−3.13) |
| MTB | 0.001*** (11.71) | 0.001*** (11.73) | 0.001*** (11.81) | 0.001*** (11.65) | 0.001*** (11.61) | 0.001*** (11.73) | 0.001*** (11.69) | 0.001*** (11.75) | 0.001*** (11.80) | 0.001*** (11.71) | 0.001*** (11.63) |
| CF | 0.012*** (9.06) | 0.012*** (9.06) | 0.012*** (9.13) | 0.012*** (9.21) | 0.012*** (9.04) | 0.012*** (9.09) | 0.012*** (9.06) | 0.012*** (9.10) | 0.012*** (9.13) | 0.012*** (9.14) | 0.012*** (9.03) |
| Ret | 0.007*** (23.21) | 0.007*** (23.24) | 0.007*** (22.83) | 0.007*** (22.87) | 0.007*** (22.48) | 0.007*** (23.14) | 0.007*** (23.12) | 0.007*** (23.25) | 0.007*** (22.94) | 0.007*** (23.13) | 0.007*** (22.45) |
| Volatility | −0.040*** (−22.57) | −0.040*** (−22.52) | −0.040*** (−22.58) | −0.040*** (−22.61) | −0.040*** (−22.32) | −0.040*** (−22.53) | −0.040*** (−22.60) | −0.040*** (−22.56) | −0.040*** (−22.61) | −0.040*** (−22.57) | −0.040*** (−22.26) |
| Share Turnover | 0.000*** (14.84) | 0.000*** (14.68) | 0.000*** (14.28) | 0.000*** (14.51) | 0.000*** (13.58) | 0.000*** (14.76) | 0.000*** (14.72) | 0.000*** (14.74) | 0.000*** (14.32) | 0.000*** (14.64) | 0.000*** (13.57) |
| log(TotalAssets) | −0.005*** (−11.51) | −0.005*** (−11.27) | −0.004*** (−10.29) | −0.005*** (−11.69) | −0.005*** (−10.95) | −0.005*** (−11.17) | −0.005*** (−11.52) | −0.005*** (−11.39) | −0.004*** (−10.50) | −0.005*** (−11.41) | −0.005*** (−10.98) |
| Observations | 105,639 | 105,639 | 105,639 | 105,639 | 105,639 | 105,639 | 105,639 | 105,639 | 105,639 | 105,639 | 105,639 |
| Adj $R^2$ | 0.208 | 0.207 | 0.208 | 0.207 | 0.208 | 0.207 | 0.208 | 0.207 | 0.208 | 0.207 | 0.208 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| *Panel B: R&D* | | | | | | | | | | | |
| Local IO | 0.096*** (7.78) | | | | | | | | | | |
| Nonlocal IO | | −0.081*** (−10.95) | | | | | | | | | |
| Long IO | | | −0.042*** (−3.90) | | | | | | | | |
| Medium IO | | | | −0.076*** (−11.88) | | | | | | | |
| Short IO | | | | | 0.077*** (9.61) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | 0.229*** (6.29) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | −0.075*** (−6.47) | | |
| $GIO^{Local, Medium}$ | | | | | | | 0.083*** (5.15) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | −0.087*** (−13.00) | |
| $GIO^{Local, Short}$ | | | | | | | | 0.267*** (9.23) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | 0.054*** (6.48) |
| Observations | 107,089 | 107,089 | 107,089 | 107,089 | 107,089 | 107,089 | 107,089 | 107,089 | 107,089 | 107,089 | 107,089 |
| Adj $R^2$ | 0.356 | 0.357 | 0.355 | 0.357 | 0.356 | 0.355 | 0.355 | 0.356 | 0.355 | 0.357 | 0.355 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

(*continued*)

Table III.

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel C: ΔInventory* | | | | | | | | | | | |
| Local IO | −0.017*** (−4.21) | | | | | | | | | | |
| Nonlocal IO | | 0.004 (1.35) | | | | | | | | | |
| Long IO | | | −0.047*** (−10.65) | | | | | | | | |
| Medium IO | | | | −0.005* (−1.68) | | | | | | | |
| Short IO | | | | | 0.025*** (6.87) | | | | | | |
| $GIO^{Local,\ Long}$ | | | | | | −0.060*** (−4.81) | | | | | |
| $GIO^{Nonlocal,\ Long}$ | | | | | | | | | −0.044*** (−9.24) | | |
| $GIO^{Local,\ Medium}$ | | | | | | | −0.022*** (−3.99) | | | | |
| $GIO^{Nonlocal,\ Medium}$ | | | | | | | | | | 0.000 (0.16) | |
| $GIO^{Local,\ Short}$ | | | | | | | | −0.006 (−0.49) | | | |
| $GIO^{Nonlocal,\ Short}$ | | | | | | | | | | | 0.029*** (7.57) |
| Observations | 105,837 | 105,837 | 105,837 | 105,837 | 105,837 | 105,837 | 105,837 | 105,837 | 105,837 | 105,837 | 105,837 |
| Adj $R^2$ | 0.071 | 0.071 | 0.072 | 0.071 | 0.072 | 0.071 | 0.071 | 0.071 | 0.072 | 0.071 | 0.072 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Notes:** This table reports panel regressions of investment on institutional ownership and firm-level control variables for the period of 1980-2014. Investment is measured using CAPEX, R&D, and ΔInventory. The definitions of all the variables are described in Appendix Table AI and Appendix Table AII. We control for the year and industry fixed effects. *t*-statistics, based on standard errors clustered at firm level, are reported in parentheses. Statistical significance is denoted by *, **, and *** at the 10, 5 and 1 per cent levels, respectively

In GIO regressions from columns 6 to 11, the local GIOs significantly and positively impact R&D regardless of the investment horizon. Whereas the signs of nonlocal GIOs change from negative to positive as investment horizon reduces. Compared with univariate benchmark regressions, the results of GIO regressions are stronger both statistically and economically.

On the nonlocal side, negative association holds for $GIO^{Nonlocal,Long}$ and $GIO^{Nonlocal,Medium}$ [9]. The findings imply that firms associated with a larger presence of nonlocal institutional investors are more inclined to cut R&D. Lack of arm-length connection to firms and the opaque and intangible nature of R&D makes it harder for nonlocal investors to make appropriate judgment and monitor firm behaviors. Local institutions have better access to soft information via the connections to firms' managers through social and business meetings (Uysal *et al.*, 2008), which helps to explain the sign difference between local GIO and nonlocal GIO.

We also investigated short-term investment: changes in inventory (Panel C of Table III). Again, results from the benchmark regressions remain consistent with existing studies. Long-term investors better monitor corporate short-term investment decisions (significantly negative coefficients of long-term IO for changes in inventory). Taken together with investment horizon, their joint effect is even stronger.

Overall, when geographical proximity and investment horizon of investors are jointly considered, the effect on firm investment decisions becomes stronger. Local long-term investors motivate managers to reduce low risk investment (CAPEX) and increase value-enhancing investment (R&D). Managers' long-term empire building and short-term overinvestment behaviors are better disciplined with the presence of local long-term financial institutions. In addition, firms tend to diminish short-term investment.

### *3.2 Financing*

Now we turn to the effect of institutional ownership on financing decisions. We examine a variety of sources: changes in short-term debt (ΔSTD), changes in long-term debt (ΔLTD), debt maturity, and changes in equity (ΔEquity). Table IV presents the results. Consistent with Harford *et al.* (2017), in our benchmark regressions, long-term IO is negatively associated with changes in short-term and long-term debt. Additionally, when long-term institutional investors' presence is high, firms tend to have shorter debt maturity and reduced use of equity financing.

Local institutional investors fulfill a better monitoring role in shortening debt maturing thereby reducing equity agency costs (Jensen and Meckling, 1976; Leland and Toft, 1996). Firms with proportionately more debt maturing in the near term encounter greater liquidity risk. In Panel C of Table IV, local long-term IO has the strongest monitoring effect among all the GIO variables. The results imply that both local and long-term investors are effective monitors and their collective effects become even stronger. Local proximity provides investors with an information advantage to increase their awareness of the need to alleviate equity agency costs and longer investment horizon provides them with better ability and more incentive to continuously gather information and capital to conduct stronger monitoring. Additionally, institutional investors, especially local and long-term investors, serve to gather and produce information, which reduces the need for debt to mitigate adverse selection problems.

However, results of GIOs' impacts on the changes in long-term and short-term debt usage are mixed (Panel A and Panel B of Table IV). For changes in short-term debt, the effects of local institutional investors are weak and nonlocal long-term investors play essential roles in reducing the changes in short-term debt. In addition, long-term debt usage

**Table IV.** The effect of geographical proximity and investment horizon of institutional investors on financing

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel A: ΔSTD* | | | | | | | | | | | |
| Local IO | −0.005 (−0.97) | | | | | | | | | | |
| Nonlocal IO | | −0.013*** (−3.54) | | | | | | | | | |
| Long IO | | | −0.014** (−2.09) | | | | | | | | |
| Medium IO | | | | −0.007* (−1.70) | | | | | | | |
| Short IO | | | | | −0.006 (−1.16) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | −0.007 (−0.32) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | −0.015** (−2.16) | | |
| $GIO^{Local, Medium}$ | | | | | | | −0.003 (−0.51) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | −0.006 (−1.46) | |
| $GIO^{Local, Short}$ | | | | | | | | −0.021 (−1.61) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | −0.004 (−0.78) |
| Observations | 54,836 | 54,836 | 54,836 | 54,836 | 54,836 | 54,836 | 54,836 | 54,836 | 54,836 | 54,836 | 54,836 |
| Adj $R^2$ | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| *Panel B: ΔLTD* | | | | | | | | | | | |
| Local IO | −0.023** (−2.39) | | | | | | | | | | |
| Nonlocal IO | | 0.003 (0.41) | | | | | | | | | |
| Long IO | | | −0.078*** (−6.94) | | | | | | | | |
| Medium IO | | | | −0.024*** (−3.38) | | | | | | | |
| Short IO | | | | | 0.063*** (6.64) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | −0.056* (−1.83) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | −0.077*** (−6.52) | | |
| $GIO^{Local, Medium}$ | | | | | | | −0.028** (−2.00) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | −0.017** (−2.39) | |
| $GIO^{Local, Short}$ | | | | | | | | −0.028 (−1.05) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | 0.070*** (7.03) |
| Observations | 100,278 | 100,278 | 100,278 | 100,278 | 100,278 | 100,278 | 100,278 | 100,278 | 100,278 | 100,278 | 100,278 |
| Adj $R^2$ | 0.030 | 0.029 | 0.030 | 0.030 | 0.030 | 0.029 | 0.029 | 0.029 | 0.030 | 0.030 | 0.030 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*(continued)*

**Table IV.**

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel C: Debt Maturity* | | | | | | | | | | | |
| Local IO | −0.099*** (−2.67) | | | | | | | | | | |
| Nonlocal IO | | 0.156*** (6.92) | | | | | | | | | |
| Long IO | | | −0.093*** (−2.72) | | | | | | | | |
| Medium IO | | | | 0.135*** (6.88) | | | | | | | |
| Short IO | | | | | 0.035 (1.52) | | | | | | |
| $GIO^{Local,\ Long}$ | | | | | | −0.296*** (−2.60) | | | | | |
| $GIO^{Nonlocal,\ Long}$ | | | | | | | | | −0.069* (−1.83) | | |
| $GIO^{Local,\ Medium}$ | | | | | | | −0.108** (−2.06) | | | | |
| $GIO^{Nonlocal,\ Medium}$ | | | | | | | | | | 0.150*** (7.54) | |
| $GIO^{Local,\ Short}$ | | | | | | | | −0.172** (−2.12) | | | |
| $GIO^{Nonlocal,\ Short}$ | | | | | | | | | | | 0.050** (2.03) |
| Observations | 90,754 | 90,754 | 90,754 | 90,754 | 90,754 | 90,754 | 90,754 | 90,754 | 90,754 | 90,754 | 90,754 |
| Adj $R^2$ | 0.158 | 0.159 | 0.158 | 0.159 | 0.158 | 0.158 | 0.158 | 0.158 | 0.158 | 0.159 | 0.158 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| *Panel D: ΔEquity* | | | | | | | | | | | |
| Local IO | 0.025 (1.24) | | | | | | | | | | |
| Nonlocal IO | | −0.074*** (−5.60) | | | | | | | | | |
| Long IO | | | −0.061*** (−2.64) | | | | | | | | |
| Medium IO | | | | −0.068*** (−5.43) | | | | | | | |
| Short IO | | | | | 0.035** (1.97) | | | | | | |
| $GIO^{Local,\ Long}$ | | | | | | −0.001 (−0.01) | | | | | |
| $GIO^{Nonlocal,\ Long}$ | | | | | | | | | −0.066*** (−2.76) | | |
| $GIO^{Local,\ Medium}$ | | | | | | | 0.022 (0.78) | | | | |
| $GIO^{Nonlocal,\ Medium}$ | | | | | | | | | | −0.068*** (−5.48) | |
| $GIO^{Local,\ Short}$ | | | | | | | | 0.099* (1.69) | | | |
| $GIO^{Nonlocal,\ Short}$ | | | | | | | | | | | 0.029 (1.58) |
| Observations | 104,354 | 104,354 | 104,354 | 104,354 | 104,354 | 104,354 | 104,354 | 104,354 | 104,354 | 104,354 | 104,354 |
| Adj $R^2$ | 0.197 | 0.198 | 0.197 | 0.198 | 0.197 | 0.197 | 0.197 | 0.197 | 0.197 | 0.198 | 0.197 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Notes:** This table reports panel regressions of firm financing on institutional ownership and firm-level control variables for the period of 1980-2014. Financing is measured using ΔSTD, ΔLTD, Debt Maturity, and ΔEquity. The definitions of all the variables are described in Appendix Table AI and Appendix Table AII. We control for the year and industry fixed effects. *t*-statistics, based on standard errors clustered at firm level, are reported in parentheses. Statistical significance is denoted by *, **, and *** at the 10, 5 and 1 per cent levels, respectively is largely disciplined by local and nonlocal long-term, and local and nonlocal medium-term investors. Both local and long-term investors focus on the long-run performance and monitoring of firms. Thus, their monitoring role in short-term corporate decisions is comparatively weak.

We further examine the impact of institutional ownership on changes in equity. In Panel D of Table IV, the coefficients of long, medium, and short-term IO are −0.061, −0.068 and 0.035, respectively. Long-term investors discipline the use of equity financing while short-term institutions enhance firm equity financing. Since short-term investors have less incentive to monitor managers, issuers with larger portion of short-term ownership have more serious agency problems in equity issuance decisions (Hao, 2014). Managers under weak monitoring mechanism are more likely to make nonoptimal decisions regarding equity issuance and the inefficient use of raised equity capital. Jensen and Meckling (1976) claim that managers sometimes raise equity capital for their own benefits at the expense of shareholders. Unlike debt financing, equity financing does not discipline managers and reduce agency costs (Ganguli, 2013).

In GIO regressions, we show that the coefficient of local short-term IO is 0.099 (significant at the 10 per cent level) and no significant results for nonlocal short-term IO. The findings indicate that the effect from short-term horizon is diluted due to geographical proximity. For nonlocal GIOs, the negative impact of nonlocal institutions comes from nonlocal long-term and medium-term investors. Nonlocal short-term investors do not effectively reduce the use of equity financing. These patterns highlight that not all institutional investors have the same preference for equity financing. Nonlocal institutions have stronger motivation to monitor and discipline equity issuance than local investors.

### *3.3 Payout*

We also investigate how firms respond to institutions for payout policy. From the agency theory perspective, shareholders tend to force companies to disgorge discretionary cash to prevent agents from wasting it (Easterbrook, 1984; Jensen, 1986; Abor and Bokpin, 2010). If so, under the threat of disciplinary actions, financial managers would rationally choose to pay dividends in response to investors' monitoring and agency costs. If the monitor is a good monitor, then we should expect to observe positive response in terms of payout (Harford *et al.*, 2017). Table V presents the results on firm total payout.

Consistent with existing studies, the impact of long-term ownership on payout is significantly positive. As shown in Table V, the coefficients of Long IO, Medium IO, and Short IO are monotonically decreasing. The results imply that firm payout policy is positively associated with institutional investors' horizon. Related literature argues that firms try to please either short-term or long-term investors. First, firms exploit temporary misvaluation of equity to transfer wealth from short-term investors to long-term investors. The second view is from the catering perspective that firms pursue whatever payout policies to cater the time-varying tastes of investors (Baker and Wurgler, 2004; Shleifer and Vishny, 2003; Derrien *et al.*, 2013).

We capture a monotonically decreasing pattern across investment horizon for GIO regressions. Firms exploit payout policy to transfer value to local and long-term investors. The coefficients of $GIO^{Local,\ Long}$ and $GIO^{Nonlocal,\ Long}$ are both significantly positive. Local long-term investors play more important roles in demanding payout. The evidence supports the monitoring role facilitated by local long-term institutions leading to higher payout (Crane *et al.*, 2016).

**Table V.**
The effect of geographical proximity and investment horizon of institutional investors on payout policy

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Local IO | 0.005 (0.70) | | | | | | | | | | |
| Nonlocal IO | | −0.016*** (−3.96) | | | | | | | | | |
| Long IO | | | 0.072*** (11.07) | | | | | | | | |
| Medium IO | | | | −0.007** (−2.18) | | | | | | | |
| Short IO | | | | | −0.043*** (−11.14) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | 0.077*** (3.30) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | 0.072*** (10.50) | | |
| $GIO^{Local, Medium}$ | | | | | | | 0.013 (1.32) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | −0.010*** (−2.80) | |
| $GIO^{Local, Short}$ | | | | | | | | −0.040*** (−2.92) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | −0.040*** (−9.58) |
| Observations | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 |
| Adj $R^2$ | 0.113 | 0.113 | 0.116 | 0.113 | 0.115 | 0.113 | 0.113 | 0.113 | 0.116 | 0.113 | 0.114 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Notes:** This table reports panel regressions of payout policy on institutional ownership and firm-level control variables for the period of 1980-2014. Payout policy is measured using Total Payout. The definitions of all the variables are described in Appendix Table AI and Appendix Table AII. We control for the year and industry fixed effects. *t*-statistics, based on standard errors clustered at firm level, are reported in parentheses. Statistical significance is denoted by *, **, and *** at the 10, 5 and 1 per cent levels, respectively

*3.4 Misbehavior and takeover defenses*

Table VI presents the results on managerial misbehaviors. We adopt three variables to measure misbehavior: earnings management, financial fraud, and option backdating (CEO Luck). The detailed definitions of these three variables are discussed in Appendix Table AII.

Consistent with Harford *et al.* (2017), we confirm that long-term investors restrain managerial misbehaviors. In the univariate benchmark regressions, this monitoring effect is weaker as the investment horizon becomes shorter.

Additionally, the coefficients of $GIO^{Nonlocal,\ Long}$ on the misbehavior measures are statistically significant. In contrast, the monitoring effects become insignificant in the rest of GIO regressions. The results suggest that nonlocal long-term investors take the responsibility and effort to curtail the occurrence of managerial misbehaviors. Our result identifies that the source of the monitoring role of long-term institutional investors in managerial misbehaviors comes from its nonlocal component. Nonlocal institutions are less likely to have business ties with local companies, to share the benefits of control, and to be sympathetic to incumbent management (Aggarwal *et al.*, 2011; Gillan and Starks, 2007; Bena *et al.*, 2017). Together with long-term investment horizon, nonlocal institutions are expected to take a more active stance in restraining managers' misbehavior.

We now examine the effect of different types of institutional investors on firms' governance proxied by G-index and E-index (Gompers *et al.*, 2003; Bebchuk *et al.*, 2009). The more takeover defense provisions a firm has, the weaker the quality of the governance. These two measures capture how restrictive firms' provisions are in terms of shareholder rights and to what extent managers are insulated from the discipline by takeover markets.

Entrenchment can have adverse effects on management behavior and incentives. However, entrenchment can also produce beneficial effects by reducing the threat of a takeover distorts investment or by enabling managers to extract higher acquisition premiums in negotiated transactions (Stulz, 1988; Bebchuk *et al.*, 2009). Additionally, regulation of depository institutions mitigates takeover defense effects on managerial behavior (Webb, 2007). As shown in Table VII, evidence from G-index and E-index demonstrates that local institutions reduce takeover defenses and firms with high level of local institutional presence exhibit better corporate governance quality. Negative associations between local ownership and G-index and E-index are captured. For E-index, the monitoring effect of local long-term investors appears to be the most effective. However, on the nonlocal side, all the associations are weakly positive, representing relatively weaker shareholder rights for firms that are owned by nonlocal institutions. This could be explained by the disincentive caused by geographical disadvantage for nonlocal investors to attend shareholder meetings regularly. This is an essential way to alleviate asymmetric information so that nonlocal investors ineffectively fulfill their duties to monitor senior management (Chhaochharia *et al.*, 2012).

*3.5 Profitability*

In the end, we examine the real effects of institutional investors on firms. Schimke and Brenner (2014) show that R&D activities have a positive effect on firm growth. Profitability is measured as sales growth and costs. We do not use net income to measure profitability because most developing firms have negative net income. Comparing net income induces unreliable results. In Panel A of Table VIII, both local and long-term institutional investors enhance sales growth. In comparison, similar patterns are not observed for nonlocal investors and investors with other horizons. For GIO regressions, the effect of local long-term investors appears to be stronger. The positive influence decreases as investment horizon becomes shorter. No evidence can be found on local and nonlocal short-term

**Table VI.**
The effect of geographical proximity and investment horizon of institutional investors on misbehavior

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel A: Earnings Management* | | | | | | | | | | | |
| Local IO | 0.060 (1.30) | | | | | | | | | | |
| Nonlocal IO | | −0.068** (−2.41) | | | | | | | | | |
| Long IO | | | −0.202*** (−3.93) | | | | | | | | |
| Medium IO | | | | −0.094*** (−3.32) | | | | | | | |
| Short IO | | | | | 0.187*** (5.15) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | −0.030 (−0.19) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | −0.204*** (−3.67) | | |
| $GIO^{Local, Medium}$ | | | | | | | 0.152** (2.09) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | −0.124*** (−4.14) | |
| $GIO^{Local, Short}$ | | | | | | | | 0.037 (0.37) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | 0.195*** (5.13) |
| Observations | 103,636 | 103,636 | 103,636 | 103,636 | 103,636 | 103,636 | 103,636 | 103,636 | 103,636 | 103,636 | 103,636 |
| Adj $R^2$ | 0.065 | 0.065 | 0.065 | 0.065 | 0.065 | 0.065 | 0.065 | 0.065 | 0.065 | 0.065 | 0.065 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| *Panel B: Financial Fraud* | | | | | | | | | | | |
| Local IO | 0.135 (0.68) | | | | | | | | | | |
| Nonlocal IO | | −0.065 (−0.41) | | | | | | | | | |
| Long IO | | | −1.368*** (−4.76) | | | | | | | | |
| Medium IO | | | | −0.156 (−0.99) | | | | | | | |
| Short IO | | | | | 0.931*** (5.08) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | −0.421 (−0.55) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | −1.420*** (−4.72) | | |
| $GIO^{Local, Medium}$ | | | | | | | 0.063 (0.20) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | −0.139 (−0.94) | |
| $GIO^{Local, Short}$ | | | | | | | | 1.076** (2.12) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | 0.866*** (4.55) |
| Observations | 64,717 | 64,717 | 64,717 | 64,717 | 64,717 | 64,717 | 64,717 | 64,717 | 64,717 | 64,717 | 64,717 |
| Pseudo $R^2$ | 0.070 | 0.070 | 0.072 | 0.070 | 0.072 | 0.070 | 0.070 | 0.070 | 0.072 | 0.070 | 0.071 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*(continued)*

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel C: CEO Luck* | | | | | | | | | | | |
| Local IO | 0.442* (1.66) | | | | | | | | | | |
| Nonlocal IO | | −0.169 (−0.78) | | | | | | | | | |
| Long IO | | | −1.442*** (−3.47) | | | | | | | | |
| Medium IO | | | | 0.128 (0.61) | | | | | | | |
| Short IO | | | | | 0.519** (2.24) | | | | | | |
| $GIO^{Local,\ Long}$ | | | | | | 0.401 (0.37) | | | | | |
| $GIO^{Nonlocal,\ Long}$ | | | | | | | | | −1.772*** (−3.95) | | |
| $GIO^{Local,\ Medium}$ | | | | | | | 0.728* (1.85) | | | | |
| $GIO^{Nonlocal,\ Medium}$ | | | | | | | | | | −0.143 (−0.72) | |
| $GIO^{Local,\ Short}$ | | | | | | | | 0.282 (0.41) | | | |
| $GIO^{Nonlocal,\ Short}$ | | | | | | | | | | | 0.578** (2.37) |
| Observations | 10,907 | 10,907 | 10,907 | 10,907 | 10,907 | 10,907 | 10,907 | 10,907 | 10,907 | 10,907 | 10,907 |
| Pseudo $R^2$ | 0.026 | 0.026 | 0.027 | 0.026 | 0.026 | 0.026 | 0.026 | 0.026 | 0.028 | 0.026 | 0.026 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Notes:** This table reports panel (Panel A) and probit (Panel B and C) regressions of firm misbehavior on institutional ownership and firm-level control variables for the period of 1980-2014. Misbehavior is measured using Earnings Management, Financial Fraud, and CEO Luck. The definitions of all the variables are described in Appendix Table AI and Appendix Table AII. We control for the year and industry fixed effects. *t*-statistics, based on standard errors clustered at firm level, are reported in parentheses. Statistical significance is denoted by *, **, and *** at the 10, 5 and 1 per cent levels, respectively

**Table VI.**

**Table VII.**
The effect of geographical proximity and investment horizon of institutional investors on takeover defenses

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel A: G-Index* | | | | | | | | | | | |
| Local IO | −2.798*** (−2.64) | | | | | | | | | | |
| Nonlocal IO | | 1.782** (2.31) | | | | | | | | | |
| Long IO | | | 3.623*** (3.03) | | | | | | | | |
| Medium IO | | | | −0.034 (−0.05) | | | | | | | |
| Short IO | | | | | −0.891 (−1.46) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | −4.081 (−1.12) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | 5.447*** (4.41) | | |
| $GIO^{Local, Medium}$ | | | | | | | −3.354** (−2.39) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | 0.978 (1.57) | |
| $GIO^{Local, Short}$ | | | | | | | | −4.990** (−2.22) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | −0.196 (−0.30) |
| Observations | 11,833 | 11,833 | 11,833 | 11,833 | 11,833 | 11,833 | 11,833 | 11,833 | 11,833 | 11,833 | 11,833 |
| Adj $R^2$ | 0.132 | 0.131 | 0.132 | 0.129 | 0.129 | 0.129 | 0.131 | 0.130 | 0.135 | 0.129 | 0.129 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| *Panel B: E-Index* | | | | | | | | | | | |
| Local IO | −1.462** (−2.56) | | | | | | | | | | |
| Nonlocal IO | | 0.875** (1.98) | | | | | | | | | |
| Long IO | | | 0.333 (0.47) | | | | | | | | |
| Medium IO | | | | 0.315 (0.93) | | | | | | | |
| Short IO | | | | | −0.124 (−0.36) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | −5.971*** (−2.84) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | 1.871*** (2.83) | | |
| $GIO^{Local, Medium}$ | | | | | | | −1.095 (−1.55) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | 0.628* (1.86) | |
| $GIO^{Local, Short}$ | | | | | | | | −1.774 (−1.63) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | 0.148 (0.41) |
| Observations | 10,574 | 10,574 | 10,574 | 10,574 | 10,574 | 10,574 | 10,574 | 10,574 | 10,574 | 10,574 | 10,574 |
| Adj $R^2$ | 0.120 | 0.118 | 0.116 | 0.116 | 0.116 | 0.121 | 0.117 | 0.116 | 0.119 | 0.117 | 0.116 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Notes:** This table reports panel regressions of takeover defenses on institutional ownership and firm-level control variables for the period of 1980-2014. Takeover defenses are measured using G-index and E-index. The definitions of all the variables are described in Appendix Table AI and Appendix Table AII. We control for the year and industry fixed effects. *t*-statistics, based on standard errors clustered at firm level, are reported in parentheses. Statistical significance is denoted by *, ** and *** at the 10, 5 and 1 per cent levels, respectively

**Table VIII.** The effect of geographical proximity and investment horizon of institutional investors on profitability

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel A: Sales Growth* | | | | | | | | | | | |
| Local IO | 0.062* (1.87) | | | | | | | | | | |
| Nonlocal IO | | −0.091*** (−4.05) | | | | | | | | | |
| Long IO | | | 0.266*** (6.76) | | | | | | | | |
| Medium IO | | | | −0.123*** (−5.27) | | | | | | | |
| Short IO | | | | | −0.037 (−1.21) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | 0.612*** (5.69) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | 0.219*** (5.41) | | |
| $GIO^{Local, Medium}$ | | | | | | | 0.081 (1.62) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | −0.129*** (−5.61) | |
| $GIO^{Local, Short}$ | | | | | | | | −0.122 (−1.30) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | −0.022 (−0.70) |
| Observations | 105,385 | 105,385 | 105,385 | 105,385 | 105,385 | 105,385 | 105,385 | 105,385 | 105,385 | 105,385 | 105,385 |
| Adj $R^2$ | 0.047 | 0.047 | 0.048 | 0.048 | 0.047 | 0.048 | 0.047 | 0.047 | 0.048 | 0.048 | 0.047 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| *Panel B: Costs* | | | | | | | | | | | |
| Local IO | −0.663*** (−5.59) | | | | | | | | | | |
| Nonlocal IO | | 0.185** (2.54) | | | | | | | | | |
| Long IO | | | −0.256** (−2.57) | | | | | | | | |
| Medium IO | | | | −0.056 (−0.99) | | | | | | | |
| Short IO | | | | | 0.050 (0.72) | | | | | | |
| $GIO^{Local, Long}$ | | | | | | −1.071*** (−3.09) | | | | | |
| $GIO^{Nonlocal, Long}$ | | | | | | | | | −0.125 (−1.17) | | |
| $GIO^{Local, Medium}$ | | | | | | | −0.779*** (−4.98) | | | | |
| $GIO^{Nonlocal, Medium}$ | | | | | | | | | | 0.107* (1.79) | |
| $GIO^{Local, Short}$ | | | | | | | | −1.395*** (−6.08) | | | |
| $GIO^{Nonlocal, Short}$ | | | | | | | | | | | 0.240*** (3.12) |
| Observations | 97,423 | 97,423 | 97,423 | 97,423 | 97,423 | 97,423 | 97,423 | 97,423 | 97,423 | 97,423 | 97,423 |
| Adj $R^2$ | 0.286 | 0.285 | 0.285 | 0.285 | 0.285 | 0.285 | 0.285 | 0.285 | 0.285 | 0.285 | 0.285 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Notes:** This table reports panel regressions of firm profitability on institutional ownership and firm-level control variables for the period of 1980-2014. Profitability is measured using Sales Growth and Costs. The definitions of all the variables are described in Appendix Table AI and Appendix Table AII. We control for the year and industry fixed effects. *t*-statistics, based on standard errors clustered at firm level, are reported in parentheses. Statistical significance is denoted by *, ** and *** at the 10, 5 and 1 per cent levels, respectively investors. In Panel B of Table VIII, all the local GIOs are negatively associated with costs while opposite results are captured on the nonlocal side. The findings imply that reducing costs is one of the channels to increase sales growth and this effect is the strongest with the presence of local long-term investors. With stronger monitoring effects from local long-term investors, firms allocate resources more efficiently and experience higher sales growth.

## 4. Causality and self-selection issues

### *4.1 Identification strategy: index vs non-index*

We are mindful about the potential challenge on the causality issues, despite the exogenous nature of location. It is possible that financial institutions knowingly invest in better performing and good governance firms. To alleviate this endogenous concern, we divide the six institutional ownership into index and non-index IO. Indexing by investors is reasonably exogenous since index institutional investors are passive investors and do not actively adjust their portfolio holdings. Therefore, the endogenous issue should be less severe among index institutions.

To establish the causality, we adopt S&P 500 index membership as a source of plausible exogeneity. We divide investor ownership based on index and non-index firms determined by their S&P 500 membership. Following Kecskés *et al.* (2017), we define index ownership as the fraction of shares owned by institutions that are investors for S&P 500 firms, and zero for non-S&P 500 firms. Non-index ownership is defined as the fraction of shares owned by institutions that are investors for non-S&P 500 firms, and zero for S&P 500 firms. For each of the institutional ownership variables, it has two constituents: index IO and non-index IO. We then re-implement our regression design. Based on our results, we do not observe significant variation. To save space, results of payout policy from our identification strategy are reported in Appendix Table AIII. When the GIO variables are divided into index and non-index institutional ownership, we observe consistent results with our previous findings, especially for the index IO. Our results for other corporate policies remain robust using this identification strategy.

### *4.2 Self-selection issues*

If our classification of institutional ownership affects the observability of firms' decision outcome, the estimation results may suffer self-selection bias. To cope with this issue, we employ Heckman (1979) two-step methodology and estimate the following models across all the dependent variables:

$$z_t^* = \alpha_i + \beta^* X_{GIOvars,i,t-1} + \gamma^* X_{other\ \ controls,i,t-1} + \epsilon_{i,t} \tag{5}$$

$$y_t^* = \alpha_i^* + \beta^{**} X_{GIOvars,i,t-1} + \gamma^{**} X_{other\ \ controls,i,t-1} + \sigma\lambda + \varepsilon_{i,t} \tag{6}$$

In Equation (5), the latent variable $z_t^*$ in the selection step determines the existence of corporate policy variable $y_t^*$. $z_t^*$ is a dummy variable that captures whether the firm is involved or not. It takes the value of one if a firm has no missing value for a dependent variable for a year, zero otherwise. The parameter $\lambda$ (Heckman, 1979) is constructed from the first stage, which is included in the second step to adjust for sample selection. In our unreported results, the inverse mills ratios are significant across all the GIO regressions, which indicates that our results from the previous section are not driven by sample self-selection issues.

*4.3 Robustness tests*

We perform several robustness check analyses. First, we change our initial portfolio turnover cutoff points of 25 per cent to 33 per cent and 75 per cent to 66 per cent, similar to Kecskés *et al.* (2017) and re-estimate the regressions. The results using the new cutoff points are consistent with previous findings. Additionally, we exclude firms located in the states of New York and California. The overall evidence is consistent with our baseline results.

## 5. Conclusion

This paper studies the monitoring role of institutional investors by proposing a new proximity-horizon classification method, which identifies the sources of information advantages of institutions and disentangles the effects of ownership structure on the monitoring outcomes. Geographical proximity facilitates the transmission of information and reduces information-gathering costs. Investment horizon influences the institutional investors' monitoring mechanism through the motivation to gather information and effectively monitor firms. We collectively examine both dimensions of institutions, and show that institutional investors do present different preferences for corporate policies under our new classification scheme. For instance, the strongest monitoring effect for investment comes from local and long-term oriented investors. Both local and nonlocal long-term investors warrant better financing decisions with different concentrations. Moreover, we show that long-term investors motivate firms to increase payout. Local investors strengthen corporate governance, whereas nonlocal institutions restrain managerial misbehaviors. With efficient corporate decisions and better-disciplined managers, firms experience higher sales growth and reduced costs. Overall, under this novel framework, we contribute to the literature on institutional investors in understanding their monitoring efforts in a more comprehensive setting.

### Notes

1. Bushee (1998, 2001) document that when firms are largely owned by short-term investors, managers are more likely to cut R&D to avoid short-term earnings decline. Similarly, Cremers *et al.* (2017) document that firm value and investment outcomes are influenced and pressured by short-term institutions.
2. Coval and Moskowitz (1999, 2001), Baik *et al.* (2010), and Ivković and Weisbenner (2005).
3. Financial statements carry hard information on tangible and physical assets, while they play minor roles in assessing knowledge-based assets, such as R&D and patent.
4. Corporate headquarters are the information exchange center between investors and corporations (Pirinsky and Wang, 2006).
5. Stanford Securities Class Action Clearinghouse provides detailed information regarding the filing date, class period, nature of the complaint, and settlement terms; Stanford law school's website: http://securities.stanford.edu/filings.html
6. Option backdating data are obtained from www.law.harvard.edu/faculty/bebchuk/data.shtml, Bebchuk *et al.* (2010).
7. G-index is from http://faculty.som.yale.edu/andrewmetrick/data.html, Gompers *et al.* (2003).
8. E-index is from www.law.harvard.edu/faculty/bebchuk/data.shtml, Bebchuk *et al.* (2009).
9. Despite the positive sign on the nonlocal short-term investors, the significance disappears on nonlocal short-term investors. This is consistent with the argument that nonlocal investors are short of arms' length information.

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## Further reading

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**Corresponding author**
Xiaoqiong Wang can be contacted at: xw55@iu.edu

## Appendix

| Variable name | Definition |
|---|---|
| Local IO | Fraction of shares owned by institutional investors that are local investors |
| Long IO | Fraction of shares owned by institutional investors that are long-term investors |
| Medium IO | Fraction of shares owned by institutional investors that are medium-term investors |
| Short IO | Fraction of shares owned by institutional investors that are short-term investors |
| Nonlocal IO | Fraction of shares owned by institutional investors that are nonlocal investors |
| $GIO^{Local,\ Long}$ | Fraction of shares owned by institutional investors that are local long-term investors |
| $GIO^{Nonlocal,\ Long}$ | Fraction of shares owned by institutional investors that are nonlocal long-term investors |
| $GIO^{Local,\ Medium}$ | Fraction of shares owned by institutional investors that are local medium-term investors |
| $GIO^{Nonlocal,\ Medium}$ | Fraction of shares owned by institutional investors that are nonlocal medium-term investors |
| $GIO^{Local,\ Short}$ | Fraction of shares owned by institutional investors that are local short-term investors |
| $GIO^{Nonlocal,\ Short}$ | Fraction of shares owned by institutional investors that are nonlocal short-term |
| IO | Fraction of shares owned by institutional investors |

**Notes:** This table presents definitions of the institutional ownership variables. Investors with portfolio turnover of 25 per cent or less are classified as long-term investors. Investors with portfolio turnover of 75 per cent or more are classified as short-term investors. The computation of investor horizon follows Gaspar *et al.* (2005). When a financial institution is headquartered in the same state as a firm, the financial institution is regarded as local, nonlocal otherwise

**Table AI.**
Definitions of institutional ownership

| Variable Name | Definition | Data Sources |
|---|---|---|
| *Investment variables* | | |
| CAPEX | CAPX/AT | COMPUSTAT |
| R&D | XRD/AT | COMPUSTAT |
| ΔInventory | ΔINVT/AT | COMPUSTAT |
| *Financing variables* | | |
| ΔSTD | DLCCH/AT | COMPUSTAT |
| ΔLTD | (DLTIS-DLTR)/AT | COMPUSTAT |
| Debt Maturity | DLTT/(DLC+DLTT) | COMPUSTAT |
| ΔEquity | SSTK/AT | COMPUSTAT |
| *Payout Variables* | | |
| Total Payout | (DV+PRSTKC)/AT | COMPUSTAT |
| *Managerial misbehavior variables* | | |
| Earnings Management | Total accruals are defined as (ΔACT-ΔLCT-ΔCHE+ΔDLC-DP)/AT. We then remove components of accruals that are nondiscretionary and estimate the following model to get the discretionary accrual:<br>$TA_{i,t} = \alpha_0 + \alpha_1 (1/AT_{i,t-1}) + \alpha_2 (nSALE_{i,t}) + \alpha_3 (PPEGT_{i,t}) + \epsilon_{i,t}$<br>$DCA_{i,t} = \left\lvert TA_{i,t} - \hat{\alpha}_0 - \hat{\alpha}_1 \left(\frac{1}{AT_{i,t-1}}\right) - \hat{\alpha}_2 (nSALE_{i,t}) - \hat{\alpha}_3 (PPEGT_{i,t}) \right\rvert$<br>where $\Delta REV_{i,t}$ is the change in sales scaled by lagged assets | COMPUSTAT |
| Financial Fraud | Dummy variable equals to one if the firm is the subject of a securities class action lawsuit in the current year, zero otherwise. Data collected from http://securities.stanford.edu/filings.html | Stanford Law School |
| CEO Luck | Dummy variable equals to one if the firm's CEO receives a backdated option grant, zero otherwise. Data collected from www.law.harvard.edu/faculty/bebchuk/data.shtml | Bebchuk Website, 1996-2005 |
| *Takeover defenses variables* | | |
| G-Index | G-Index is constructed by adding one point for each provision that enhances managerial power. The data is form Metrick's website: http://faculty.som.yale.edu/andrewmetrick/data.html | Metrick Website, 1990-2006 |
| E-Index | E-index is constructed based on six provisions that they consider to be the most important from a legal standpoint. The data is from Bebchuk's website: www.law.harvard.edu/faculty/bebchuk/data.shtml | Bebchuk Website, 1990-2006 |
| *Profitability variables* | | |
| Sales Growth | ΔSALES/SALES | COMPUSTAT |
| Costs | (COGS+XSGA)/AT | COMPUSTAT |
| *Control variables* | | |
| Total Assets | AT | COMPUSTAT |
| MTB | Market value of equity/Book value of equity | COMPUSTAT/ CRSP |
| CF | (IB+DP)/AT | COMPUSTAT |
| Ret | Annualized daily stock returns | CRSP |
| Volatility | Annualized standard deviation of daily stock returns | CRSP |
| Share Turnover | Annualized daily trading volume divided by shares outstanding | CRSP |

**Notes:** This table presents definitions of the dependent and independent variables used in our study. Variables are computed at firm-year level. Industry is defined as two-digit SIC codes

**Table AII.**
Variable definitions

**Table AIII.**
Identification strategy: Index and non-index split

| Variable | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Local IO Index | 0.280*** (9.58) | | | | | | | | | | |
| Local IO Nonindex | 0.027*** (−4.10) | | | | | | | | | | |
| Nonlocal IO Index | | 0.034*** (6.77) | | | | | | | | | |
| Nonlocal IO Nonindex | | 0.014*** (−3.45) | | | | | | | | | |
| Long IO Index | | | 0.239*** (17.55) | | | | | | | | |
| Long IO Nonindex | | | 0.044*** (6.96) | | | | | | | | |
| Medium IO Index | | | | 0.070*** (10.95) | | | | | | | |
| Medium IO Nonindex | | | | −0.007** (−2.15) | | | | | | | |
| Short IO Index | | | | | 0.107*** (8.87) | | | | | | |
| Short IO Nonindex | | | | | 0.045*** (−11.47) | | | | | | |
| $GIO^{Local, Long, Index}$ | | | | | | 0.884*** (8.50) | | | | | |
| $GIO^{Local, Long, Nonindex}$ | | | | | | −0.014 (−0.65) | | | | | |
| $GIO^{Nonlocal, Long, Index}$ | | | | | | | | | 0.248*** (17.42) | | |
| $GIO^{Nonlocal, Long, Nonindex}$ | | | | | | | | | 0.040*** (6.02) | | |
| $GIO^{Local, Medium, Index}$ | | | | | | | 0.525*** (10.25) | | | | |
| $GIO^{Local, Medium, Nonindex}$ | | | | | | | 0.033*** (−3.54) | | | | |
| $GIO^{Nonlocal, Medium, Index}$ | | | | | | | | | | 0.070*** (10.55) | |
| $GIO^{Nonlocal, Medium, Nonindex}$ | | | | | | | | | | 0.010*** (−2.91) | |
| $GIO^{Local, Short, Index}$ | | | | | | | | 0.961*** (8.49) | | | |
| $GIO^{Local, Short, Nonindex}$ | | | | | | | | 0.090*** (−6.83) | | | |
| $GIO^{Nonlocal, Short, Index}$ | | | | | | | | | | | 0.115*** (8.82) |
| $GIO^{Nonlocal, Short, Nonindex}$ | | | | | | | | | | | 0.043*** (−10.28) |
| Observations | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 | 98,371 |
| Adj $R^2$ | 0.123 | 0.126 | 0.130 | 0.126 | 0.125 | 0.118 | 0.122 | 0.119 | 0.129 | 0.125 | 0.124 |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

**Notes:** The Effect of Geographical Proximity and Investment Horizon of Institutional Investors on Payout Policy. Due to the size of the results, this table is for expositional purpose. Full results are available upon request. This table reports panel regressions of total payout on institutional ownership with index/non-index split, and firm-level control variables, as well as various fixed effects. Index ownership is defined as the fraction of shares owned by institutions that are investors for S&P 500 firms, and zero for non-S&P 500 firms. Non-index ownership is defined as the fraction of shares owned by institutions that are investors for non-S&P 500 firms, and zero for S&P 500 firms. We control for the year and industry fixed effects. *t*-statistics, based on standard errors clustered at firm level, are reported in parentheses. Statistical significance is denoted by *, ** and *** at the 10, 5 and 1 per cent levels, respectively