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# Does Board Diversity Attract Foreign Institutional Ownership? Insights from the Chinese Equity Market

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**Abstract:** The study aimed to empirically investigate the impact of board diversity variables (age, gender, nationality, education, tenure, and expertise) on the investment preferences of foreign institutional investors in an emerging market, China. For this, sample data consisted of 1374 nonfinancial Chinese firms from 2009 to 2018. The study used OLS regression as a baseline regression, a fixed effect model to control omitted variable bias, and the two-step systems GMM model to control the endogeneity problem. The study revealed that board diversity variables (gender, nationality, education, and financial expertise) are positively associated with foreign institutional ownership in Chinese nonfinancial firms, implying that foreign institutional investors own a high percentage of Chinese nonfinancial firms with diversity of gender, nationality, education, and financial expertise. Age and tenure of board diversity, on the other hand, have little correlation with foreign institutional ownership. Further, the robustness regressions also confirmed the relationship between board diversity and foreign institutional ownership. This study made a unique attempt to provide empirical evidence that firms having diverse boards attract foreign institutional ownership by reducing asymmetric information.

**Keywords:** board diversity; foreign institutional ownership; signaling theory; gender equality



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## 1. Introduction

The impact of the role of foreign institutional investors has increased in global capital markets due to financial globalization (Ferreira and Matos 2008) and has made the investment choices of foreign institutional investors a widely researched topic in recent academic literature. Foreign institutions can effectively monitor managerial myopia and promote corporate innovations (Shin and Park 2020). Foreign institutional investors are important for firms because they not only provide the financial resources to the firms but also mobilize skills and knowledge from their home countries (Ferreira et al. 2010; Gillan and Starks 2003) and improve firm performance by reducing stock price volatility (Vo 2015). Given the importance of foreign institutional investors for firms, much literature has used stock attributes, firm characteristics (Cai et al. 2019; Joe and Oh 2017; Lee and Ryu 2019; Neupane et al. 2016), and board composition to identify the determinants of foreign institutional investment (Abdioglu et al. 2013; Yeh 2018). However, most of these studies are conducted in technologically advanced countries (Kang and Stulz 1997) and lack board diversity as a determinant of foreign investment (Yeh 2018). Thus, this study fills the research gap by investigating the relationship between board diversity and foreign institutional ownership.

China is a curious case to investigate the relationship between board diversity and foreign institutional investment because it opened its equity market to foreign institutional investors after becoming a member of the WTO (World Trade Organization) in 2001.

Foreign institutional investors have shown keen interest to invest in this fast growing and largest developing market and have progressively invested in this equity market (Huang and Zhu 2015). However, in China, limited studies have investigated the stock preferences of institutional investors from abroad. For example, Liu et al. (2014) concluded that foreign qualified institutional investors favor Chinese firms with state ownership but firm size and profit do not have a substantial impact. Zou et al. (2016) also investigated the inclinations of foreign qualified institutional investors for Chinese firms and revealed that foreign qualified institutional investors favor firms with large size, long history, better accounting performance, and higher ownership concentration. Moreover, a recent study by Korkeamaki et al. (2019) also investigated the investment preferences of foreign qualified institutional investors and found that FII prefer small firms with low stock turnover as well as more state ownership. However, the literature on the role of board diversity to attract foreign institutional investors, particularly in China, is silent.

This study introduces board diversity attributes (age, gender, nationality, education, tenure, and financial expertise) as a determinant of foreign institutional investment and investigates the research question "Does board diversity signal to foreign institutional investors how much firms care about their interest?". For this purpose, the researchers collected data for 1374 Chinese firms listed on the Shenzhen and Shanghai stock exchanges for the period 2009–2018. This study used OLS, fixed effect (FE), and two-step system models for analysis.

This study contributes to the present literature in two ways. Firstly, based on signaling theory, this study will contribute to board diversity and foreign institutional investment literature by investigating the unexplored question of whether board diversity affects the investment decisions of foreign institutional investors by reducing information asymmetry. Abad et al. (2017) revealed that board diversity reduces information asymmetry and guides institutional investors to decide on firms for investment (De-La-Hoz et al. 2018). To date, the evidence on the relationship between board diversity and foreign institutional investment is scarce. Secondly, this study expands the board diversity literature beyond developed countries by exploring the relationship between board diversity and foreign institutional ownership in the major emerging economy of China. This fast-growing emerging economy has different economic and institutional features from developed countries (Saeed and Sameer 2017). Therefore, the outcomes of board diversity explored in developed countries cannot be generalized to developing economies. Thus, this research enhances our understanding by offering novel insights into how board diversity in the developing market of China is perceived by foreign institutional investors.

## 2. Review of Literature

### *2.1. Gender Diversity and Foreign Institutional Ownership*

The research on the "business case for woman" shows that board gender diversity improves board effectiveness and, in turn, positively impacts a firm's performance and socially responsible behavior (Adams and Ferreira 2009; Ben-Amar et al. 2013; Hafsi and Turgut 2013; Nielsen and Huse 2010; Usman et al. 2018). For example, drawing on agency theory, Usman et al. (2018) conclude that female directors contribute to advancing firm-level governance by paying attention to the actions and decisions of management. The unique characteristics attached to female directors such as fewer attendance issues and more willingness to participate in monitoring committees, made them more vigilant in performing their monitoring activities on boards of directors (Adams and Ferreira 2009; Saeed and Sameer 2017). This active participation of female directors in the board's functioning empowers them to play their role as watchdog for shareholders rather than only to being rubber-stamps for management decisions (McGuinness et al. 2015).

However, the empirical research shows conflicting results about the effect of women directors on firm outcomes (Post and Byron 2015). Some studies concluded positive effects of female board representation on various firm financial and social outcomes. Bernile et al. (2018) conclude that BGD reduces stock return volatility, helps to adopt stable and

persistent corporate policies, and shrinks risk taking activities. Perryman et al. (2016) suggest that firms with higher level of females on corporate boards take less risk and have higher financial performance. On the other hand, some empirical studies have found no relationship or negative correlation between females on the board and the firm's outcome (Post and Byron 2015). For example, Sila et al. (2016) has concluded that board gender diversity has no implications for equity risk. Strobl et al. (2016) reveal that gender diversity is not associated with CEO compensation. Moreover, Adams and Ferreira (2009) reveal that firm performance can be influenced by too many factors other than board gender diversity so it would not be possible to establish a causal association between firm performance and board female representation; however, the presence of women directors can improve internal governance mechanisms.

Nevertheless, prior literature is based on the differences in characteristics between male and female directors and has contradictory results. Empirical research about effectiveness of female representation on boards based on signaling theory is scant. Kirsch (2018) points out that this argument based on signaling theory has no assumption that gender differences on board of directors lead to different behavior. Instead, investors perceive BGD as a mean of good corporate governance and respond positively to the presence of female directors on corporate boards (Kang et al. 2010). Therefore, we can conjecture a positive link between diversity on a board of directors and the preferences of foreign institutional investors.

**Hypothesis 1.** *Board gender diversity signals positively to foreign institutional investors.*

### 2.2. Age Diversity and Foreign Ownership

Directors' age reflects their expertise in business operations and company management, leading to better decision making (Kang et al. 2007). Recently, researchers are promoting age diversity for encouraging the varying perspectives of different age groups (Kang et al. 2007; Mahadeo et al. 2012; Talavera et al. 2018). Diversity among directors' ages is a potential source of a wider range of philosophies to the boardroom. For example, older directors may impart greater experiential wisdom and stability to discussions, while younger directors may add greater dynamism and more risk taking to decision making (Anderson et al. 2011). Drawing on agency theory, (Jensen and Meckling 1976) and Mori (2014) reveal that board age diversity enhances a board's ability to execute its monitoring and resource provision role.

There are mixed findings on the economic role of age diversity. For example, in an emerging market, Mahadeo et al. (2012) conclude a positive link between the director's age diversity and firm performance. On the contrary, Talavera et al. (2018) determined that age diverse boards negatively affect banks' profitability. Based on a sample of 9001 observations, Harjoto et al. (2015) concluded that age diversity has an insignificant negative effect on CSR performance. Along the same lines, Ararat et al. (2015) also found a positive but insignificant association between board age diversity and firm performance in Turkish firms. The existing literature provides scarce evidence on how age diversity is perceived by foreign institutional investors. This study is an early effort to explore the signaling power of age diversity for foreign institutional investors, so, this study conjectures a positive effect on the shareholdings of foreign institutional investors.

**Hypothesis 2.** *Board age diversity signals positively to foreign institutional investors.*

### 2.3. National Diversity and Foreign Ownership

Directors' nationality is considered one of the most significant of a firm's board diversity characteristics (Ararat et al. 2015). Directors' foreign board experience is an importance source to transfer governance across countries (Iliev and Roth 2018). This transfer of knowledge is much stronger and more economically meaningful in countries with weak investor protection. Drawing on agency theory, Giannetti et al. (2015) claim that directors

having foreign experience reduce agency problems by performing monitoring functions effectively and refining corporate governance practices at firm-level because they have rare local ties and hence may possibly have stronger motivations to pursue profitability rather than pleasing local politicians. Moreover, the presence of foreign nationals may increase board effectiveness by enhancing board independence (Ayuso and Argandona 2009), and improving a board's advisory capability (Brickley and Zimmerman 2010). Thus, the inclusion of foreign nationals on a board of directors can enhance the confidence of minority investors with respect to professional management of firms (Oxelheim and Randoy 2003).

Nevertheless, there are conflicting results of empirical studies investigating the performance role of national diversity. For example, Estelyi and Nisar (2016) suggest that national diversity has a positive relationship with shareholder's heterogeneity. Along these lines, Miletkov et al. (2017) found that directors from abroad are more likely connected with firms having an international shareholder base and foreign operations. On contrary, limited evidence suggests a negative or no relationship between national diversity and firm performance. For example, Garcia-Meca et al. (2015) found a negative relationship between board national diversity and firm. Moreover, Hooghiemstra et al. (2019) put forward that foreign directors are less effective to curb earnings management due to the dearth of knowledge of national accounting standards and laws. Darmadi (2011) found no correlation between board national diversity and a firm's accounting and market performance. Guest (2019) also found no confirmation that board diversity affected various firm outcomes including CEO turnover, pay-performance sensitivity, and acquisition performance.

In spite of growing literature on board national diversity and firm's various outcomes, the empirical literature is silent on how foreign institutional investors perceive board national diversity. Previous literature suggests that board national diversity increases a firm's reputation and market value, suggesting that investors value the presence of foreign nationals on board of directors (Miller and Triana 2009). Moreover, board members with foreign experience lower information asymmetry by improving board effectiveness and enhancing timeliness of reporting (Dobija and Puławska 2018), and this facilitates international investors to favor ethnically diverse boards (Tee and Rassiah 2019). Based on above arguments, this study suggests a positive relationship between board national diversity and foreign ownership and proposes the following hypothesis:

**Hypothesis 3.** *Board national diversity signals positively to foreign institutional investors.*

### *2.4. Education Diversity and Foreign Ownership*

Directors' educational degrees are regarded as a sign of directors' cognitive orientation, skill base, and knowledge (Hambrick and Mason 1984). Useem and Karabel (1986) suggest that different educational backgrounds are linked to different professional development path, social status, and networking. Moreover, Anderson et al. (2011) argue that directors with heterogeneous educational backgrounds have different cognitive paradigms and viewpoints that affect a board's decision-making process. Based on agency theory, Mori (2014) concluded that board education diversity works as a control mechanism to control the entrenchment behavior of management. Moreover, education level contributes to improve a board's effectiveness to enhance firm value (Bantel and Jackson 1989; Wiersema and Bantel 1992).

Empirical literature has mixed findings about the economic implications of board education diversity. For example, Kuo et al. (2018) determined that a higher education level of directors causes a firm to make more investment in research and development (R&D). Likewise, Harjoto et al. (2015) determined that board educational diversity was positively linked with corporate social performance. In contrast, Mahadeo et al. (2012) found a negative relationship between board members' education and firm value. Moreover, Bernile et al. (2018) found no significant association between board education diversity and firm risks. Despite the contradictory findings, the empirical literature suggest that a firm's market value improves in the presence of an educationally diverse board showing

the favor of investors towards educational diversity (Scholtz and Kieviet 2018). Based on the prior discussion, this study assumes a positive relationship between board education diversity and foreign institutional investors' shareholdings.

**Hypothesis 4.** *Board education diversity signals positively to foreign institutional investors.*

*2.5. Expertise Diversity and Foreign Ownership*

It is well thought-out that "an understanding of generally accepted accounting principles and financial statements" will enhance directors' ability to control and supervise a firm's financial decisions, serving the interests of shareholders (Guner et al. 2008). Financial knowledge includes the ability to understand and analyze financial statements, as well as the talent to interpret the use of generally accepted accounting standards (Yatim et al. 2016). Agency theory suggests that managers may control earnings or make financial frauds to promote their self-interests at the cost of shareholder's interests (Jensen and Meckling 1976). Therefore, shareholders are motivated to include board members with financial and accounting expertise to monitor financial reporting procedures and to ensure the excellence of financial reporting (McDaniel et al. 2002). In this regard, Harris and Raviv (2008) argue that independent directors with financial expertise face lower costs in acquiring information on the subject of a financial transaction's complexity and associated risk, which enables them to monitor senior management effectively.

Empirical studies have analyzed the effects of financial experts on various firm outcomes. Zalata et al. (2018) conclude that financial experts are important to reduce earning management. Moreover, Krishnan and Visvanathan (2009) reveal that financial experts on an audit committee enhance accounting conservatism due to their better monitoring capability derived from their financial knowledge, and their passionate aspiration to care for their reputational capital. Despite the increased importance, the literature is lacking on the role of board financial expertise to attract foreign institutional investors. However, empirical literature suggests that high-quality accounting information reduces information asymmetry and enables foreign investors to monitor and protect their capital invested in foreign firms (Aggarwal et al. 2003). Based on the above arguments, this study conjectures a positive link between board financial expertise and shareholdings of foreign institutional investors.

**Hypothesis 5.** *Board financial expertise signals positively to foreign institutional investors.*

*2.6. Tenure Diversity and Foreign Ownership*

Tenure determines individuals' experiences, values, and perspectives (O'Reilly et al. 1989; Pfeffer 1983). Board experience of long tenured directors provides them understanding of group dynamics, familiarity with corporate culture, and developing cooperation and trust among directors (Li and Wahid 2018). On the other hand, longer-tenure directors may indicate greater commitment to the status quo (Janis 1982; Stevens et al. 1978) which, in turn, reduces a board's ability to effectively monitor due to groupthink (Herman 1981). At the same time, young directors bring critical thinking and fresh ideas to the board (Liu and Sun 2010) signaling their capability to monitor the market (Sharma and Iselin 2012). So, tenure diverse boards might reduce groupthink because longer-tenure directors are able to better understand firm specific issues as well as a firm's available resources, and avoid CEO influence, while young and energetic directors bring fresh perspective and knowledge to board discussions (Li and Wahid 2018). In line with agency theory, board tenure diversity controls management by enhancing CEO performance-turnover sensitivity, reducing accounting restatement, and awarding less excessive compensation (Li and Wahid 2018).

Notwithstanding, empirical literature have mixed findings about the performance effect of board tenure diversity ranging from positive, through insignificant, to negative effects. For example, Harjoto et al. (2015) concluded that board tenure diversity has a

positive association with CSR activities by decreasing CSR concerns. Huang and Hilary (2018) found a quadratic relation of tenure diversity with financial reporting quality, merger and acquisition, and CEO compensation, which means that a director's on-the-job learning expands firm value up to a threshold, upon which entrenchment take over, and firm performance hurts. In addition, He and Yang (2014) find that board average tenure is negatively associated with earning management. Although, contemporary research is investigating the performance effect of board tenure diversity, the evidence on how board tenure diversity is perceived by foreign institutional investors is missing from the literature. This study investigates this overlooked relationship and conjectures a positive relationship between board tenure diversity and foreign institutional shareholdings.

**Hypothesis 6.** *Board tenure diversity signals positively to foreign institutional investors*

## 3. Materials and Methods

### *3.1. Sample and Data Source*

This study used the China Stock Market and Accounting Research (CSMAR) database to collect board diversity and firm-level data for the Chinese nonfinancial firms registered on the Shenzhen and Shanghai stock exchanges. This study covered the ten years from 2009 to 2018, inclusively. The firms which remained listed and reported information on the studied variables for the sample period were included in the analysis. Moreover, financial firms have different disclosure requirements than nonfinancial firms and hence are not part of this study. Thus, the final sample contained 13,740 firm-year observations of 1374 purposively selected nonfinancial listed firms. Further, this study winsorized the studied variables at a 5% and 95% level to lessen the potential effect of outliers.

### *3.2. Variables*

#### 3.2.1. Foreign Ownership

In this study, foreign ownership was used as dependent variable. It is the summation of shares possessed by institutional investors domiciled in a foreign country and it was measured as the ownership percentage held by foreign investors in domestic firms (Yeh 2018). If a firm had no foreign ownership then it was set equal to zero (Luong et al. 2017).

#### 3.2.2. Board Diversity

This study introduces lag value of board diversity attributes (gender, age, nationality, education, board financial expertise, and tenure) as independent variables. This study measured board diversity attributes using the Blau index (2000):

$$D = 1 - \Sigma pi^2 \quad (1)$$

Here, $p$ indicates the percentage of individuals in a category, while $i$ represents the number of categories. The value of index 1 indicates perfect heterogeneity and 0 means the population is homogeneous. With the increase in number of categories the maximum value of the diversity index ($D$) also increases. For example, if there are four categories with equal proportion, the diversity index will be 0.75 [$1 - (0.25^2 + 0.25^2 + 0.25^2 + 0.25^2)$] and an increase in the number of categories will increase the value of the diversity index. This study used the diversity index ($D$) to measure attributes of diversity such as age, gender, race, tenure, and expertise. This study measured diversity attributes by categorizing them as follows:

1. Age diversity (D_Age) was calculated by using five categories: 40 and younger, 41–49, 50–59, 60–69, and 70 years and above.
2. Gender diversity (D_Gen) was calculated by using two categories, i.e., male and female.
3. National diversity (D_Nat) was calculated by using two categories: namely, Chinese and non-Chinese.

4. Education diversity (D_Edu) was calculated by using five categories: 1 = Technical secondary school and below, 2 = Associate's degree, 3 = Bachelor's, 4 = Master's and 5 = Ph.D.
5. Expertise diversity (D_Exp) was calculated by using two categories: having financial expertise or not having financial expertise.
6. Tenure diversity (D_Ten) was calculated by using six categories: three years or less, four to six years, seven to nine years, ten to twelve years, thirteen to fifteen years, and more than fifteen year

#### 3.2.3. Control Variables

Moreover, following previous literature (Yeh 2018), this study used firm size (FS), firm leverage (F_Lev), firm liquidity (F_Liq), and return on assets (ROA) as the control variables. Table 1 defines how all study variables are measured.

**Table 1.** Variables Measurement.

| Variables | Measurement of Variables |
|---|---|
| | **Dependent Variable** |
| Foreign institutional ownership (FIO) | Calculated by dividing foreign institutional ownership by the shareholdings of total shareholders. (Yeh 2018) |
| | **Independent variables** |
| Gender diversity (D_Gen) | The gender diversity index is calculated using two categories: male and female (Miller and Triana 2009). |
| Age diversity (D_Age) | The age diversity index is calculated using five categories: 40 and under, 41–49, 50–59, 60–69, and 70 and up (Ararat et al. 2015). |
| National diversity (D_Nat) | The national diversity index is determined using two categories: Chinese and non-Chinese people (Miller and Triana 2009). |
| Education diversity (D_Edu) | The following five categories were used to generate the education diversity index: 1 denotes a technical secondary school diploma, 2 an associate's degree, 3 a bachelor's degree, 4 a master's degree, and 5 a doctorate (Ararat et al. 2015). |
| Expertise diversity (D_Exp) | The index of expertise diversity is calculated using two categories: those who have financial competence and those who do not (Bernile et al. 2018). |
| Tenure diversity (D_Ten) | Three years or less, four to six years, seven to nine years, ten to twelve years, thirteen to fifteen years, and more than fifteen years are the six categories used to compute the tenure diversity index (Harjoto et al. 2015). |
| | **Control Variables** |
| Firm size (FS) | The natural log of the firm's total assets is used to calculate firm size (Shahab et al. 2018). |
| Firm's leverage (F_Lev) | The ratio of total liabilities to total assets is used to calculate firm leverage (Shahab et al. 2018). |
| Firm's liquidity (F_Liq) | We divided current assets by current liabilities to calculate firm liquidity (Yeh 2018). |
| Return on assets (ROA) | ROA was calculated by dividing a company's net income by its total assets (Yeh 2018). |

### *3.3. Statistical Tool for Analysis*

To examine the relationship between board diversity attributes (gender, age, nationality, education, financial expertise, and tenure) and foreign institutional ownership, this study, first, performed the Im, Pesaran, Shin (IPS) unit root test to confirm the stability of the studied variables before verifying the hypothesized relations (Tang and Tan 2013). The current study used OLS as a benchmark regression to investigate the hypothesized relationships. However, it is subject to omitted variable bias (i.e., unobservable factors simultaneously affect independent and dependent variables). To overcome the omitted variable bias, this study selected between fixed effect and random variables. Due to its robustness, governance researchers have widely used either fixed effect or random effect regression to avoid the effect of omitted variables (e.g., Adams and Ferreira 2009; Setia-Atmaja et al. 2011). Moreover, to overcome the problem of endogeneity, this study performed two-step system GMM following previous studies (Baum et al. 2003; Sarwar et al. 2018). Further, to check the robustness of results, this study employed robust regres-

sions (Falk 2015; Thrane 2016), Tobit regression (Bernini and Cracolici 2015; Liu et al. 2018) and added additional governance variables (Belloc and Pagano 2009; Switzer 2007).

The following model was used to test our proposed hypotheses.

$$FIO_{i,t} = \beta_0 + \beta_2 D\_Gen_{i,t} + \beta_1 D\_Age_{i,t} + \beta_3 D\_Nat_{i,t} + \beta_5 D\_Exp_{i,t} + \beta_6 D\_Edu_{i,t} + \beta_4 D\_Ten_{i,t} + \sum \beta_{i,t} Control + \varepsilon_{i,t}$$

where FIO (foreign institutional ownership) is the dependent variable, while board diversity attributes (D_Age, D_Gen, D_Nat, D_Ten, D_Exp, and D_Edu) are independent variables. Moreover, control represents control variables including firm size, leverage, liquidity, and ROA.

## 4. Results

### 4.1. Descriptive Statistics

Table 2 reports the detailed summary statistics. On average, foreign institutional ownership was 0.122 for Chinese listed firms ranging from a minimum ownership of 0% to a maximum ownership of 5.98%. The average Blau gender diversity score was 0.128, where the highest possible Blau score was 0.50 if the board had an equal number of male and female directors. This indicates that, on average, Chinese listed firms have low gender diversity.

**Table 2.** Summary of the collected data.

| Variable | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|
| FIO | 0.122 | 0.514 | 0 | 5.98 |
| D_Gen | 0.128 | 0.102 | 0 | 0.430 |
| D_Age | 0.120 | 0.025 | 0 | 0.169 |
| D_Nat | 0.013 | 0.044 | 0 | 0.333 |
| D_Edu | 0.089 | 0.051 | 0 | 0.617 |
| D_Exp | 0.417 | 0.0969 | 0 | 0.500 |
| D_Ten | 0.073 | 0.064 | 0 | 0.444 |
| FS | 22.185 | 1.193 | 14.444 | 24.582 |
| ROA | 0.057 | 0.104 | −0.061 | 0.441 |
| F_Lev | 0.472 | 0.200 | 0.139 | 0.982 |
| F_Liq | 0.263 | 0.348 | 0.008 | 1.339 |

Note: Please see Table 1 for variable definitions.

The average education, tenure, and nationality diversity were much lower than financial expertise, gender, and age diversity. This indicates that the average board is more diverse in financial expertise, gender, and age but relatively homogeneous in education, tenure, and nationality. Moreover, the control variables, i.e., firms' size, ROA, firms' leverage, and firms' liquidity had mean values of 22.185, 0.057, 0.472, and 0.263, respectively.

### 4.2. Board Diversity and Foreign Institutional Ownership

The Im, Pesaran, Shin (IPS) test was firstly applied to confirm the stationarity of studied variables. The results revealed that all variables included in this study were stationary at level and met the stationarity status at the level of 5% significance.

As shown in column 1 of Table 3, OLS regression results indicated that the coefficients of lagged gender, nationality, education, and financial expertise diversity variables such as L_Gen ($\beta_2 = 0.105$, $p < 0.05$), L_Nat ($\beta_2 = 0.587$, $p < 0.01$), L_Edu ($\beta_2 = 0.519$, $p < 0.05$), and L_Exp ($\beta_2 = 0.248$, $p < 0.01$) had a positive and significant impact on foreign institutional ownership, while age diversity and tenure diversity, i.e., L_Age ($\beta_2 = 0.168$, $p > 0.10$) and L_Ten ($\beta_2 = 0.037$, $p > 0.10$) had an insignificant relationship with foreign institutional ownership. The OLS regression results initially supported four hypotheses 1, 3, 4, and 5 and rejected hypotheses 2 and 6. However, to overcome the problem of omitted variable bias, this study selected between the RE and FE model by using Hausman test. The Hausman test ($chi^2 = 267.73$ and prob > $chi^2 = 0.000$) endorsed the appropriateness of the fixed-effect

regression for sampled firms. Column 2 of Table 3 reveals the results of the fixed effect regression. These results endorsed the findings of OLS regression.

**Table 3.** The results of the OLS, FE, and System GMM regression analysis.

| Variables | Foreign Institutional Ownership (FIO) | | |
|---|---|---|---|
| | OLS | FE | System GMM |
| $FIO_{t-1}$ | | | 0.218 *** |
| | | | (0.009) |
| L_Gen | 0.105 ** | 0.107 ** | 0.283 *** |
| | (0.046) | (0.048) | (0.096) |
| L_Age | 0.168 | 0.243 | 0.09 |
| | (0.185) | (0.209) | (0.120) |
| L_Nat | 0.587 *** | 0.449 *** | 0.614 *** |
| | (0.107) | (0.145) | (0.114) |
| L_Edu | 0.519 *** | 1.188 *** | 0.442 *** |
| | (0.093) | (0.152) | (0.097) |
| L_Exp | 0.248 *** | 0.263 *** | 0.062 ** |
| | (0.047) | (0.052) | (0.029) |
| L_Ten | 0.037 | 0.09 | −0.0105 |
| | (0.082) | (0.073) | (0.060) |
| FS | 0.0305 *** | −0.022 *** | 0.018 *** |
| | (0.004) | (0.007) | (0.004) |
| ROA | 0.382 *** | 0.305 *** | 0.112 *** |
| | (0.046) | (0.048) | (0.026) |
| F_Lev | −0.216 *** | −0.03 | −0.046 *** |
| | (0.026) | (0.032) | (0.017) |
| F_Liq | −0.017 | 0.175 *** | 0.0395 *** |
| | (0.0161) | (0.020) | (0.0127) |
| Constant | −0.660 *** | 0.305 ** | −0.449 *** |
| | (0.103) | (0.152) | (0.091) |
| Observations | 12,366 | 12,366 | 12,366 |
| R-squared | 0.026 | 0.027 | |
| AR(2)-p value | | | 0.279 |
| Hansen Test $Chi^2$ | | | 380.08 |
| Hansen Test (p value) | | | 0.182 |

Note: Please see Table 1 for variable definitions. The figures in parentheses are the standard errors. *** $p < 0.01$, ** $p < 0.05$.

Another bias that may exist for the relationship between board diversity and foreign institutional ownership is endogeneity. If board diversity is endogenous, it may derive inconsistency in the causal relationship between board diversity and the proportion of foreign institutional ownership. One possibility is reverse causality, i.e., a high percentage of foreign ownership can contribute to enhance board diversity due to active participation by foreign investors in the selection of board members. Therefore, the current study employed a two-step System GMM to overcome the potential problem of endogeneity. The results for System GMM also revealed a significant positive relationship between board diversity variables (gender, nationality, education, and financial expertise) and foreign institutional ownership confirming the baseline findings. Moreover, the p-values of the Arellano Bond (AR-2) and the Hansen test confirmed that the potential problem of endogeneity had been tackled effectively. Overall, hypothesis 1, 3, 4, and 5 were supported by OLS, FE, and System GMM regressions.

### *4.3. Robustness Analysis*

Further, this study employed several robustness analyses to confirm the validity of the current results. First, the robust regression was performed to avoid potential outlier biases (Rousseeuw and Leroy 2003). The results in column 1 of Table 4 are similar to the baseline results in Table 3 revealing that the baseline results are robust to an alternative analysis

technique. Second, Tobit regression was also used to verify the robustness of results. Foreign institutional ownership is a continuous variable with a minimum value of zero. OLS regression may lead to inconsistent outcomes due to its bias towards zero value (Liu and Park 2015; Lyu and Hwang 2015). Tobit regression method examines the association between a dependent variable having either a positive or zero value and an independent variable (Liu et al. 2018). Column 2 of Table 4 shows that Tobit regression did not modify the positive and significant relationship between board diversity attributes and foreign institutional ownership. Third, this study added board independence (BI) and board size (BS) to the baseline equation as additional board governance variables. The objective was to observe whether baseline results were sensitive to the addition of additional governance variables. Column 3 of Table 4 reveals that the inclusion of additional governance variables did not lead to changes in the positive and significant relationship between board diversity variables (gender, nationality, education, and expertise) and foreign institutional ownership. It confirmed the robustness of the primary regression analysis.

**Table 4.** The robustness results of the models analyzed.

| Variables | Robust Regression | Tobit Model | Fixed Effects |
|---|---|---|---|
| | | (Additional Variables) | |
| L_Gen | 0.105 ** | 0.0897 ** | 0.107 ** |
| | (0.049) | (0.045) | (0.048) |
| L_Age | 0.168 | 0.16 | 0.245 |
| | (0.168) | (0.191) | (0.209) |
| L_Nat | 0.587 *** | 0.510 *** | 0.448 *** |
| | (0.179) | (0.126) | (0.145) |
| L_Edu | 0.519 *** | 0.863 *** | 1.189 *** |
| | (0.178) | (0.121) | (0.152) |
| L_Exp | 0.248 *** | 0.252 *** | 0.263 *** |
| | (0.042) | (0.048) | (0.052) |
| L_Ten | 0.0368 | 0.0661 | 0.088 |
| | (0.086) | (0.070) | (0.074) |
| FS | 0.031 *** | −0.005 *** | −0.023 *** |
| | (0.005) | (0.002) | (0.007) |
| ROA | 0.382 *** | 0.328 *** | 0.305 *** |
| | (0.074) | (0.046) | (0.048) |
| F_Lev | −0.216 *** | −0.078 *** | −0.030 |
| | (0.025) | (0.029) | (0.032) |
| F_Liq | −0.017 | 0.0873 *** | 0.174 *** |
| | (0.020) | (0.017) | (0.020) |
| BS | | | −0.007 |
| | | | (0.051) |
| BI | | | 0.035 |
| | | | (0.146) |
| Constant | −0.660 *** | 0.286 *** | 0.308 |
| | (0.108) | (0.007) | (0.210) |
| Observations | 12,366 | 12,366 | 12,366 |

Note: Please see Table 1 for variable definitions. The figures in parentheses are the standard errors. *** $p < 0.01$, ** $p < 0.05$.

## 5. Discussion

The study found that board diversity variables (gender, nationality, education, and financial expertise) positively affect foreign institutional ownership in Chinese firms, while age and tenure diversity have an insignificant effect on foreign institutional ownership.

The positive coefficient of board gender diversity reveals that the presence of female directors on board is perceived positively by foreign institutional investors. One possible justification for this result is that legislators in developed countries have required or mandated female quotas on boards of directors (Kirsch 2018), because female directors are perceived to be more vigilant to enhance board effectiveness by showing more willingness

to be a part of monitoring committees leading to improved firm value (Chen et al. 2016; Adams and Ferreira 2009). This rising trend in board gender diversity has contributed to positive associations in foreign institutional investors, who in the majority belong to developed nations (Ferreira and Matos 2008), regarding female effectiveness on boards of directors and hence, attract foreign institutional ownership. These findings are in line Kang et al. (2010) who indicated that investors positively responded to the presence of female directors on corporate boards because board gender diversity reduces information asymmetry in equity markets (Abad et al. 2017)

Moreover, the positive relationship between lagged nationality diversity and foreign institutional ownership confirms hypothesis 3. This means directors belonging to different nations are considered a source of better corporate governance by foreign institutional investors. In this regard, previous literature indicates that directors' foreign board experience is an importance source to transfer governance across countries (Iliev and Roth 2018), to increase board effectiveness by enhancing board independence (Ayuso and Argandona 2009), and improve a board's advisory capability (Brickley and Zimmerman 2010). Moreover, empirical literature also supports the results by revealing that the presence of foreign directors increases shareholder heterogeneity (Estelyi and Nisar 2016), is positively associated with earning quality, and international investors favor ethnically diverse boards (Tee and Rassiah 2019). Furthermore, lagged education diversity and foreign institutional ownership were positively associated supporting hypothesis 4. This indicates that educational background is also important for foreign institutional investors because directors with heterogeneous educational backgrounds have different cognitive paradigms and viewpoints that affect a board's decision making process (Anderson et al. 2011).

In addition, the directors with financial expertise were also important for foreign institutional investors decisions on firms for investment because board members' knowledge and experience related to accounting, finance, and auditing increases their ability to monitor management (Haniffa and Cooke 2002). Moreover, empirical literature supports the positive relationship between board financial expertise and foreign institutional ownership by suggesting that high-quality accounting information reduces information asymmetry and enables foreign investors to monitor and protect their capital invested in foreign firms (Aggarwal et al. 2003).

On the other hand, the results showed an insignificant relationship between board age diversity and foreign institutional ownership thus rejecting hypothesis 2. This indicates that foreign institutional investors do not consider board age diversity in deciding firms for investment. Foreign investors may behave this way because each age group has its own benefits and costs. On the one hand, board age diversity may advance the experiences, knowledge, networks of the board, and resources which, in turn, increase firm performance. On the other hand, board age diversity may suffer from cognitive conflicts and poorer group cohesion leading to reduced firm performance. Previous literature also supports the above findings by showing age diversity had an insignificant relationship with CSR performance (Harjoto et al. 2015) and firm performance (Ararat et al. 2015) leading to reduced confidence by foreign institutional investors on age diversity. Lastly, the results also reject the sixth hypothesis by showing an insignificant relationship between tenure diversity and foreign institutional investment. It shows that foreign institutional investors do not value tenure diversity in firm selection for their investment. To support this finding, Li and Wahid (2018) conclude that a tenure-diverse board does not affect a firm's future market and accounting performance thus, weakening the signaling power of board tenure diversity for foreign institutional investors.

## 6. Conclusions

The study findings revealed that foreign institutional investors perceive a corporate board as a means to improve firm performance by monitoring firm investing and financing decisions wisely. We conclude that board diversity attributes (gender, nationality, education, and financial expertise) have a stronger effect on foreign institutional ownership.

This study contributes to the existing literature by examining the board diversity attributes as a determinant of foreign institutional investment. Another contribution of this study is the early use of signaling theory to explain the role of board diversity as a visible signal of better governance for foreign institutional investors. From a practical perspective, many corporate governance reports emphasize the significance of board diversity to improve board efficiency and interest alignments. This study provides empirical evidence for Chinese firms that board diversity does matter for investment decisions of foreign institutional investors. In China, there is no compulsion for firms to enhance board diversity. However, Chinese firms' managers should realize that the presence of board members having diverse backgrounds is a strong positive signal for foreign institutional investors. Therefore, when they design corporate governance policy, this is an important consideration.

As with any study, this research also had some limitations. Firstly, this study used only one aspect of board governance, i.e., board diversity as a determinant of foreign institutional investment. Further studies may use other governance variables such as ownership structure, board structure, CEOs characteristics, and interlocking directorships to observe the investment preferences of foreign institutional investors. The investigation of other governance variables can provide a more comprehensive understanding of the investment choices of foreign institutional investors. Secondly, this study used data only for Chinese firms; it may hinder the generalizability of the results of the current study. Future researchers may extend this research to other developing and developed economies to compare and confirm the present findings. Thirdly, this study has used only secondary data to investigate the relationship between board diversity and foreign institutional ownership. Future researchers may ask questions directly of foreign institutional investors about their investment preferences regarding board governance to verify the results of the current study. Moreover, the triangulating of primary and secondary data may provide more confident conclusions.

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