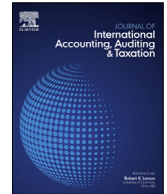


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Foreign ownership, appointment of independent directors, and firm value: Evidence from Japanese firms

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ABSTRACT

We investigate the effects of foreign ownership on a key monitoring mechanism, the appointment of independent directors. We use a sample of Japanese firms after the Tokyo Stock Exchange passed rules requiring appointment of at least one independent director or an independent statutory auditor. We find that foreign ownership is significantly positively associated with the appointment of independent directors and firm value, respectively. We also find, using path analysis, that foreign ownership affects firm value via the appointment of independent directors. In robustness tests, we also examine whether foreign ownership affects a monitoring outcome (earnings management). We find that foreign ownership is significantly negatively related to benchmark beating using both accrual and real earnings management. Overall, our evidence suggests that despite their smaller shareholdings, foreign investors enhance firm value by improving the monitoring of managers.

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1. Introduction

Prior studies document that foreign ownership is positively associated with firm value. [Baek, Kang, and Park \(2004\)](#) find that during the 1997 Korean financial crisis, firms with higher ownership by foreign investors experienced a smaller reduction in firm value. [Wei, Xie, and Zhang \(2005\)](#) find a positive relationship between foreign ownership and firm value in China. [Douma, George, and Kabir \(2006\)](#) find a positive relationship between foreign ownership and firm performance for a sample of public firms in India. [Mishra \(2014\)](#) finds that foreign ownership has a positive and significant effect on firm value for a sample of Australian firms. Using a sample of firms across 27 countries, [Ferreira and Matos \(2008\)](#) find that firms with higher ownership by foreign and independent institutions have higher firm value than other firms. This is consistent with enhanced monitoring provided by these investors. We study the effect of foreign ownership on appointment of independent directors and whether it enhances firm value in Japan due to the unique institutional features of the Japanese setting.

[Ferris and Park \(2005\)](#) also study the effects of foreign ownership on firm value in the Japanese setting where foreign ownership is considerably smaller than ownership by financial institutions and other corporations. However, their study is limited to a single year and does not shed light on *how* foreign ownership enhances firm value in Japan. We fill this gap in the literature by examining whether foreign ownership improves monitoring of managers in Japan through the

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appointment of independent directors and whether this is a source of enhancing firm value in this unique setting. We find that foreign ownership is significantly positively associated with the appointment of independent directors to Japanese boards as well as positively associated with firm value. Furthermore, using path analysis, we document that the appointment of independent directors is one source of increase in firm value associated with foreign ownership in Japan.

Whether foreign ownership enhances monitoring of managers in Japan is an interesting empirical question because of several reasons. First, foreign investors in Japan have typically a significantly smaller equity stake than domestic financial institutions or other corporate owners that are viewed as more stable and potentially more influential shareholders. Thus, foreign investors may not have any influence on manager monitoring or firm outcomes. However, they are much more active in trading their shares. Therefore, the threat of exit from foreign investors is likely to be more credible than the threat of exit by other large shareholders that have established long term relationships with the firm. Furthermore, over the last 15 years the share of foreign ownership in the overall Japanese stock market almost doubled (Ahmadjian, 2007; Hamao & Matos, 2018). At the same time, the equity stakes of financial institutions in Japanese firms significantly declined, though they are still significantly larger than the stakes of foreign investors.

Second, even if foreign investors are successful in appointing one or more independent directors to the board, it is not clear whether these independent directors would be able to influence managerial behavior or policies given the fact that most Japanese companies had boards traditionally dominated by insiders who had developed their whole careers in the same firm. Meanwhile, external recruitment of outside directors is uncommon. Thus, whether foreign investors have any influence or effect on firm value through appointing independent directors in Japan remains an open question.

We hypothesize that foreign ownership can affect monitoring of managers and firm outcomes because foreign owners are likely to be more independent of managers than domestic financial institutions and consequently have stronger incentives to monitor managers. Thus, we predict that foreign ownership will be positively associated with the likelihood of the appointment of independent directors. If foreign ownership is indeed associated with enhanced monitoring, we expect it to be associated with improved firm value. Therefore, we predict that the effect of foreign ownership on the appointment of independent directors is likely to be value increasing. In other words, foreign ownership is likely to enhance value through improved monitoring.

Using two-stage least squares estimation for a sample of 6667 firm-years over 2010–2014 (the period after a change in the Tokyo Stock Exchange (TSE) rules requiring the appointment of at least one independent director or independent statutory auditor), we find evidence of a strong positive relationship between foreign ownership and both the number and percentage of independent directors on the board.¹ In contrast, ownership by other corporations is negatively associated with the appointment of independent directors and ownership by domestic financial institutions is not significantly related to the appointment of independent directors.

Next, we find that foreign ownership is significantly positively associated with firm value. In contrast, both ownership by other corporations and domestic financial institutions are not significantly related to firm value.

Finally, using path analysis, we find that foreign ownership has both a direct effect on firm value as well as an indirect effect through the appointment of independent directors. The direct effect potentially captures other mediated effects not modeled in our study.

In additional analysis, we examine whether foreign ownership mitigates earnings management through the monitoring of managers. We find that foreign ownership is significantly negatively related with both benchmark beating using accrual and real earnings management, respectively. Next, using path analysis we find that foreign ownership had an effect on earnings management both through monitoring (i.e. mediated effect) and a direct effect (which potentially also captures other mediated effects not modeled in our study).

We mitigate the possibility that our results are driven by reverse causality or other endogeneity in several ways. First, as noted above, our main tests use two-stage least squares (2SLS) with an instrumental variable for foreign ownership. Second, as a robustness test we use the level of foreign ownership in 2009, the year before our sample period, to rule out reverse causality. These findings are similar to our main results when we use this variable. Third, we use a propensity score matched sample and find similar results as those reported above. Overall, our results are unlikely to be driven by endogeneity.

Our study contributes to the literature on the role of foreign ownership in enhancing manager monitoring and firm value in Japan in several ways. First, studying the effects of foreign ownership in the Japanese setting is important because foreign investors have a substantially lower equity stake than domestic financial institutions or other corporations. Thus, it is not clear whether foreign owners would have any influence on manager monitoring or firm value in the presence of these larger and more stable block holders who also have other interests in the firm.

Second, to our knowledge, our study is the first to document that foreign ownership has a positive effect on a key monitoring mechanism (appointment of independent directors on Japanese boards) after the passage of TSE rules requiring firms to appoint at least one independent director or an independent statutory auditor. While most firms met this requirement by appointing a statutory auditor, some firms chose to appoint an independent director. Whether such an appointment was simply “window dressing” or had a real effect on firm value is an important open question that we address in our study.

Third, only one prior study documents evidence of a positive relationship between foreign ownership and firm value in Japan, but it uses a limited sample of firms over one year (Ferris & Park, 2005). We document that foreign ownership

¹ We discuss the rules passed by the Tokyo Stock Exchange in Section 2.

significantly affects firm value in Japan using a much larger sample for a more recent time period than the sample in Ferris and Park (2005). Moreover, we extend their study by providing evidence on how foreign ownership enhances firm value in Japan by using path analysis to show that the appointment of independent directors and, hence, improved monitoring of managers is one way that foreign ownership enhances firm value in the Japanese setting.

Fourth, we complement and extend the evidence in Guo, Huang, Zhang, and Zhou (2015) who investigate the effects of foreign ownership on real earnings management, but without linking it to benchmark beating. In contrast, we study the use of both accrual-based and real earnings management for benchmark beating. Furthermore, Guo et al. (2015) suggest that foreign investors can contribute to long-term value creation by improving corporate governance mechanisms and mitigating real earnings management. We argue that such an interpretation is premature unless one can show that foreign ownership also positively affects monitoring mechanisms, such as board independence. We provide such evidence in our study.

The remainder of this study proceeds as follows. Section 2 provides a discussion of prior work and our hypothesis development. Section 3 presents the research design and Section 4 the empirical results. Section 5 presents the additional tests and robustness check. Section 6 provides conclusion.

2. Background and hypotheses development

In this section, we first provide a general background on the role of large investors in monitoring managers. Next, we summarize major changes in the stock exchange rules governing the appointment of independent directors on Japanese boards. Finally, we present our hypotheses.

2.1. Background

Agency conflicts arise from the separation of ownership and control. In a corporation with many small owners, one potential driver of agency costs is that each shareholder does not have sufficient incentives to monitor managers (Shleifer & Vishny, 1986). In other words, the marginal costs of monitoring exceeds the marginal benefits of monitoring from the perspective of the small owner. Prior research recognizes that this problem can be potentially addressed by the presence of large shareholders. In particular, Shleifer and Vishny (1997) argue that ownership by large investors can potentially reduce agency costs because they have incentives to collect information as well as influence or pressure managers to act in the interests of shareholders (also see Connelly, Hoskisson, Tihanyi, & Certo, 2010). Similarly, Gillan and Starks (2003) highlight the special role played by institutions in prompting corporate governance changes (also see Parrino, Sias, & Starks, 2003). Aggarwal, Erel, Ferreira, and Matos (2011) suggest that foreign institutions from countries with strong shareholder protection play a role in promoting governance improvements outside the US.

However, large shareholders or block holders with other ties to the firm (such as a bank or other corporation) can have other interests that do not necessarily coincide with general shareholder interests. Thus, whether large shareholders in general, or foreign owners in particular, mitigate agency conflicts and enhance firm value is an empirical question.²

Historically, two groups of large investors are important in Japan: Financial institutions and other corporations that typically have some type of a business relationship with the firm (Aoki, 1990; Aoki & Patrick, 1994; Douthett & Jung, 2001). Financial institutions usually have both an equity stake as well as fixed claims (e.g. loans). Thus, it is unclear whether their interests are completely aligned with the interests of other shareholders. Kaplan and Minton (1994) and Kang and Shivdasani (1995) find that incidence of manager turnover in response to poor performance is higher in firms that have a principal banking relationship relative to firms that do not have such a relationship. Kang and Shivdasani (1995) also find that outside succession in Japan is more likely for firms with large shareholders and a main bank relationship.

However, there is also evidence of possible expropriation of shareholder wealth by financial institutions. Weinstein and Yafeh (1998) document that Japanese firms with main banks pay higher average interest rates on their liabilities than unaffiliated firms. Consistent with this, Morck, Nakamura, and Shivdasani (2000) find that high bank ownership is associated with high interest costs. They also find that at low levels of ownership by main banks, firm value is negatively related to bank equity ownership (also see Claessens, Djankov, Fan, & Lang, 2002). However, at higher levels this relationship is mitigated. Hiraki, Inoue, Ito, Kuroki, and Masuda (2003) also find that main bank ownership in Japanese firms is negatively related with firm value until the 1990's. Furthermore, they find that while cross-shareholdings by banks and other corporations are negatively related to firm value, one-way corporate shareholdings are positively related to firm value. Morck and Nakamura (1999) conclude that Japanese banks' dual role as creditors and shareholders mitigates their incentives to advance shareholder interests.

Similarly, corporate shareholders may have other incentives. For example, they may be more focused on maintaining business relationships or supply chain. This can also misalign their incentives with other shareholders' interests (Hiraki et al., 2003).

² Using a sample of firms across 27 countries, Ferreira and Matos (2008) find that firms with higher ownership by foreign and independent institutions have higher firm value than other firms, consistent with enhanced monitoring provided by these investors. Wei et al. (2005) find a positive relationship between foreign ownership and firm value in China.

These unique features of Japanese corporate governance started changing when the Japanese economy began experiencing its long-term economic slump (Jackson & Miyajima, 2007). While stable shareholdings and bank-firm relations are weakening, the significance of foreign investors is increasing (Ahmadjian, 2007). In contrast to financial institutions and corporate shareholders, foreign investors are more likely to buy and sell shares. As seen in Fig. 1, the trading volume of foreign ownership in the Japanese stock market is higher than the sum of the trading volume of financial institutions and business corporations. This tendency is more pronounced in recent years. This suggests that foreign investors are more interested in stock price performance of their investments and potentially create market-pressure for managers relative to stable large shareholders.

To our knowledge, there is only one prior study that examines the effect of foreign ownership on firm value in Japan, but uses a very restricted sample of firms. Ferris and Park (2005) find that foreign ownership is positively related to firm value at low levels of ownership while this effect declines or even reverses at higher values. Their sample is restricted to 945 industrial firms in 1997. So it is not clear whether their results hold for a broader sample of firms or in a more recent period. Moreover, this period is interesting because foreign ownership increased substantially and financial institution ownership declined substantially. More importantly, Ferris and Park (2005) do not look at any monitoring outcome or monitoring mechanism, such as board structure, nor do they examine the relative importance of direct and indirect effects of foreign ownership on firm value. So it is also unclear what might be driving the relationship between firm value and foreign ownership in their study. A related study, Hamao and Matos (2018) finds that US-style investor activism increased significantly in Japan in the early part of this century. Moreover, on average, there is a positive stock price reaction to the announcement of activist investments and activists forced firms to increase their payout (Kato, Li, & Skinner, 2017). Thus, there is some evidence consistent with improvements in governance.³

2.1.1. Corporate governance systems in Japan

Since 2003, Japanese firms have had a choice between two alternative governance structures. The traditional structure comprises of a board of directors (mostly insiders) and a board of statutory auditors (*kansayaku setchi kaisyā*) who essentially monitor the firm's compliance with the law and review the audit report.⁴ However, the statutory auditors have no influence on hiring/firing executives or on other important decisions. The alternative structure is referred to as the committee system (*iinkai setchi kaisyā*) and comprises a board of directors (including 'outside' directors) and three committees (nomination, audit, and compensation committee). Each committee has at least three directors, and the majority of them are required to be outside directors.⁵ Before 2009, outside directors did not have to be independent.

By 2009, most companies chose to use the traditional Japanese governance structure and did not appoint outside directors. TSE (2009) indicates that only 2% of all listed companies chose the committee system that required firms to appoint outside directors to the board.⁶ Furthermore, it reports that more than half of listed companies did not appoint an outside director. Specifically, about 45% of all listed companies appointed outside directors. The average number of outside directors per company was less than one (0.86) for all listed companies.

In December 2009, the TSE passed a reform requiring all listed companies to have at least one independent director or independent statutory auditor (*kansayaku*).^{7,8} It is noteworthy that the "independence" requirement is more stringent than the "outside" requirement. The Companies Act's definition of "outside" director/auditor does not require them to be "independent" in the sense of sharing no interests with the management. Thus, individuals who have affiliations with the company's major corporate shareholder or other business affiliates are qualified to be an outside director/auditor. On the other hand, the new rule disallows an individual from being appointed as an independent director/auditor who is:

- (1) An executive of the parent company or subsidiary;
- (2) An executive of a major client;

³ Two related studies examine the relationship between foreign ownership and executive compensation. Sakawa, Moriyama, and Watanabe (2012) find that foreign ownership affects the effectiveness of incentive compensation in Japanese firms. Colpan and Yoshikawa (2012) find that foreign ownership has a positive moderating effect on the relationship between profitability and bonus pay. These results suggest that foreign ownership positively affects incentive mechanisms.

⁴ In large companies, the main role of statutory auditor is to monitor compliance with the law (Goto, Matsunaka, & Kozuka, 2017). The auditing of financial statements is primarily undertaken by a professional accounting firm, and the statutory auditors review their audit report.

⁵ Goto et al. (2017) describe corporate governance reforms that affected boards of Japanese listed companies since early 2000s.

⁶ TSE (2009) indicates that only large companies were allowed to shift to the US style of governance system when the committee system was first introduced by the law (April 1, 2003).

⁷ The new rule was introduced to respond to two government reports (Ministry of Economy, Trade and Industry, 2009; Financial Services Agency, 2009). Ministry of Economy Trade and Industry (2009) concluded that the framework must necessarily assume that, at a minimum, there will be an "independent" director/*kansayaku* who is not at risk of having conflicts of interest with minority shareholders and who is supposed to protect minority shareholders. It also concluded that the legal regulations should accept diversity in "outsider" status, and not replace the existing "outsider" requirements with "independence" requirements. If the existing "outsider" requirements are replaced by "independence" requirements, then there would be a risk that persons who are capable of greatly contributing to enhancing the company's corporate value and who have knowledge and experience regarding the company might be eliminated (Ministry of Economy, Trade and Industry, 2009).

⁸ The legal role and responsibility of independent directors (independent statutory auditor) are the same as the role and responsibility of outside directors (outside statutory auditor).

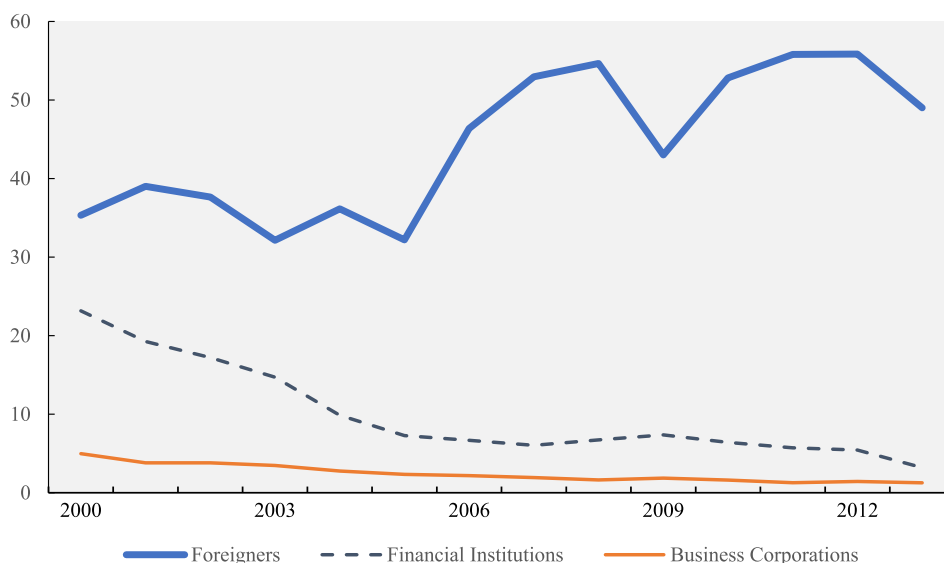


Fig. 1. Trend in trading volume by different types of investors. Notes: This figure presents the percentage of trading volumes for different types of investors. The sample consists of data obtained from *Nikkei NEEDS Financial QUEST* for the period 2000 – 2013. Trading volume is calculated as the sum of buy and sell shares. “Foreigners” are (1) “Non-residents” as defined in Article 6, paragraph 1, item 6 of the Foreign Exchange Act (Foreign Exchange and Foreign Trade Act), and (2) Japanese branch offices of foreign securities companies that are not trading participants on the Tokyo Stock Exchanges. “Business Corporations” are joint-stock companies, limited companies and partnership companies (*mochibun kaisha*), including general partnership companies (*gomei kaisha*), limited partnership companies (*goshi kaisha*) and limited liability companies (*godo kaisha*), which do not fall under foreigners, securities companies, investment trusts, life and non-life companies, city and regional banks, trust banks, and other entities (for example, government). “Financial Institutions” are (1) city and regional banks, (2) trust banks, (3) life insurance companies, (4) non-life insurance companies, and (5) other financial institutions.

- (3) A consultant who receives a large sum of money or other asset other than by way of compensation for directorship/ auditorship from the company; and/or
- (4) An immediate family member of an executive of the company

After the new rule was passed, listed companies gradually introduced independent directors to their boards. Initially most companies appointed an independent statutory auditor rather than an independent director.⁹ TSE (2011) indicated that 70.5% of all listed companies appointed only an independent statutory auditor. 10% of all listed companies appointed an independent director whereas 19.5% appointed both an independent director and an independent statutory auditor.

In 2012, the TSE strongly *encouraged* listed firms to appoint independent directors.¹⁰ After the TSE’s recommendation, companies gradually started appointing independent directors. TSE (2015) indicated that 53.1% of all listed companies only appointed an independent statutory auditor. 9.6% of all listed companies appointed an independent director only and 37.1% appointed both an independent director and a statutory auditor. These results suggest that listed companies additionally elected independent directors after they appointed an independent statutory auditor. But the exchange did not obligate firms to appoint independent directors until 2014. We exploit the variation in appointment of independent directors across firms to study whether foreign ownership affects firms’ choice of independent directors.

2.2. Hypothesis development

As noted earlier, in contrast to both financial institutions and other corporate shareholders, foreign investors are more likely to focus on value creation and shareholder returns (Ferreira & Matos, 2008). They are especially likely to be important in monitoring managers and enhancing firm value in Japan because of several reasons. First, foreign institutional investors are likely to be more independent than banks or corporate shareholders who have a business relationship with the firm. In other words, the absence of a long-term business relationship is likely to make foreign investors evaluate Japanese managers more objectively.

⁹ As the reason for *not* appointing outside director, 91.5% of firms that adopt statutory auditor system and did not appoint outside directors indicated that the monitoring by outside statutory auditor was sufficient (TSE, 2011).

¹⁰ In May 2012, the TSE asked listed firms to make efforts to secure independent directors/auditors, while ensuring that such independent directors/auditors would include a person who has a voting right in the board of directors (Securities Listing Regulations, article 445, item 4). In February 2014, the TSE revised the rule (Securities Listing Regulations, article 445, item 4) to additionally impose upon listed firms the obligation to strive to secure and include at least one independent director. This revision was made in response to the supplementary resolution regarding the outline of proposed amendments to the Companies Act, which was adopted by the Legislative Council of the Ministry of Justice and submitted to the Ministry of Justice in September 2012.

Second, foreign investors have a significantly lower equity stake than other institutional investors. This means that the cost of selling their stake (or cost of exit) is likely to be lower for foreign investors than other larger equity holders. Thus, the threat of exit by foreign investors is a lot more credible and managers may be more responsive to addressing their concerns than other owners' concerns.¹¹ Ahmadjian (2007) argues that foreign investors can also exercise influence through voice: formally or informally.¹²

Third, Aggarwal et al. (2011) find that foreign institutions from countries with strong shareholder protection play a role in promoting governance improvements outside the US. Given that one-half of foreign investment in Japan is from US institutional investors, foreign investors are likely to expect governance improvements and protection of shareholder interests in Japanese firms.¹³ Anecdotal and empirical evidence also suggests that foreign large shareholder push for the appointment of independent directors (Yeh, 2017; Fortado, 2019). Fortado (2019) report that King Street Capital, which is one of Toshiba's largest shareholders with a 5.4% stake, said it will ask shareholders to replace a majority of the Toshiba board and increase the number of independent directors. Yeh (2017) shows that voting outcomes in favor of shareholder proposals, such as a board election involving the appointment or removal of directors, is positively associated with foreign ownership.

Collectively, based on the above arguments, we expect foreign ownership to positively affect the likelihood of appointment of independent directors in Japanese firms. In particular, we exploit TSE rules passed in 2009 that require appointment of at least one independent director/auditor and study whether foreign ownership affects the probability and the number of independent director appointments.

If foreign owners are successful in getting independent directors appointed to the board, we expect this to improve monitoring of managers. In other words, appointment of independent directors is likely to mitigate agency costs and, thereby, enhance firm value. We also examine whether the effects of foreign ownership on monitoring affects firm value. In other words, we investigate whether there is a mediated effect of foreign ownership on firm value via improved monitoring.

In summary, we expect foreign ownership to be positively associated with improved monitoring and this improved monitoring to enhance firm value in the unique Japanese setting where other block holders are larger, more powerful, and have a long-term stable relationship with firms. Our hypotheses are as follows:

Hypothesis 1: Foreign ownership is positively associated with the appointment of independent directors.

Hypothesis 2: Foreign ownership is positively associated with firm value via improved monitoring.

While we expect foreign owners to enhance monitoring and firm value, there are reasons why they may not be effective monitors in the Japanese setting. First, the share of foreign owners is typically much smaller than the share of financial institutions and corporate owners. In other words, the influence of these larger and more stable shareholders might outweigh the influence of foreign owners. Managers may be more concerned about maintaining their relationship with these larger and more stable owners than with satisfying foreign investors even if they can exit.

Second, Japanese governance traditionally is dominated by insiders. For example, the vast majority of directors on Japanese boards are senior executives or other insiders. Therefore, even if foreign owners are able to influence the appointment of independent directors, it is not clear whether a small minority of independent directors can influence the dominant majority of insiders.

Finally, senior executives and top managers are highly regarded in Japan and questioning their decisions or judgment is not considered acceptable in the Japanese culture. This can also limit any potential influence of foreign investors on Japanese firms.

3. Research design

This section discusses (1) our measures of foreign and other ownership, (2) our measures of board characteristics, and (3) the empirical models and estimation methods we use.

3.1. Measures of foreign and other ownership

We measure four different types of ownership: (1) *Foreign ownership*, (2) *Financial ownership*, (3) *Corporate ownership*, and (4) *Director ownership*. *Foreign ownership* is measured by the proportion of shares held by foreign investors. Most foreign investors are institutional investors (Ahmadjian, 2007). With respect to the trading volume of Japanese listed companies' stocks, the TSE (2014) recorded that 99.7% of foreign investors were foreign institutional investors. Accordingly, *Foreign ownership* is essentially foreign institutional ownership.

¹¹ Edmans and Manso (2011) argue that the threat of exit could motivate managers to act in the interests of shareholders.

¹² Jacoby (2007) discusses a specific example of a foreign institutional investor (CalPERS) affecting corporate governance in Japan.

¹³ Japanese firm attract stock investments from common-law countries more than civil-law countries. Foreign investors based in common-law countries account for more than 70% of total stock investment. Countries with the highest stock investment in 2016 are the US (50%), the UK (14%), and Luxembourg (5%). We obtain the data from *Regional Portfolio Investment and Financial Derivatives Position* for the period 2001 – 2016, which is disclosed by Ministry of Finance and Bank of Japan. The legal origin definition is based La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998).

Corporate ownership is the proportion of shares held by other non-financial companies. It proxies for the relationship between the firm and the other non-financial companies. Much of the intercorporate equity ownership among non-financial firms in Japan occurs with simultaneous trading and business ties between firms (Morck et al., 2000).

Financial ownership is the proportion of shares held by domestic financial institutions. Prowse (1992) shows that one major difference between the US and Japan is the greater equity ownership of domestic financial institutions (particularly banks) in Japan. *Director ownership* is the proportion of shares held by all directors and auditors. In most Japanese firms, the board of directors is usually dominated by insiders who are senior executives in the firm. Consistent with prior research (Kaplan & Minton, 1994; Kang & Shivdasani, 1995; Basu, Hwang, Mitsudome, & Weintrop, 2007; Teshima & Shuto, 2008), we use *Director ownership* to proxy for managerial ownership.

3.2. Measures of board independence

We classify the board of directors on the basis of the degree of their independence from managers and firms as follows. We define inside directors as those individuals who are serving or who have served as employees or officers in the firm. In contrast to inside directors, we define outside directors as those individuals who have never served as firm employees or officers. This definition is similar to those in prior studies on Japanese boards (Kaplan & Minton, 1994; Basu et al., 2007). The definition of outside directors includes past and present managers in the parent company or its business affiliates. Individuals with these characteristics do not meet the TSE conditions for independent directors according (Enforcement Rules for Securities Listing Regulations, Article 211, paragraph 4, item 5). We define independent directors as directors who are designated by a firm in accordance with the TSE rules, so %*Independent directors* is the number of independent directors divided by the total number of directors.

3.3. Empirical models and estimation methods

3.3.1. Empirical model for testing the effects of foreign ownership on board independence

An important concern with our analysis is that the results could be driven by endogeneity. For example, board independence could be positively associated with foreign ownership not due to enhanced monitoring but rather because foreign investors choose to invest in firms with better performance or superior monitoring. To control for this possibility, we use instrumental variables in a 2SLS approach. We use lagged foreign ownership (*Foreign ownership*_{*t-4*}) as an instrumental variable following Hermalin and Weisbach (1991) and Ferris and Park (2005). We estimate following models as the first-stage regression:

$$\text{Foreign ownership}_{t-1} = \alpha + \beta \text{Foreign ownership}_{t-4} + \text{Control variables} + \varepsilon \quad (1)$$

In the second-stage regressions, we use the estimated foreign ownership instrument (*Estimated foreign ownership*_{*t-1*}) from the first-stage regression as an independent variable. We estimate the following model as the second-stage regression explaining board independence (%*Independent directors*)¹⁴:

$$\text{Board independence}_t = \alpha + \beta \text{Estimated foreign ownership}_{t-1} + \text{Control variables} + \varepsilon \quad (2)$$

We include other ownership types as control variables. This include *Director ownership*, *Corporate ownership*, and *Financial ownership*. We use the following control variables as determinants of board independence. *Loan* is the sum of short and long loans divided by total assets. *Bond* is the sum of short and long bonds divided by total assets. *Asset* is the log of book value of total assets. *ROA* is ratio of net income to the total assets at the beginning of fiscal year. *Volatility* is the standard deviation of monthly stock returns over the 12-month period of a firm's fiscal year. *R&D* is the research and development (R&D) expenses deflated by total assets at the beginning of fiscal year. *Intangible Assets* is ratio of the book value of intangible assets to total assets at the beginning of fiscal year. *Log (Firm Age)* is Log of firm age and firm age is the difference between the year when a firm was actually incorporated and the current fiscal year. *Cash* is cash deflated by total assets at the beginning of the year. *First section* is an indicator variable that equals one if a firm is listed with the first section of the TSE, and zero otherwise.¹⁵ Indicator variables for year (*Year dummy*) and industry (*Industry dummy*) are also used.

We expect firms with complex operating and financial structures to benefit more from bringing in outsiders with a range of expertise, resulting in larger, more independent boards. Thus, we expect size, loans, and bonds to be positively related to independent directors on the board. *First section* is also expected to be positively related to the proportion of independent directors since firms listed on the first section of the TSE are likely to be larger. *ROA* is expected to be negatively related to the proportion of independent directors on boards because poor performance leads to adding more outsiders to the board. Hermalin and Weisbach (1998) suggest that board independence decreases with increases in the Chief Executive Officer (CEO)'s bargaining power.

Firms with high return volatility, R&D, and intangibles potentially have higher proprietary costs and consequently would have a lower number or percentage of independent directors. On the other hand, they also have higher advising needs and,

¹⁴ We also do an analysis using the log of the number of independent directors, instead of %*Independent directors*, and obtain similar results (untabulated).

¹⁵ TSE operates four markets: First section, Second section, Mothers, and JASDAQ. First Section includes mainly large companies. Second Section includes middle sized companies. JASDAQ and Mothers consist of emerging companies.

therefore, may benefit from outside directors' expertise (Fama & Jensen, 1983; Coles, Daniel, & Naveen, 2008). Younger (less mature) firms may also have more growth opportunities than older firms. Cash holdings are expected to be positively related to board independence because firms with excess cash holdings are more likely to generate private benefits for managers. Adams and Ferreira (2007) and Raheja (2005) show that monitoring optimally increases with the level of private benefits to managers, leading to more independent boards.

3.3.2. Empirical model for tests using firm value proxies

To study the effects of foreign ownership on firm value, we also use instrumental variables in a 2SLS approach. We use the same first-stage regression model as in Section 3.3.1. We estimate the following model as the second-stage regression:

$$\text{Tobin's } Q_t = \alpha + \beta \text{Estimated foreign ownership}_{t-1} + \text{Control variables} + \varepsilon \quad (3)$$

We use the same control variables as in Section 3.3.1. We expect loans and bonds to be positively related to Tobin's q because banks and bond holders can be viewed as additional monitors. On the other hand, higher amounts of debt can result in greater conflicts of interest between fixed claimants and shareholders, which could result in a negative relationship with firm value. Morck et al. (2000) find that both bank and public debt have negative effects on Tobin's q. Current and past return on assets are expected to be positively related to Tobin's q as firms with high profitability are likely to have higher firm value. High volatility of stock returns can imply higher risk and lower firm value. On the other hand, firms with high growth options could also exhibit higher volatility and this could result in a positive relationship between volatility and Tobin's q. Similarly, we expect firms with high levels of R&D and intangible assets to have higher growth options and higher Tobin's q. Younger firms also may have more growth prospects than older firms and, thus, higher Tobin's q. We expect cash holdings to be positively related to Tobin's q because high cash holdings allows firms more flexibility in investment decisions and enables a firm to finance internally rather than externally.

4. Results

4.1. Sample selection

As summarized in Table 1, our sample consists of 6667 firm-years for the period from March 2010 to February 2014. All sample firms are required to have consolidated financial statements data available. We exclude financial institutions such as banks, securities companies, insurance companies, and credit and leasing institutions. The industry definition is based on the Nikkei industry classification code (Nikkei gyousyu chuubunrui), which classifies Japanese listed companies into 36 industries. We also exclude the firm-years with changes in fiscal year-end.

The consolidated financial statements, share price, and shareholder ownership data are collected from *Nikkei NEEDS Financial QUEST* database for the period from 2010 to 2014. The data pertaining to the board of directors, for the period from 2008 to 2014, is obtained from the *Corporate Governance Reports* from the *Nikkei NEEDS Corporate Governance Report* database.¹⁶ However, the above data for the period from March 2008 to February 2010 is excluded from the sample period, as the TSE only instituted mandatory reporting regarding the presence of any independent directors/auditors after March 31, 2010.¹⁷ If the *Nikkei NEEDS* database does not include the independent directors/auditors, we hand-collect it from *Corporate Governance Reports* from TSE's website. All firms with missing observations are also excluded from our analysis.

4.2. Descriptive statistics and correlation of variables

Table 2 presents the descriptive statistics for our sample. The mean foreign ownership is around 11%. This is in contrast with corporate ownership and financial institutions ownership of 25% and 22%, respectively. So, on average, foreigners own a significantly lower fraction of shares than other corporations and domestic financial institutions. However, as mentioned earlier, they account for a considerably larger share of trading volume. Table 2 shows that the average percentage of independent directors on the board is 5%. Not surprisingly, this is lower than the average percentage of independent directors reported in the US (e.g., Klein, 2002; Duchin, Matsusaka, & Ozbas, 2010). These results suggests that most Japanese firms have boards dominated by insiders.

Table 3 presents the correlations between the different types of ownership, board independence, and firm characteristics (e.g., *Asset*). The correlations are consistent with the notion that foreign ownership is associated with greater manager monitoring.

¹⁶ In 2006, TSE began requiring listed firms to prepare a *Corporate Governance Report*. It developed standardized formats to ensure the consistency of corporate governance information. This format was designed to enable listed firms to describe their activities for each theme related to corporate governance (e.g., board of directors, executive compensation, and the relationship between corporate auditors and audit firms.). When any change occurs that affects information in the corporate governance report, the TSE requires firms to update it without delay. We use the corporate governance report most recently disclosed before the date of fiscal year end if a firm discloses several corporate governance reports during the fiscal year.

¹⁷ In general, companies in Japan have a March 31 fiscal year-end.

Table 1
Sample selection procedure.

| Criteria | Firm-years |
|---|------------|
| Firm-years with financial statements and board data during 2010–2014 | 8,192 |
| Less: | |
| Changes in fiscal year-end within firm-years necessary for our analyses | (497) |
| Missing data to calculate independent variables | (212) |
| Missing data to calculate dependent variables | (816) |
| Final sample | 6,667 |

Notes: We require sample firms to have consolidated financial statements data. We exclude financial institutions (banks, securities companies, and insurance companies) and other financial institutions (credit and leasing). Financial statements data and share price data are obtained from the *Nikkei NEEDS Financial QUEST*. The industry definition is based on the Nikkei industry classification code (Nikkei gyougyu chu-bunrui) which classifies Japanese listed companies into 36 industries.

Table 2
Descriptive statistics.

| | Mean | p25 | Median | p75 | SD | N |
|-------------------------|--------|--------|--------|--------|-------|-------|
| % Independent directors | 5.311 | 0.000 | 0.000 | 9.091 | 9.847 | 6,667 |
| Director ownership | 0.051 | 0.002 | 0.007 | 0.048 | 0.095 | 6,667 |
| Corporate ownership | 0.258 | 0.115 | 0.225 | 0.370 | 0.176 | 6,667 |
| Foreign ownership | 0.110 | 0.020 | 0.071 | 0.171 | 0.111 | 6,667 |
| Financial ownership | 0.222 | 0.125 | 0.209 | 0.318 | 0.128 | 6,667 |
| Loan | 0.174 | 0.036 | 0.137 | 0.279 | 0.157 | 6,667 |
| Asset | 11.210 | 10.197 | 11.048 | 12.109 | 1.559 | 6,667 |
| Bond | 0.021 | 0.000 | 0.000 | 0.018 | 0.045 | 6,667 |
| ROA | 0.024 | 0.009 | 0.023 | 0.044 | 0.045 | 6,667 |
| Volatility | 0.098 | 0.062 | 0.086 | 0.117 | 0.057 | 6,667 |
| R&D | 0.016 | 0.000 | 0.006 | 0.022 | 0.022 | 6,667 |
| Intangible Assets | 0.691 | 0.590 | 0.713 | 0.823 | 0.185 | 6,667 |
| Log (Firm Age) | 3.918 | 3.761 | 4.111 | 4.277 | 0.607 | 6,667 |
| Cash | 0.153 | 0.073 | 0.124 | 0.200 | 0.116 | 6,667 |
| Tobin's Q | 1.061 | 0.735 | 0.923 | 1.163 | 0.634 | 6,667 |

Note: Please see [Appendix A](#) for variable definitions.

4.3. Foreign ownership and board independence

We estimate regression model (1) and report *t*-statistics based on standard errors clustered at firm level following [Petersen \(2009\)](#).¹⁸ [Table 4](#) Column (1) presents the results of the first-stage regression of model (1). *Foreign ownership*_{*t*-4} is significantly positively related to the *Foreign ownership*_{*t*-1} at the 0.01%.

We note that it is difficult to find strong instruments and that our instruments may be weak. Following [Hermalin and Weisbach \(1991\)](#) and [Ferris and Park \(2005\)](#), we use *Foreign ownership*_{*t*-4} as an instrument for foreign ownership. While we expect it to be correlated with *Foreign ownership*_{*t*-1} it need not be correlated with the appointment of independent directors at time *t*-1 except through *Foreign ownership*_{*t*-1} because foreign owners do not necessarily have perfect foresight or a guaranteed influence on such appointments. However, we acknowledge that lagged foreign ownership is not a perfect proxy because ownership tends to be sticky. Thus, we use alternative proxies discussed later in this sub-section. To provide evidence on the strength of our instrument, we perform a test of weak instruments. The Cragg–Donald F statistic from the first stage regression is significant at the 1% level suggesting that our instruments is reasonably valid.

[Table 4](#) Column (2) presents the results of the second-stage regression of board independence on ownership structure and control variables. The results show that *Estimated foreign ownership*_{*t*-1} is positively related to %*Independent directors*_{*t*} at the 0.01% level. Interestingly, we also find that *Corporate ownership*_{*t*-1} has the opposite effect on independent directors. Furthermore, *Financial ownership*_{*t*-1} has no significant relationship with the number of independent directors. With respect to control variables, the coefficient on *Loan*_{*t*-1} is not significant. The coefficient on *Asset*_{*t*-1} is positive and significant. *Bonds*_{*t*-1} have a significant, positive effect on the number of independent directors. The coefficient on *Volatility*_{*t*}, *R&D*_{*t*}, and *Intangible Assets*_{*t*-1} are positive and generally significant, suggesting that firm with high levels of growth opportunities have more demand for independent directors due to greater advising needs. The coefficients on the other control variables are not significant at

¹⁸ [Petersen \(2009\)](#) suggests that researchers can address cross-sectional dependence by including time dummies and by then calculating standard errors clustered by firms. We use this method for all our analyses. If clustering standard errors does not allow for the inclusion of all our currently included industry dummy variables (year dummy variables), we combine at least two industry dummy variables (year dummy variables) into one industry dummy variable (year dummy variables) to estimate the regression.

Table 3
Correlation matrix.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|--------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1% Independent directors | 1.00 | -0.18*** | -0.18*** | 0.24*** | 0.18*** | 0.24*** | -0.03** | 0.13*** | 0.05*** | -0.03*** | 0.10*** | 0.01 | 0.06*** | -0.02* | 0.18*** |
| 2 Director ownership | -0.07*** | 1.00 | -0.09*** | -0.33*** | -0.38*** | -0.56*** | -0.08*** | -0.19*** | 0.12*** | -0.04*** | -0.19*** | 0.14*** | -0.41*** | 0.38*** | -0.06*** |
| 3 Corporate ownership | -0.17*** | -0.24*** | 1.00 | -0.33*** | -0.37*** | -0.13*** | -0.04*** | -0.16*** | 0.00 | -0.11*** | -0.15*** | -0.09*** | -0.02* | -0.14*** | -0.17*** |
| 4 Foreign ownership | 0.28*** | -0.16*** | -0.34*** | 1.00 | 0.45*** | 0.67*** | -0.20*** | 0.14*** | 0.21*** | 0.04*** | 0.23*** | 0.05*** | 0.08*** | 0.01 | 0.20*** |
| 5 Financial ownership | 0.17*** | -0.39*** | -0.41*** | 0.35*** | 1.00 | 0.6*** | 0.11*** | 0.26*** | -0.01 | -0.05*** | 0.26*** | -0.17*** | 0.46*** | -0.22*** | 0.01 |
| 6 Asset | 0.24*** | -0.39*** | -0.14*** | 0.59*** | 0.59*** | 1.00 | 0.10*** | 0.34*** | -0.01 | -0.07*** | 0.14*** | -0.18*** | 0.31*** | -0.32*** | 0.15*** |
| 7 Loan | -0.03** | 0.02 | -0.03** | -0.19*** | 0.05*** | 0.07*** | 1.00 | 0.31*** | -0.29*** | 0.19*** | -0.14*** | -0.38*** | 0.16*** | -0.37*** | 0.13*** |
| 8 Bond | 0.15*** | -0.09*** | -0.15*** | 0.15*** | 0.25*** | 0.38*** | 0.16*** | 1.00 | -0.11*** | 0.04*** | -0.03** | -0.25*** | 0.12*** | -0.23*** | 0.14*** |
| 9 ROA | 0.05*** | 0.10*** | 0.01 | 0.18*** | 0.03** | 0.02* | -0.22*** | -0.07*** | 1.00 | -0.12*** | 0.05*** | 0.09*** | -0.16*** | 0.24*** | 0.31*** |
| 10 Volatility | -0.02* | 0.11*** | -0.08*** | -0.06*** | -0.15*** | -0.19*** | 0.19*** | -0.02* | -0.19*** | 1.00 | 0.11*** | 0.13*** | -0.03** | 0.06*** | 0.11*** |
| 11 R&D | 0.14*** | -0.12*** | -0.13*** | 0.23*** | 0.16*** | 0.12*** | -0.15*** | -0.02** | 0.02 | 0.05*** | 1.00 | 0.11*** | 0.24*** | 0.06*** | 0.08*** |
| 12 Intangible Assets | 0.01 | 0.16*** | -0.07*** | 0.06*** | -0.17*** | -0.22*** | -0.38*** | -0.30*** | 0.06*** | 0.14*** | 0.17*** | 1.00 | -0.2*** | 0.42*** | 0.03** |
| 13 Log (Firm Age) | 0.00 | -0.46*** | 0.00 | 0.03** | 0.41*** | 0.29*** | 0.05*** | 0.06*** | -0.07*** | -0.18*** | 0.08*** | -0.21*** | 1.00 | -0.29*** | -0.13*** |
| 14 Cash | 0.01 | 0.37*** | -0.13*** | 0.04*** | -0.27*** | -0.35*** | -0.32*** | -0.19*** | 0.23*** | 0.10*** | 0.05*** | 0.43*** | -0.34*** | 1.00 | 0.05*** |
| 15 Tobin's Q | 0.12*** | 0.18*** | -0.11*** | 0.18*** | -0.11*** | -0.07*** | 0.00 | 0.05*** | 0.21*** | 0.22*** | 0.11*** | 0.13*** | -0.28*** | 0.26*** | 1.00 |

Notes: Spearman (Pearson) correlations are above (below) the diagonal. Please see Appendix A for variable definitions. *, **, *** Statistically significant at the 0.1, 0.05, and 0.01 levels of significance using a two-tailed *t*-test, respectively.

Table 4
Effects of foreign ownership on board structure.

| Independent Variable | Expected Sign | First stage regression <i>Foreign ownership</i> _{t-1} Coefficient (t-value) | Second stage regression % <i>Independent directors</i> _t Coefficient (t-value) | Robustness test % <i>Independent directors</i> _t Coefficient (t-value) |
|---|---------------|--|---|---|
| <i>Constant</i> | | -0.110*** (-5.099) | -6.084* (-1.705) | -7.788** (-2.197) |
| <i>Foreign ownership</i> _{t-4} | + | 0.634*** (22.559) | | |
| <i>Estimated foreign ownership</i> _{t-1} | + | | 17.048*** (4.447) | |
| <i>Foreign ownership 2009</i> | + | | | 12.457*** (3.959) |
| <i>Director ownership</i> _{t-1} | - | -0.078*** (-5.164) | -4.092* (-1.680) | -5.592** (-2.283) |
| <i>Corporate ownership</i> _{t-1} | +/- | -0.099*** (-9.509) | -3.439** (-2.182) | -5.073*** (-3.400) |
| <i>Financial ownership</i> _{t-1} | +/- | -0.079*** (-5.889) | 3.223 (1.317) | 2.030 (0.828) |
| <i>Loan</i> _{t-1} | + | -0.045*** (-5.978) | 0.111 (0.076) | -0.324 (-0.222) |
| <i>Asset</i> _{t-1} | + | 0.019*** (11.194) | 0.667** (2.316) | 0.944*** (3.635) |
| <i>Bond</i> _{t-1} | + | -0.040* (-1.662) | 16.462*** (2.770) | 16.397*** (2.764) |
| <i>ROA</i> _t | - | 0.122*** (6.497) | 0.555 (0.167) | 2.622 (0.791) |
| <i>ROA</i> _{t-1} | - | 0.102*** (4.943) | 2.003 (0.727) | 3.414 (1.227) |
| <i>ROA</i> _{t-2} | - | 0.135*** (6.672) | -4.945* (-1.741) | -3.593 (-1.264) |
| <i>Volatility</i> _t | +/- | 0.021 (1.307) | 4.315 (1.480) | 5.215* (1.777) |
| <i>R&D</i> _t | +/- | 0.025 (0.379) | 37.761*** (2.626) | 39.235*** (2.690) |
| <i>Intangible Assets</i> _{t-1} | +/- | 0.003 (0.359) | 3.832*** (2.726) | 3.960*** (2.774) |
| <i>Log (Firm Age)</i> _{t-1} | +/- | -0.007** (-2.568) | -0.126 (-0.294) | -0.235 (-0.542) |
| <i>Cash</i> _{t-1} | + | 0.036*** (3.354) | -0.097 (-0.047) | 0.541 (0.260) |
| <i>First Section</i> _t | + | -0.009*** (-3.128) | -0.872 (-1.588) | -0.932* (-1.695) |
| Adj. R ² | | 0.799 | 0.144 | 0.146 |
| Partial R ² | | 0.522 | | |
| Hausman test (F value) | | 13.458 | | |
| Crag-Donald statistic | | 7234.42 | | |
| Obs | | 6,667 | 6,667 | 6,642 |

Notes: Please see Appendix A for variable definitions. All models includes indicator variables for year (*Year dummy*) and industry (*Industry dummy*) respectively as control variables (unshowed). *t*-statistics are corrected for time-series correlation using a one-way cluster at the firm. *, **, *** Statistically significant at the 0.1, 0.05, and 0.01 levels of significance using a two-tailed *t*-test, respectively.

conventional levels. Taken as a whole, these results suggest that foreign ownership is more strongly associated with independent monitoring of managers than ownership by domestic financial institutions or corporate shareholders.

To further address potential endogeneity concerns, we conduct an additional analysis using 2009 foreign ownership values (*Foreign ownership 2009*), instead of *Estimated foreign ownership*_{t-1}.¹⁹ This helps to rule out reverse causality. As noted in Section 2, the TSE required changes to board structure in December 2009. Foreign ownership in 2009 was already determined before any changes in board structure, which makes it unlikely that subsequent board structure is driving ownership in 2009.

Table 4 Column (3) presents the results of the regressions when we regress board independence on *Foreign ownership 2009* and control variables. We find that foreign ownership is significantly positively associated with subsequent appointment of independent directors. This suggests that our results are unlikely to be driven by reverse causality.

¹⁹ In a robustness test (untabulated), we also use an indicator variable that takes a value of one if firm provide the proxy statement in English, and zero otherwise as instruments variables. The firms that disclose proxy statements in English seem to drive foreign shareholder demand, but are not expected to increase firm value. Regarding data about the board of directors, the proxy statement data is also obtained from the *Corporate Governance Reports* from the *Nikkei NEEDS Corporate Governance Report* database for the period from 2011 to 2014. In un-tabulated results, we find evidence consistent with our baseline findings.

4.4. Foreign ownership and firm value

Table 5 shows the results of the second-stage regression to test for the effects of foreign ownership on firm value. Column (1) shows that *Estimated foreign ownership*_{*t*-1} is significantly positively related to firm value (measured by *Tobin's Q*) at less than the 0.01 level. Interestingly, we also find that *Financial ownership*_{*t*-1} is not significantly related to firm value. This suggests that domestic financial institutions do not necessarily act in shareholders' best interests and may not be sufficient to mitigate agency problems. The coefficients on control variables are generally consistent with expectations. For example, more profitable firms and firms with high growth opportunities (high volatility, high R&D, or high intangibles) have higher values. Firms with higher cash have higher values because they do not need to rely as much on external financing as firms with low cash. Older (more mature firms) have lower values. Firms with higher loans and bonds have higher values. This could be due to monitoring by debt holders or superior access to financing.

We also find that after adding the board independence variable (*%Independent directors*) to the regression model (7), the positive association between foreign ownership and firm value remains significant. Column (2) shows that *Estimated Foreign Ownership*_{*t*-1} is significantly positively related to *Tobin's Q_t* at less than the 0.01 level. Furthermore, the coefficients on *%Independent directors_t* is significantly positively related to firm value. These results suggest that foreign ownership has both a direct effect on firm value, as well as an indirect effect on firm value through increased independence in the board structure.

4.5. Path analysis

Next, we use path analysis to decompose the relationship between foreign ownership and firm value into direct and indirect (or mediated) paths.²⁰ The path diagram shows relationships as represented by path arrows (see Fig. 2). This decomposition provides insights on the existence and relative importance of the direct and indirect paths between foreign ownership and the firm value. The path analysis we consider is recursive (all the paths flow in only one direction) and consists of observable variables.

Path analysis helps us understand the causal links between variables and identify the relative importance of direct and indirect effects.²¹ However, like any statistical technique, path analysis has some limitations. First, it assumes that the causal mechanism being tested has been specified correctly. If this is not the case, then the estimates obtained through path analysis may be misleading. Second, the direct effect also captures the effects of variables not modeled in the causal pathways. Thus, the estimate of the direct effect may be overstated. Finally, path analysis cannot establish the direction of causality.

Table 6 presents the results of the path analysis. We denote path coefficients with *p*. *p*[*Foreign ownership*_{*t*-1}, *Tobin's Q_t*] is the direct path coefficient. *p*[*Foreign ownership*_{*t*-1}, *%Independent directors_t*] and *p*[*%Independent directors_t*, *Tobin's Q_t*] are the path coefficients between foreign ownership and board structure and between board structure and firm value, respectively. The indirect (mediated) paths is the product of *p*[*Foreign ownership*_{*t*-1}, *%Independent directors_t*] and *p*[*%Independent directors_t*, *Tobin's Q_t*]. The direct paths component of total effect captures the portion of the correlation between foreign ownership and the firm value that is attributable to the direct effect.

As shown in Table 6 of column (1), both direct and indirect path coefficient are highly significant. The correlation between foreign ownership and firm value is about 88% attributable to a direct path and about 12% attributable to the mediated path. These results suggest that the mediated link (via board structure) between foreign ownership and firm value is significant, but smaller (or less important) than the direct link.

The results reported in column (1) do not control for other factors known to affect firm value, such as size or firm growth. Column (2) repeats the analyses reported in column (1), including control variables used in our previous regression analysis, allowing each variable to take a direct path to firm value. The result in column (2) indicate statistically significant direct paths between *Foreign ownership*_{*t*-1} and *Tobin's Q_t*. The direct path between foreign ownership and firm value explains about 95%. The indirect path that includes board structure as the mediating variables explains about 5%. Taken together, these results indicate significant direct and indirect paths (via board structure) between foreign ownership and firm value, though the direct effect is much larger. These findings suggest that monitoring by foreign owners significantly affects firm value.

5. Additional tests and robustness checks

5.1. Foreign ownership and earnings management

In our primary analysis, we find that foreign ownership affects firm value via independent directors' appointments. We argue that foreign investors enhance firm value by improving the monitoring of managers. Guo et al. (2015) also study the effects of foreign ownership on real earnings management for Japanese firms. In this section, we complement and extend the evidence in Guo et al. (2015) by examining whether foreign ownership mitigates earnings management through a monitoring mechanism (board independence).

²⁰ Path analysis is used in several accounting and finance studies (e.g., Bushee & NOE, 2000; Bhattacharya, Ecker, Olsson, & Schipper, 2012; Lu, Richardson, & Salterio, 2011; Kanagaretnam, Lim, & Lobo, 2014; Chen, Harris, Li, & Wu, 2015; Dhole, Manchiraju, & Suk, 2016; Goh, Lee, Ng, & Yong, 2016; Harjoto & Laksmna, 2018).

²¹ For details see Asher (1983).

Table 5
Effects of foreign ownership on firm value.

| Independent Variable | Expected Sign | Tobin's Q_t Coefficient (t-value) | Tobin's Q_t Coefficient (t-value) |
|--------------------------------------|---------------|--|--|
| Constant | | 1.125*** (5.164) | 1.139*** (5.255) |
| Estimated foreign ownership $_{t-1}$ | + | 1.043*** (4.186) | 1.004*** (3.961) |
| % Independent directors $_t$ | + | | 0.002* (1.896) |
| Director ownership $_{t-1}$ | + | -0.147 (-0.694) | -0.138 (-0.650) |
| Corporate ownership $_{t-1}$ | +/- | -0.068 (-0.647) | -0.060 (-0.574) |
| Financial ownership $_{t-1}$ | +/- | -0.166 (-1.212) | -0.173 (-1.265) |
| Loan $_{t-1}$ | +/- | 0.564*** (5.789) | 0.563*** (5.794) |
| Asset $_{t-1}$ | +/- | -0.034* (-1.912) | -0.035** (-2.009) |
| Bond $_{t-1}$ | +/- | 1.246*** (4.290) | 1.209*** (4.164) |
| ROA $_t$ | + | 2.006*** (4.852) | 2.005*** (4.853) |
| ROA $_{t-1}$ | + | 1.045*** (3.984) | 1.040*** (3.969) |
| ROA $_{t-2}$ | + | 0.374 (1.155) | 0.385 (1.189) |
| Volatility $_t$ | +/- | 2.395*** (9.876) | 2.385*** (9.852) |
| R&D $_t$ | + | 3.038*** (3.386) | 2.952*** (3.287) |
| Intangible Assets $_{t-1}$ | + | 0.317*** (3.086) | 0.308*** (3.011) |
| Log (Firm Age) $_{t-1}$ | - | -0.095*** (-3.530) | -0.095*** (-3.512) |
| Cash $_{t-1}$ | + | 0.459** (2.480) | 0.459** (2.481) |
| First Section $_t$ | +/- | 0.023 (0.621) | 0.025 (0.674) |
| Adj. R^2 | | 0.290 | 0.291 |
| Obs | | 6,667 | 6,667 |

Notes: Please see Appendix A for variable definitions. All models includes indicator variables for year (*Year dummy*) and industry (*Industry dummy*) respectively as control variables (unshowed). *t*-statistics are corrected for time-series correlation using a one-way cluster at the firm. *, **, *** Statistically significant at the 0.1, 0.05, and 0.01 levels of significance using a two-tailed *t*-test, respectively.

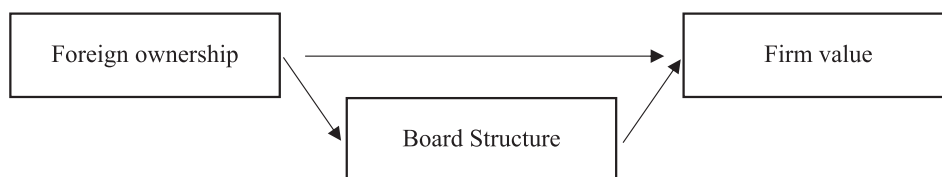


Fig. 2. Basic path diagram showing posited direct and indirect (mediated board structure) paths between Foreign ownership and firm value.

5.1.1. Proxies used for earnings management

In the following sections, we describe (1) the estimation models used for accrual-based and real earnings management, respectively, (2) the actions firms can take to engage in earnings management to meet/beat earning benchmarks, and (3) the earnings management proxies used in our analysis.

5.1.1.1. Accrual-based earnings management. We use the modified cross-sectional Jones model (Jones, 1991) based on Kasznik (1999). Shuto (2010) shows that Kasznik (1999) model has greater explanatory power relative to the other discretionary accruals models in samples of Japanese firms. The modified Jones model for each industry-year grouping is estimated as follows:

$$ACC_t = \alpha + \beta_1 100/A_{t-1} + \beta_2 (\Delta S_t - \Delta REC_t) + \beta_3 PPE_t + \beta_4 \Delta CFO_t + \varepsilon_t \quad (4)$$

Table 6

Direct and mediated firm value effect of foreign ownership.

| | Expected Sign | Coefficient (z-value) | Coefficient (z-value) |
|--|---------------|-----------------------|-----------------------|
| Direct Path | | | |
| $p[\text{Foreign ownership}_{t-1}, \text{Tobin's } Q_t]$ | + | 0.883*** (12.411) | 1.130*** (12.413) |
| Mediated Path | | | |
| $p[\text{Foreign ownership}_{t-1}, \% \text{ Independent directors}_t]$ | + | 24.381*** (23.432) | 24.381*** (23.432) |
| $p[\% \text{ Independent directors}_t, \text{Tobin's } Q_t]$ | + | 0.005*** (6.293) | 0.002*** (3.101) |
| Control variables | | No | Yes |
| Direct effect of $\text{Foreign ownership}_{t-1}$ on $\text{Tobin's } Q_t$ | | 0.883 | 1.130 |
| Indirect effect of $\text{Foreign ownership}_{t-1}$ on $\text{Tobin's } Q_t$ | | 0.123 | 0.054 |
| Total effect of $\text{Foreign ownership}_{t-1}$ on $\text{Tobin's } Q_t$ | | 1.006 | 1.184 |
| The direct component of total effect | | 0.877 | 0.954 |
| Obs | | 6,667 | 6,667 |

Notes: The table reports path analysis of the direct and indirect (through board structure) links between foreign ownership and firm value. p indicates path coefficients. Please see Appendix A for variable definitions. *, **, *** Statistically significant at the 0.1, 0.05, and 0.01 levels of significance using a z-test, respectively.

where ACC_t is accruals. This is calculated as net income before extraordinary items (net income + gains from extraordinary items - losses from extraordinary items) less cash flow from operations deflated by total assets at the beginning of year. $100/A_{t-1}$ is one hundred deflated by total assets. ΔS_t is change in sales deflated by total assets at the beginning of the year. ΔREC_t is change in accounts receivable deflated by total assets at the beginning of the year. PPE_t is property, plant, and equipment (PP&E) deflated by total assets at the beginning of the year. ΔCFO_t is change in cash flow from operations deflated by total assets at the beginning of the year. The t subscripts indicate the year.

Following methods used in the extant literature, we measure normal accruals for our sample firms using the model (4)'s predicted or fitted values and discretionary accruals (DA) as the difference between accruals and fitted normal accruals.

5.1.1.2. Real earnings manipulation. Following Roychowdhury (2006) and Yamaguchi (2009), we use abnormal levels of cash flow from operations, discretionary expenses, and production costs as our proxies for real earnings manipulation. We estimate the normal level of cash flow operations, discretionary expenses, and production costs using the following models:

$$CFO_t = \alpha + \beta_1 100/A_{t-1} + \beta_2 S_t + \beta_3 \Delta S_t + \varepsilon_t \quad (5)$$

$$DISEXP_t = \alpha + \beta_1 100/A_{t-1} + \beta_2 S_t + \varepsilon_t \quad (6)$$

$$PROD_t = \alpha + \beta_1 100/A_{t-1} + \beta_2 S_t + \beta_3 \Delta S_t + \beta_4 \Delta S_{t-1} + \varepsilon_t \quad (7)$$

where CFO_t is cash flow from operations deflated by total assets at the beginning of the year; S_t is sales deflated by total assets at the beginning of the year; $DISEXP_t$ is discretionary expenses calculated as the sum of R&D expenditure plus advertising expenses plus sales promotion and other selling expenses plus personnel expenses and employee benefit expenses deflated by total assets at the beginning of year. $PROD_t$ is production costs calculated as the sum of cost of goods sold plus change in inventory deflated by total assets at the beginning of year. All other variables are as previous defined.

These models are estimated for each industry-year grouping. The abnormal operating cash flows ($ACFO$), abnormal discretionary expenses ($ADISEXP$), and abnormal production costs ($APROD$) are computed as the difference between actual values and the normal levels predicted by models (5), (6), and (7).

5.1.1.3. Meeting/beating earnings benchmarks. To increase the power of our tests to detect earnings management, we focus on firm-years that have small income or a small increase in earnings. In particular, we identify the firm-years that have net income deflated by total assets in the interval between 0 (inclusive) and 0.007 (exclusive), which is the interval to the immediate right of zero in the histogram of scaled earnings, as an indicator of loss avoidance.²² In addition, we identify the firm-years that experienced a change in net income deflated by total assets in the interval between 0 (inclusive) and 0.005 (exclusive), which is the interval to the immediate right of zero in the histogram of scaled changes in earnings, to detect the earning decrease avoidance.

Prior studies indicate unusually low frequencies of small decreases in earnings and small losses and unusually high frequencies of small increases in earnings and small income in US firms (Burgstahler & Dichev, 1997) and in Japanese firms (Suda & Shuto, 2007). These results suggest that firms manage reported earnings to avoid earnings decreases and losses. In addition, prior studies suggest that managers use income-increasing discretionary accruals and real operating actions

²² This interval size of the histogram is based on Freedman and Diaconis (1981) method, which is used in DeGeorge, Patel, and Zeckhauser (1999).

to meet/beat a targeted benchmarks (e.g., Burgstahler & Eames, 2006; Matsumoto, 2002; Payne & Robb, 2000; Suda & Shuto, 2007).

We expect that managers use income-increasing real earnings manipulation and accrual-based earnings management to meet/beat earnings benchmarks. In particular, we expect abnormal cash flow operations (*ACFO*) and abnormal discretionary expense (*ADISEXP*) to be negative for firms with slightly positive earnings (change in earnings) as compared to other firms. This is because sales manipulation brings about a temporary increase in sales during the year by offering price discounts or more lenient credit terms leading to lower cash flow from operations than normal sales activities. If managers cut discretionary expenditure such as R&D, advertising, and maintenance, these expenses should be lower than during periods of normal operating activities.

We also expect abnormal production costs (*APROD*) and discretionary accruals (*DA*) to be positive in firms with slightly positive earnings (change in earnings) as compared to other firms. Managers can produce more goods than necessary in order to manage earnings upward. This overproduction generally leads to lower average costs and higher production costs than during normal sales production. Managers also have discretion to increase earnings via accounting accruals.

We use the following eight variables in our regression models in the analysis of earnings management. *RM1* is an indicator variable that equals one for firm-years with net income over lagged total assets between 0 (inclusive) and 0.007 (exclusive), and negative abnormal cash flows from operations (*ACFO*), and zero otherwise. *RM2* is an indicator variable that equals one for firm-years with net income over lagged total assets between 0 (inclusive) and 0.007 (exclusive), and negative abnormal discretionary expenses (*ADISEXP*), and zero otherwise. *RM3* is an indicator variable that equals one for firm-years with net income over lagged total assets are between 0 (inclusive) and 0.007 (exclusive), and positive abnormal production costs (*APROD*), and zero otherwise. *AM1* is an indicator variable that equals one for firm-years with net income over lagged total assets between 0 (inclusive) and 0.007 (exclusive), and positive discretionary accruals (*DA*), and zero otherwise. *RM4* is an indicator variable that equals one for firm-years with change in net income deflated by lagged total assets between 0 (inclusive) and 0.005 (exclusive), and negative abnormal cash flows from operations (*ACFO*), and zero otherwise. *RM5* is an indicator variable that equals one for firm-years with change in net income deflated by lagged total assets between 0 (inclusive) and 0.005 (exclusive), and negative abnormal discretionary expenses (*ADISEXP*), and zero otherwise. *RM6* is an indicator variable that equals one for firm-years with change in net income deflated by lagged total assets between 0 (inclusive) and 0.005 (exclusive), and positive abnormal production costs (*APROD*), and zero otherwise. *AM2* is an indicator variable that equals one for firm-years with change in net income deflated by lagged total assets are between 0 (inclusive) and 0.005 (exclusive), and positive discretionary accruals (*DA*), and zero otherwise.

5.1.2. Empirical model for testing the effects of foreign ownership on earnings management

To test for the effects of foreign ownership on earnings management, we estimate the following model using logit regressions:

$$\text{Earnings management}_t = \alpha + \beta \text{Foreign Ownership}_{t-1} + \text{Control variables} + \varepsilon \quad (8)$$

We use other ownership types (*Director ownership*, *Corporate ownership*, and *Financial ownership*) as control variables. Following Dechow and Dichev (2002), Francis, LaFond, Olsson, and Schipper (2004), and Shuto and Iwasaki (2014), we also include the following control variables: *Loan*; *Asset*, *Bond*; $\sigma(\text{CFO})$ is standard deviation of cash flow from operations (divided by average total assets) calculated over the years *t-5* to *t-1*; $\sigma(\text{Sales})$ is standard deviation of Sales deflated by average total assets calculated over the years *t-5* to *t-1*; *Operating Cycle* is Log of the sum of a firm's days accounts receivable (accounts receivable/sales/360) and days inventory (inventory/costs of goods sold/360); *Losses* is proportion of losses from years *t-5* to *t-1*; *Capital Intensity* is ratio of the book value of PP&E to total assets at the end of fiscal year; *Market to Book* is ratio of the market value of equity to book value of equity; *Z score* = Altman (1968) Z-score; *First section*; and indicator variables for year (*Year dummy*) and industry (*Industry dummy*).

We control for firm characteristics expected to be systematically related to the magnitude of accrual estimation errors (Dechow & Dichev, 2002). While the estimation errors include both intentional errors which are manipulations by management to achieve earnings benchmark and unintentional errors, we do not attempt to disentangle intentional errors from unintentional errors because the management intent to manipulate earnings is unobservable and likely sporadic. We include controls for the innate determinants of earnings attributes based on prior work.

We expect loans and bonds to be positively related to earnings management to avoid debt covenant violations. Large firms are likely to receive more attention from investors and so may have a greater incentive to avoid losses or miss benchmarks. This would suggest a positive relationship with earnings management. Firms with higher volatility of cash flows or sales and longer operating cycles are likely to experience greater estimation errors. On the other hand, volatility and market-to-book may reflect growth options and, thus, a lesser need to manage earnings. Firms with losses or experiencing financial distress may want to try to avoid reporting losses. On the other hand, such firms may also want to renegotiate their contracts and not engage in earnings management. We include capital intensity (*Capital Intensity*), and intangible intensity (*Market to Book*) following Francis et al. (2004).²³ Lev (1983) and Baginski, Lorek, Willinger, and Branson (1999) provide evidence suggesting that capital-intensive firms have greater earnings volatility because of their higher operating leverage, which increases esti-

²³ As a proxy for intangible intensity, Francis et al. (2004) use a variable that is based on R&D cost. However, we use the book-to-market ratio for the intangible intensity variable since abnormal discretionary expenditure (*ADISEXP*) is likely to be correlated with R&D costs by construction.

mation errors. Baginski et al. (1999) show that intangible intensity is positively related to earnings persistence, which suggests that intangible-intensive firms have more stable and sustainable earnings growth and, therefore, smaller estimation errors. Further, we control for bankruptcy risk using Altman (1968) Z-score (Z score) following Shuto and Iwasaki (2014) and Dou, Hope, and Thomas (2013). Finally, we include listing status (*First section*) to control for firm size.

Table 7 Panel A presents the results on the effects of foreign ownership on the use of accrual and real earnings management to meet or beat the zero earnings benchmark. The coefficient on *Foreign ownership*_{*t*-1} is negative and significant in all four columns consistent with our expectation that foreign investors constrain earnings management. In contrast, the coefficients on *Corporate ownership*_{*t*-1} and *Financial ownership*_{*t*-1} are not significant in all four columns. The coefficients on *Loans*_{*t*-1} are significantly positively associated with both real and accrual earnings management to avoid losses. This may be due to a desire to avoid covenant violations. The coefficients on *Losses*_{*t*-1} is significantly positively associated with managing earnings toward a zero earnings benchmark. It is possible that loss firms may be trying to reduce the losses they are reporting to mitigate adverse effects, such as pay cuts for executives. The coefficient on *Market to Book*_{*t*-1} is significantly negative, consistent with firms with higher growth opportunities engaging less in earnings management than firms with low growth opportunities. The coefficients on the other control variables are generally not significant.

Table 7 Panel B presents the results of regressions similar to those in Table 7 Panel A, except that we use the earnings management measure based on meeting or beating last year's earnings as the dependent variable. *Foreign ownership*_{*t*-1} is significantly negatively related to real earnings management but not associated with accrual based earnings management, suggesting that foreign ownership likely mitigates real earnings management to meeting or beating last year's earnings. Similar to Panel A, *Corporate ownership*_{*t*-1} and *Financial ownership*_{*t*-1} are not significantly related to real earnings management. *Financial ownership*_{*t*-1} is significantly positively related to accrual based earnings management. These results suggest that foreign investors are more effective in constraining earnings management than corporate owners or financial institutions. The coefficients on *Losses*_{*t*-1} are significantly negative, suggesting that there is less real and accrual earnings management to beat last year's target for such firms. *Market to Book*_{*t*-1} is significantly negatively related to real earnings management but not asso-

Table 7
Effects of foreign ownership on earnings management.

| Panel A: Beating/meeting zero earnings benchmark | | | | | |
|--|---------------|--|---|---|--|
| Independent Variable | Expected Sign | RM1 (ACFO _{<i>t</i>}) Coefficient (z-value) | RM2 (ADISEXP _{<i>t</i>}) Coefficient (z-value) | RM3 (APROD _{<i>t</i>}) Coefficient (z-value) | AM1 (DA _{<i>t</i>}) Coefficient (z-value) |
| Constant | | -3.109** (-2.558) | -4.853*** (-3.203) | -3.771** (-2.455) | -4.398*** (-3.212) |
| Foreign ownership _{<i>t</i>-1} | - | -3.087*** (-2.803) | -3.654*** (-2.611) | -4.316*** (-2.861) | -3.203** (-2.430) |
| Director ownership _{<i>t</i>-1} | - | -1.839 (-1.643) | -2.848** (-2.219) | -2.993** (-2.288) | -2.053 (-1.639) |
| Corporate ownership _{<i>t</i>-1} | +/- | 0.237 (0.473) | -0.240 (-0.405) | -0.278 (-0.506) | -0.160 (-0.279) |
| Financial ownership _{<i>t</i>-1} | +/- | 0.614 (0.765) | -0.496 (-0.548) | -0.245 (-0.272) | 0.356 (0.388) |
| Loan _{<i>t</i>-1} | +/- | 2.160*** (4.270) | 2.660*** (5.080) | 2.486*** (4.476) | 1.875*** (3.419) |
| Asset _{<i>t</i>-1} | - | 0.157** (2.091) | 0.262*** (2.725) | 0.255*** (2.613) | 0.163* (1.833) |
| Bond _{<i>t</i>-1} | +/- | 2.115 (1.405) | 1.028 (0.640) | 0.744 (0.472) | 0.443 (0.255) |
| σ(CFO) _{<i>t</i>} | + | -0.465 (-0.495) | 0.327 (0.331) | 0.198 (0.201) | -0.247 (-0.217) |
| σ(Sales) _{<i>t</i>} | + | -2.673 (-1.009) | 0.253 (0.093) | -1.014 (-0.371) | -3.743 (-1.428) |
| Operating Cycle _{<i>t</i>} | + | 0.006 (0.041) | 0.069 (0.446) | -0.129 (-0.866) | 0.139 (0.942) |
| Losses _{<i>t</i>} | + | 1.241*** (4.385) | 0.916*** (2.775) | 0.849*** (2.713) | 1.664*** (5.400) |
| Capital Intensity _{<i>t</i>-1} | + | -0.906 (-1.559) | -0.126 (-0.232) | -0.717 (-1.242) | -0.237 (-0.423) |
| Market to Book _{<i>t</i>-1} | - | -0.502*** (-3.517) | -0.489*** (-2.682) | -0.490*** (-2.605) | -0.338** (-2.360) |
| Z score _{<i>t</i>} | + | -0.324 (-1.555) | -0.227 (-1.076) | -0.457** (-1.972) | -0.248 (-1.122) |
| First Section _{<i>t</i>} | +/- | -0.431** (-2.292) | -0.268 (-1.311) | -0.218 (-1.034) | -0.347* (-1.666) |
| Pseudo. R ² | | 0.073 | 0.091 | 0.081 | 0.089 |
| Obs | | 6,073 | 6,073 | 6,073 | 6,073 |

Table 7 (continued)

| Panel B: Beating/meeting last year's earnings | | | | | |
|---|---------------|---|--|--|---|
| Independent Variable | Expected Sign | RM4 (ACFO _t) Coefficient (z-value) | RM5 (ADISEXP _t) Coefficient (z-value) | RM6 (APROD _t) Coefficient (z-value) | AM2 (DA _t) Coefficient (z-value) |
| Constant | | -5.144*** (-4.283) | -5.180*** (-4.706) | -5.424*** (-4.753) | -3.862*** (-3.680) |
| Foreign ownership _{t-1} | - | -3.352*** (-3.307) | -1.930** (-2.450) | -3.579*** (-3.902) | -0.871 (-1.067) |
| Director ownership _{t-1} | - | -0.269 (-0.327) | -1.842** (-2.046) | -1.967** (-2.261) | 0.291 (0.333) |
| Corporate ownership _{t-1} | +/- | -0.041 (-0.093) | 0.195 (0.464) | -0.218 (-0.516) | 0.612 (1.430) |
| Financial ownership _{t-1} | +/- | 0.937 (1.337) | -0.126 (-0.181) | 0.384 (0.555) | 1.192* (1.773) |
| Loan _{t-1} | +/- | 0.580 (1.237) | 0.883** (2.275) | 1.045** (2.470) | 0.051 (0.111) |
| Asset _{t-1} | - | 0.187*** (2.781) | 0.214*** (3.424) | 0.210*** (3.367) | 0.002 (0.039) |
| Bond _{t-1} | +/- | -1.392 (-0.835) | -2.218 (-1.403) | -1.719 (-1.099) | -1.546 (-1.029) |
| $\sigma(\text{CFO})_t$ | + | -0.745 (-0.786) | -0.836 (-1.009) | -0.712 (-0.863) | 0.445 (0.466) |
| $\sigma(\text{Sales})_t$ | + | -3.099 (-0.970) | -0.422 (-0.178) | -2.307 (-0.838) | -6.125* (-1.903) |
| Operating Cycle _t | + | 0.204 (1.348) | 0.081 (0.628) | 0.092 (0.675) | 0.279** (2.123) |
| Losses _t | + | -0.944*** (-3.057) | -1.900*** (-5.753) | -1.378*** (-4.350) | -1.611*** (-4.926) |
| Capital intensity _{t-1} | + | -0.057 (-0.107) | 0.925* (1.908) | 0.586 (1.156) | 1.468*** (3.062) |
| Market to Book _{t-1} | - | -0.371*** (-3.004) | -0.185* (-1.902) | -0.242** (-2.179) | -0.016 (-0.207) |
| Z score _t | + | 0.070 (0.407) | 0.098 (0.601) | 0.237 (1.400) | -0.254 (-1.562) |
| First Section _t | +/- | -0.009 (-0.049) | -0.077 (-0.473) | 0.050 (0.289) | -0.003 (-0.017) |
| Pseudo. R ² | | 0.061 | 0.074 | 0.070 | 0.067 |
| Obs | | 6,073 | 6,073 | 6,073 | 6,073 |

Notes: Please see Appendix A for variable definitions. All models includes indicator variables for year (*Year dummy*) and industry (*Industry dummy*) respectively as control variables (unshowed). z-statistics are corrected for time-series correlation using a one-way cluster at the firm. *, **, *** Statistically significant at the 0.1, 0.05, and 0.01 levels of significance using a two-tailed z-test, respectively.

ciated with accrual based earnings management, indicating that growth firms are less likely to engage in real earnings management to avoid earnings decreases. We find the coefficients on the other control variables are generally not significant.

Next, we use path analysis to examine whether foreign ownership has both a direct effect on earnings management, as well as an indirect effect on earnings management through board independence. Table 8 shows that the direct path between foreign ownership and real earnings management to meet/beat zero earnings benchmark and the indirect path (via board independence) are negatively significant. Furthermore, while the direct path between foreign ownership and accrual-based earnings management to meet/beat zero earnings benchmark is negatively significant, the indirect path (through board independence) is not significant. These findings suggest that foreign ownership has a significant effect on earnings management, especially for real earnings management. Real earnings management may cause negative effects on cash flow in future periods, more than accrual earnings management. This would act as a motivation for foreign investor to engage in constraining real earnings management to a greater extent than accrual management. Overall, our inferences remain unchanged.

5.2. Robustness check

Our primary results provide evidence that monitoring by foreign owners significantly affects firm value. In this section, we offer some additional tests that serve as a robustness check. First, we repeat our analysis of foreign ownership and firm value for the 2000–2014 sample period to mitigate a potential sample selection bias with our primary sample. The results (untabulated) indicate that even when using the more extensive sample (12,670 firm-years), we find that foreign ownership is significantly positively associated with firm value. This suggests that our primary results are unlikely to be driven by sample selection bias.

Second, we also conduct a propensity-score matching analysis to control for functional form misspecification (Shipman, Swanquist, & Whited, 2017). We obtain the propensity scores from a logit model for whether the firm with *Foreign owner-*

Table 8
Direct and mediated earnings management effect of foreign ownership.

| Panel A: Earnings management measured as RM1 | | | |
|---|---------------|-----------------------|-----------------------|
| | Expected Sign | Coefficient (z-value) | Coefficient (z-value) |
| Direct Path | | | |
| $p[\text{Foreign ownership}_{t-1}, \text{RM1}_t]$ | - | -0.128*** (-4.603) | -0.100** (-2.479) |
| Mediated Path | | | |
| $p[\text{Foreign ownership}_{t-1}, \% \text{ Independent directors}_t]$ | + | 24.430*** (22.587) | 24.430*** (22.587) |
| $p[\% \text{ Independent directors}_t, \text{RM1}_t]$ | - | -0.001* (-1.853) | -0.001** (-2.477) |
| Control variables | | | |
| | | No | Yes |
| Direct effect of <i>Foreign ownership</i> _{t-1} on <i>RM1</i> _t | | -0.128 | -0.100 |
| Indirect effect of <i>Foreign ownership</i> _{t-1} on <i>RM1</i> _t | | -0.014 | -0.020 |
| Total effect of <i>Foreign ownership</i> _{t-1} on <i>RM1</i> _t | | -0.142 | -0.120 |
| The direct component of total effect | | 0.899 | 0.835 |
| Obs | | 6,007 | 6,007 |
| Panel B: Earnings management measured as RM2 | | | |
| Direct Path | | | |
| $p[\text{Foreign ownership}_{t-1}, \text{RM2}_t]$ | - | -0.110*** (-4.160) | -0.113*** (-2.922) |
| Mediated Path | | | |
| $p[\text{Foreign ownership}_{t-1}, \% \text{ Independent directors}_t]$ | + | 24.430*** (22.587) | 24.430*** (22.587) |
| $p[\% \text{ Independent directors}_t, \text{RM2}_t]$ | - | -0.000 (-1.524) | -0.001* (-1.914) |
| Control variables | | | |
| | | No | Yes |
| Direct effect of <i>Foreign ownership</i> _{t-1} on <i>RM2</i> _t | | -0.110 | -0.113 |
| Indirect effect of <i>Foreign ownership</i> _{t-1} on <i>RM2</i> _t | | -0.000 | -0.015 |
| Total effect of <i>Foreign ownership</i> _{t-1} on <i>RM2</i> _t | | -0.111 | -0.127 |
| The direct component of total effect | | 0.996 | 0.885 |
| Obs | | 6,007 | 6,007 |
| Panel C: Earnings management measured as RM3 | | | |
| Direct Path | | | |
| $p[\text{Foreign ownership}_{t-1}, \text{RM3}_t]$ | - | -0.113*** (-4.179) | -0.128*** (-3.248) |
| Mediated Path | | | |
| $p[\text{Foreign ownership}_{t-1}, \% \text{ Independent directors}_t]$ | + | 24.430*** (22.587) | 24.430*** (22.587) |
| $p[\% \text{ Independent directors}_t, \text{RM3}_t]$ | - | -0.001** (-2.010) | -0.001*** (-2.590) |
| Control variables | | | |
| | | No | Yes |
| Direct effect of <i>Foreign ownership</i> _{t-1} on <i>RM3</i> _t | | -0.113 | -0.128 |
| Indirect effect of <i>Foreign ownership</i> _{t-1} on <i>RM3</i> _t | | -0.015 | -0.020 |
| Total effect of <i>Foreign ownership</i> _{t-1} on <i>RM3</i> _t | | -0.128 | -0.148 |
| The direct component of total effect | | 0.881 | 0.864 |
| Obs | | 6,007 | 6,007 |
| Panel D: Earnings management measured as AM1 | | | |
| Direct Path | | | |
| $p[\text{Foreign ownership}_{t-1}, \text{AM1}_t]$ | - | -0.102*** (-4.113) | -0.081** (-2.237) |
| Mediated Path | | | |
| $p[\text{Foreign ownership}_{t-1}, \% \text{ Independent directors}_t]$ | + | 24.430*** (22.587) | 24.430*** (22.587) |
| $p[\% \text{ Independent directors}_t, \text{AM1}_t]$ | - | -0.000 (-1.287) | -0.000 (-1.589) |
| Control variables | | | |
| | | No | Yes |
| Direct effect of <i>Foreign ownership</i> _{t-1} on <i>AM1</i> _t | | -0.102 | -0.081 |
| Indirect effect of <i>Foreign ownership</i> _{t-1} on <i>AM1</i> _t | | -0.008 | -0.011 |
| Total effect of <i>Foreign ownership</i> _{t-1} on <i>AM1</i> _t | | -0.111 | -0.092 |
| The direct component of total effect | | 0.919 | 0.877 |
| Obs | | 6,007 | 6,007 |

Notes: The table reports path analysis of the direct and indirect (board structure) links between foreign ownership and earnings management. *p* indicates path coefficients Please see Appendix A for variable definitions. *, **, *** Statistically significant at the 0.1, 0.05, and 0.01 levels of significance using a z-test, respectively.

$ship_{t-1}$ is above the sample median (*Foreign ownership dummy*). The explanatory variables are the same as in our firm value model (3), except for *Estimated foreign ownership* $_{t-1}$. We employ one to one matching without replacement and require matches to have a maximum caliper difference of 0.03. In untabulated tests, we find that the coefficient on *Foreign ownership dummy* is significantly positively associated with firm value. Thus, our results remain robust to use of a propensity-score matched sample.

6. Conclusion

We provide evidence on the effects of foreign ownership on the appointment of independent directors and firm value for a sample of Japanese firms. We find using 2SLS estimation that foreign ownership is significantly positively related to the number and percentage of independent directors. Using path analysis, we also find foreign ownership affects firm value through improved monitoring. Furthermore, we find using Logit regressions that foreign ownership is significantly negatively related to benchmark beating using both accrual and real earnings management. We also find foreign ownership affects earnings management via independent board. To our knowledge, prior work has not examined whether foreign investors improve monitoring of managers and whether this in turn increases firm value in Japan.

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Appendix A. Variable definitions

| Variable name | Description |
|---------------------------------------|--|
| Board characteristic variables | |
| % Independent directors | = Percentage of independent directors on the board |
| Ownership variables | |
| Director ownership | = Ratio of the shares owned by all directors and auditors to total outstanding shares |
| Corporate ownership | = Ratio of the shares owned by other companies to total outstanding shares |
| Foreign ownership | = Ratio of the shares owned by foreign companies to total outstanding shares |
| Financial ownership | = Ratio of the shares owned by financial institution (i.e., bank) to total outstanding shares |
| Estimated foreign ownership | = Estimated foreign ownership variable using the model (1) |
| Foreign ownership 2009 | = Ratio of the shares owned by foreign companies to total outstanding shares in 2009 |
| Firm value variables | |
| Tobin's Q | = Ratio of the sum of market value of equity plus the sum of book value of interest-bearing liabilities divided by the sum of book value of equity plus the sum of book value of interest-bearing liabilities. The interest-bearing liabilities is the sum of book value of loan, bond, commercial paper, and lease obligations. |
| Earnings management variables | |
| ACFO | = Abnormal cash flows from operations estimated by the residual from the regression model (5). |
| ADISEXP | = Abnormal discretionary expense estimated by the residual from the regression model (6). |
| APROD | = Abnormal production costs estimated by the residual from the regression model (7). |
| RM1 | = An indicator variable that takes the values of one for firm-years with net income over lagged total assets between 0 (inclusive) and 0.007 (exclusive), and abnormal cash flows from operations (ACFO) are negative, and zero otherwise. |

(continued on next page)

Variable definitions (continued)

| Variable name | Description |
|--------------------------------------|--|
| RM2 | = An indicator variable that takes the values of one for firm-years with net income over lagged total assets between 0 (inclusive) and 0.007 (exclusive), and abnormal discretionary expense (<i>ADISEXP</i>) are negative, and zero otherwise. |
| RM3 | = An indicator variable that takes the values of one for firm-years with net income over lagged total assets between 0 (inclusive) and 0.007 (exclusive), and abnormal production costs (<i>APROD</i>) are positive, and zero otherwise. |
| RM4 | = An indicator variable that takes the values of one for firm-years with change in net income deflated by lagged total assets between 0 (inclusive) and 0.005 (exclusive), and abnormal cash flows from operations (<i>ACFO</i>) are negative, and zero otherwise. |
| RM5 | = An indicator variable that takes the values of one for firm-years with change in net income deflated by lagged total assets between 0 (inclusive) and 0.005 (exclusive), and abnormal discretionary expense (<i>ADISEXP</i>) are negative, and zero otherwise. |
| RM6 | = An indicator variable that takes the values of one for firm-years with change in net income deflated by lagged total assets between 0 (inclusive) and 0.005 (exclusive), and abnormal production costs (<i>APROD</i>) are positive, and zero otherwise. |
| DA | = Discretionary accruals estimated as the residual from the regression model (4). |
| AM1 | = An indicator variable that takes the values of one for firm-years with net income over lagged total assets between 0 (inclusive) and 0.007 (exclusive), and discretionary accruals (<i>DA</i>) are positive, and zero otherwise. |
| AM2 | = An indicator variable that takes the values of one for firm-years with change in net income deflated by lagged total assets between 0 (inclusive) and 0.005 (exclusive), and discretionary accruals (<i>DA</i>) are positive, and zero otherwise. |
| Firm characteristic variables | |
| Loan | = Sum of short and long loan divided by total assets |
| Asset | = Log of book value of total assets |
| Bond | = Sum of short and long bond divided by total assets |
| ROA | = Ratio of net income to total assets at the beginning of fiscal year. |
| Volatility | = Standard deviation of monthly stock returns over the 12-month period of the firm's fiscal year |
| R&D | = Research and development expense deflated by total assets at the beginning of fiscal year |
| Intangible Assets | = Ratio of the book value of intangible assets to total assets at the beginning of fiscal year. |
| Log (Firm Age) | = Log of firm age where firm age is the difference between the year when the firm is incorporated and the current fiscal year. |
| Cash | = Cash deflated by total assets at the beginning of the year. |
| First Section | = An indicator variable that takes a value of one if firm listed with first section of the Tokyo Stock Exchange (TSE), and zero otherwise (i.e., firm listed with second section of the TSE). |
| $\sigma(\text{CFO})$ | = Standard deviation of the cash flow from operations deflated by average total assets over the years $t-5$ to $t-1$. |
| $\sigma(\text{Sales})$ | = Standard deviation of the sales deflated by average total assets over the years $t-5$ to $t-1$. |
| Operating Cycle | = Log of the sum of a firm's days accounts receivable (accounts receivable/sales/360) and days inventory (inventory/costs of goods sold/360). |
| Losses | = Proportion of losses from years $t-5$ to $t-1$. |
| Capital Intensity | = Ratio of the book value of property, plant, and equipment (PP&E) to the total assets at the end of fiscal year. |
| Market to Book | = Ratio of market value of equity to book value of equity. |
| Z score | = Z-score, computed using Altman (1968) model. |

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