Foreign Institutional Ownership and the Speed of Leverage Adjustment: International Evidence*

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Abstract

Employing a large sample of 7246 firms across 38 economies from 2000 to 2013, we show a positive relation between foreign institutional ownership (*FIO*) and firms' speed of leverage adjustment. This positive relation is concentrated for over-leveraged firms that need to decrease financial leverage to rebalance their capital structures. We validate our findings using a 2SLS regression and a DiD estimation to exploit the exogenous variations in *FIO* generated by the inclusion of MSCI membership and the passage of the JGTRRA. These results suggest that foreign institutional investors play an important monitoring role in mitigating agency conflicts between shareholders and managers. Overall, this paper lends support to the dynamic trade-off theory.

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1. Introduction

Along with the accelerated pace of globalization, foreign capital is becoming an increasingly important source of financing in both developed and developing economies (Bekaert, Harvey, and Lumsdaine, 2002). According to the coordinated portfolio investment survey, equity investments by foreign institutional investors (FIIs) reached US$6.4 trillion in 2013, which is eight times larger than that in 2002 (IMF, 2019). By holding a large amount of capital across the world, FIIs play a vital monitoring role in corporations worldwide (Ferreira and Matos, 2008). Recent literature has paid considerable attention to FIIs' monitoring roles by focusing on their impacts on firms' investment decisions from various perspectives.[1] However, little is known about whether FIIs can exert their monitoring roles to influence firms' financing decisions. This paper aims to fill this void by exploring whether and how FIIs influence increasingly important financing decisions about capital structure dynamics, particularly firms' leverage adjustment decisions.

The recent literature on capital structure has paid substantial attention to firms' leverage adjustment decisions.[2] Dynamic trade-off theory suggests that firms adjust their financial leverage toward the target only if the benefits outweigh the costs of rebalancing their capital structures (Fischer, Heinkel, and Zechner, 1989; Goldstein, Ju, and Leland, 2001; Strebulaev, 2007). Morellec, Nikolov, and Schürhoff (2012) develop a dynamic trade-off model to examine the importance of shareholder-manager conflicts in firms' capital structure decisions, suggesting that agency conflicts have first-order effects on capital structure dynamics.

In this paper, we posit that FIIs play an important monitoring role that can mitigate agency conflicts between shareholders and managers, thereby increasing the speed of the leverage adjustment (SOA). Gillan and Starks (2003) suggest that FIIs monitor corporate managers by

[1] For example, Ferreira, Massa, and Matos (2010) show that FIIs facilitate cross-border mergers and acquisitions by building bridges and reducing information asymmetry between the bidder and the target. Boubakri, Cosset, and Saffar (2013) use a sample of newly privatized firms and show that FIIs prompt risk-averse managers to make riskier investments that enhance firm value. Furthermore, Luong, Moshirian, Nguyen, Tian, and Zhang (2017) document that higher FII ownership is related to a higher level of innovation output. Bena, Ferreira, Matos, and Pires (2017) show that FIIs promote firms' long-term investments in tangible, intangible, and human capital. In addition, Chen, El Ghoul, Guedhami, and Wang (2017) show that FIIs strengthen firms' investment-*q* sensitivity, thus increasing their investment efficiency.

[2] See Fama and French (2002), Leary and Roberts (2005), Flannery and Rangan (2006), Byoun (2008), Faulkender, Flannery, Hankins, and Smith (2012), and Öztekin and Flannery (2012), among many others.

influencing firms' corporate governance practices through both direct and indirect interventions.[3] In a multi-country setting, Aggarwal, Erel, Ferreira, and Matos (2011) show that FIIs from countries with stronger shareholder protection promote substantial governance improvements of investee firms in weaker-governance countries.[4] FIIs also play a role in improving corporate transparency by demanding more transparent corporate disclosure. For example, prior studies have shown that FIIs prompt firms to hire big-four auditors (Guedhami, Pittman, and Saffar, 2009; Kim, Pevzner, and Xin, 2019), improve accounting comparability (Fang, Maffett, and Zhang, 2015), restrain earnings management (Lel, 2019), and improve voluntary disclosure (Tsang, Xie, and Xin, 2019). Therefore, the improved corporate governance practices and more transparent corporate disclosure imposed by FIIs could mitigate agency conflicts between shareholders and managers and reduce adjustment costs (Myers, 1984; Myers and Majluf, 1984), thereby increasing firms' SOA.

Prior literature has suggested that debt plays a disciplinary role by reducing the amount of free cash flow available for managerial discretion (Jensen and Meckling, 1976; Jensen, 1986). Moreover, higher financial leverage is also associated with greater bankruptcy risk. As effective external monitors, FIIs could serve as substitutes for debt in disciplining managers' self-interested actions, thus preferring prefer lower debt levels to avoid bankruptcy risk (Kang and Stulz, 1997; Li, Yue, and Zhao, 2009, Bamiatzi, Efthyvoulou, and Jabbour, 2017). Therefore, one may expect that FIIs' positive impact on firms' SOA is strengthened for over-leveraged firms that rebalance their capital structures by lowering their financial leverage.

We employ a large sample of 7246 firms (i.e., 79,702 firm-year observations) across 38 economies from 2000 to 2013 and show that FII ownership is positively related to firms' SOA. This positive relation is concentrated for over-leveraged firms that need to decrease financial leverage to adjust toward the target. Further analyses reveal that our results are mainly driven by independent, long-horizon, and concentrated FIIs, which play a stronger monitoring role than other

[3] FIIs can directly intervene in firms' corporate governance practices through their large presence in the markets. In addition, the indirect supply-demand effects can also lead to improved corporate governance (Gillan and Starks, 2003). For example, prior literature shows that U.S. mutual funds tend to invest more in local firms with better corporate governance practices or foreign firms in countries with better shareholder protection (Aggarwal, Klapper, and Wysocki, 2003). Thus, domestic firms improve their corporate governance to make them more attractive to foreign investors.

[4] For example, BusinessWeek (2006) reported that Fidelity Investments, a U.S.-based financial services company, is acquiescent on governance issues locally but more aggressive in its European investee firms.

types of institutions, indicating that the impact of FIIs on firms' SOA is achieved through the monitoring channel. Furthermore, we show that FIIs help over-leveraged firms issue equity to adjust their financial leverage toward the target. Additional analyses show that FIIs from countries with stronger shareholder protection significantly increase the SOA of over-leveraged firms, particularly for investee firms from countries with weaker shareholder protection. These findings suggest that, regarding the governance-enhancing role of FIIs, the shareholder protection of both the investee countries and the home countries of FIIs matters. This evidence further supports the findings of Aggarwal, Erel, Ferreira, and Matos (2011) that FIIs are the main catalysts that facilitate the global transfer of corporate governance from the perspective of capital structure dynamics. In addition, our results are robust when employing alternative model specifications (i.e., reduced-form model), alternative samples (i.e., subsamples excluding the United States (U.S.) firms or both U.S. and Japanese firms and subsamples of firms from developed or developing economies), and alternative definitions of financial leverage (i.e., market leverage).

Our results remain valid in tests that address the potential endogeneity problem, including a two-stage least squares (2SLS) regression and a difference-in-differences (DiD) estimation. Specifically, we employ membership in the Morgan Stanley Capital International All Country World Index (MSCI ACWI) as an instrumental variable for FII ownership in the 2SLS regression. The MSCI ACWI is designed to measure the performance of the global equity market, and FIIs rely on it as a benchmark when constructing their portfolios. It is reasonable to believe that MSCI membership is unlikely to directly influence firms' leverage adjustment decisions because it relies solely on a firm's free-float-adjusted market capitalization ranking within a country. Thus, the inclusion of MSCI membership creates exogenous variations in FII ownership.

In addition, we employ the DiD estimation to exploit the exogenous variations in foreign ownership by U.S. institutions generated by the passage of the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) in 2003. The JGTRRA is designed to lower dividend tax rates, from 38.6% to 15%, for firms domiciled in economies that have tax treaties with the U.S. After 2003, the dividend-paying firms in economies that have tax treaties with the U.S. became more attractive to U.S. FIIs relative to those in nontreaty economies. Therefore, the passage of the JGTRRA generates plausibly exogenous variations in foreign ownership by U.S. institutions in tax-treaty economies. The supporting results from the 2SLS regression and DiD estimation suggest that our findings are unlikely to be subject to the endogeneity problem.

This paper contributes to the literature in three ways. First, this paper illustrates the monitoring role of FIIs from a new perspective. Prior literature has studied the monitoring role of FIIs by focusing on their impacts on firms' investment decisions from the perspectives of cross-border mergers and acquisitions (Ferreira, Massa, and Matos, 2010), corporate risk-taking (Boubakri, Cosset, and Saffar, 2013), innovation output (Luong, Moshirian, Nguyen, Tian, and Zhang, 2017), long-term investments (Bena, Ferreira, Matos, and Pires, 2017), and investment efficiency (Chen, El Ghoul, Guedhami, and Wang, 2017). This paper examines whether and how FIIs exert their monitoring roles in influencing firms' financing decisions, thereby complementing the existing literature that focuses on the impact of FIIs on firms' investment decisions.

Second, this paper contributes to the literature on how FIIs promote the governance improvements of investee firms across the world. For example, Aggarwal, Erel, Ferreira, and Matos (2011) show that FIIs from countries with stronger shareholder protection bring substantial improvements to the corporate governance of investee firms. In addition, recent studies provide empirical evidence that FIIs promote the global convergence of financial reporting practices (Fang, Maffett, and Zhang, 2015), demand that investee firms hire big-four auditors (Guedhami, Pittman, and Saffar, 2009; Kim, Pevzner, and Xin, 2019), and disclose information in a transparent manner (Lel, 2018; Tsang, Xie, and Xin, 2019). We supplement the existing literature by providing evidence that FIIs from countries with stronger shareholder protection can provide monitoring by affecting firms' SOA decisions, particularly for over-leveraged investee firms from countries with weaker shareholder protection. These findings highlight the unique role that FIIs play in affecting firms' SOA in an international context. That is, FIIs positively influence the SOA of investee firms, and this effect is more pronounced for firms in countries with weaker corporate governance through the corporate governance transfer of FIIs' home countries. Hence, we provide a new channel through which FIIs promote improvements in governance throughout the world.

Third, the recent literature on capital structure has studied the determinants of the SOA from various perspectives that affect firms' adjustment costs. For example, prior studies have suggested that firms' SOA is influenced by financial conditions and cash flow features (Byoun 2008; Faulkender, Flannery, Hankins, and Smith, 2012), macroeconomic conditions (Cook and Tang, 2010), country-level institutions (Öztekin and Flannery, 2012; Çolak, Gungoraydinoglu, and Öztekin, 2018), equity mispricing (Warr, Elliott, Koeter-Kant, and Öztekin, 2012), internal capital markets (Fier, McCullough, and Carson, 2013), credit lines (Lockhart, 2014), corporate

governance (Chang, Chou, and Huang, 2014; Liao, Mukherjee, and Wang, 2015),[5] information asymmetry (An, Li, and Yu, 2015), business cycle (Halling, Yu, and Zechner, 2016), cost of equity (Zhou, Tan, Faff, and Zhu, 2016), debt covenants (Devos, Rahman, and Tsang, 2017), and media coverage (Dang, Dang, Moshirian, Nguyen, and Zhang, 2019). Following this strand of research, we posit that FIIs help firms adjust their financial leverage toward the target, thereby supplementing the existing literature that studies the determinants of the SOA.

The study that most resembles our paper is by Do, Lai, and Tran (2019), which shows that foreign investors help reduce leverage adjustment costs, thereby leading to a faster SOA. Our paper differs from theirs in the following aspects. First, our samples contain firms from 38 economies, whereas their sample includes only firms in Taiwan. FIIs play an increasingly important monitoring role globally, along with the integration of the global financial market. Our international sample allows us to investigate the role of FIIs on firms' SOA in an international setting, thereby providing guidelines for academia and practitioners in emerging markets and developed economies. Second, we use the multiple-country setting and document how FIIs' home countries' corporate governance can "travel" to investee firms through FIIs' roles in affecting firms' financing decisions. Our results show that, when FIIs' home countries have strong shareholder protection, the role of these FIIs in accelerating firms' SOA is strengthened, particularly for over-leveraged investee firms from countries with weaker shareholder protection. These findings further confirm the findings in Aggarwal, Erel, Ferreira, and Matos (2011) on "governance travel." Third, although Do, Lai, and Tran (2019) use lagged independent variables, their approach may still contain serious endogeneity problems. We address the potential endogeneity concerns using the 2SLS regression and the DiD estimation. Thus, our results are more robust and convincing. Fourth, Do, Lai, and Tran (2019) do not discuss and examine the channel through which FIIs can influence firms' SOA. We design and explicitly examine the monitoring role of FIIs in determining the SOA.

[5] Chang, Chou, and Huang (2014) employ the G-index and E-index as corporate governance measures and show that firms with weak governance slowly adjust their financial leverage toward the target. In addition, Liao, Mukherjee, and Wang (2015) show that the SOA is faster for firms with a more independent board (i.e., CEO-chairman separation and a stronger presence of outside directors) but slower for firms with a higher degree of managerial entrenchment. Although these two empirical studies are related to ours, the focus of our paper differs. Specifically, these two studies use various governance measures to suggest that firms' SOA decisions are influenced by the quality of their corporate governance policies. Instead, we argue that, as an external monitor for a firm, FIIs play an important role in influencing these corporate governance policies, in turn increasing the SOA.

In particular, we show that only independent, long-horizon, and concentrated FIIs—that play a stronger monitoring role—can increase firms' SOA.

The remainder of this paper is organized as follows. Sections 2 and 3 discuss hypotheses development and empirical design. Section 4 describes the data and the sample. Section 5 presents the empirical results and robustness tests. Section 6 concludes the paper.

2. Hypotheses Development

Since the irrelevance proposition of Modigliani and Miller (1958), a large body of research has focused on how firms adjust financial leverage in coordination with their operations and investments. One central argument revolves around whether an optimal level of financial leverage exists that maximizes firm value. On the one hand, trade-off theory posits that firms' financial leverage is determined by the trade-off between the tax shields and the deadweight costs of bankruptcy (or financial distress) (Jensen and Meckling, 1976; Jensen, 1986). This theory suggests that firms have leverage targets and move toward these targets in the long run. On the other hand, pecking-order theory argues that firms issue debt when internal finances are depleted, whereas equity is the least preferred financing channel because of the adverse selection costs. However, pecking-order theory does not determine an optimal level of financial leverage (Myers, 1984; Myers and Majluf, 1984).

Most recent empirical studies tend to support trade-off theory, suggesting that firms have leverage targets and adjust their financial leverage toward these targets when they deviate from these optimums (Leary and Roberts, 2005; Flannery and Rangan, 2006; Harford, Klasa, and Walcott, 2009; Huang and Ritter, 2009). However, the speed at which these targets are reached is unexpectedly slow (Fama and French, 2002). Dynamic trade-off theory suggests that adjustment costs (i.e., transaction costs) impede firms from adjusting their financial leverage toward the target. Specifically, firms adjust their financial leverage toward the target only if the benefits outweigh the costs of rebalancing their capital structures (Fischer, Heinkel, and Zechner, 1989; Goldstein, Ju, and Leland, 2001; Strebulaev, 2007). Specifically, the higher capital costs arising from more severe agency conflicts between shareholders and managers hamper firms from adjusting their debt and equity levels to rebalance their capital structures. In addition, Morellec, Nikolov, and Schürhoff (2012) suggest that agency conflicts between shareholders and managers have first-

order effects on managerial decisions in capital structure dynamics. Therefore, mitigating agency conflicts becomes a key concern in optimizing firms' SOA decisions.

The recent literature suggests that FIIs play an important monitoring role in mitigating agency conflicts between shareholders and managers. Compared with domestic institutional investors (DIIs), who are likely to have loyalty concerns because of existing business relationships with local firms, FIIs take a more independent and active stance in exerting their monitoring roles (Gillan and Starks, 2003). These features allow FIIs to be less tolerant of managerial actions that hurt shareholders' interests and impose pressures on managers. Specifically, FIIs could exert their monitoring roles by actively using their voting rights, meeting with management, or threatening to sell their shares (Ferreira and Matos, 2008). In an international context, Aggarwal, Erel, Ferreira, and Matos (2011) show that FIIs from countries with stronger shareholder protection can play a governance-enhancing role at investee firms. Morellec, Nikolov, and Schürhoff (2012) develop a dynamic trade-off model that incorporates agency conflicts into firms' capital structure choices, suggesting that corporate governance matters in affecting capital structure dynamics. Moreover, Chang, Chou, and Huang (2014) and Liao, Mukherjee, and Wang (2015) provide empirical evidence that better-quality corporate governance policies are related to a faster SOA.

In addition, the recent literature largely supports the view that FIIs can facilitate more transparent corporate disclosures from the perspectives of hiring big-four auditors (Guedhami, Pittman, and Saffar, 2009; Kim, Pevzner, and Xin, 2019), supporting the global convergence of accounting standards (Fang, Maffett, and Zhang, 2015), restraining earnings management (Lel, 2019), and improving voluntary disclosure (Tsang, Xie, and Xin, 2019). These disclosure improvements reduce information asymmetry and, in turn, lead to a lower cost of external financing (Myers, 1984; Myers and Majluf, 1984). In a recent study, Kacperczyk, Sundaresan, and Wang (2020) show that higher FII ownership can reduce the cost of capital and increase the informativeness of stock prices. A lower cost of capital allows firms to access the capital market more frequently and to be involved in capital actions at a larger magnitude, thereby facilitating firms' rebalancing of their capital structures.

Collectively, the improvements in governance and disclosure imposed by FIIs could mitigate agency conflicts between shareholders and managers, thereby reducing adjustment costs and, ultimately, increasing firms' SOA. In summary, we develop the following hypothesis.

Hypothesis 1 (H1): *FIIs' ownership is significantly and positively related to the SOA of investee firms.*

One notable effect of debt in corporate finance is its disciplinary role. In particular, debt limits managerial flexibility by reducing the amount of free cash flow available for managerial discretion, which hurts shareholders' interests (Jensen and Meckling, 1976; Jensen, 1986). However, higher financial leverage is also associated with greater bankruptcy risk, which puts shareholders in significant danger. As previously discussed, FIIs play an important monitoring role in mitigating agency conflicts between shareholders and managers, thus possibly serving as substitutes for debt when disciplining managers' self-interested actions. Therefore, FIIs should prefer lower financial leverage to avoid the bankruptcy risk associated with debt (Kang and Stulz, 1997; Li, Yue, and Zhao, 2009; Bamiatzi, Efthyvoulou, and Jabbour, 2017). This feature has a direct implication for over-leveraged firms that adjust financial leverage toward the target by lowering their leverage ratios. In particular, FIIs should be pleased with the leverage reduction of over-leveraged firms when rebalancing their capital structures. That is, the positive relation between ownership by FIIs and the SOA is expected to be strengthened for over-leveraged firms.[6] Thus, we develop the following hypothesis.

Hypothesis 2 (H2): *The positive relation between FII ownership and the SOA is concentrated for over-leveraged firms.*

3. Empirical Design

The two-step partial adjustment model has been widely used in prior studies to examine the SOA (Hovakimian, Opler, and Titman, 2001; Fama and French, 2002; Hovakimian and Li, 2011; Öztekin and Flannery, 2012). As our primary approach, we adopt this model, which allows firms' SOA to be time-variant and dependent on firm, industry, and country characteristics. Thus, we are

[6] How debtholders perceive FIIs' interference in firms' SOA decisions remains unclear. On the one hand, FIIs' interference may not be appreciated by debtholders because shareholders tend to increase the riskiness of investee firms, which runs counter to the interests of debtholders. In particular, shareholders have incentives to shift firm investments from low- to high-risk projects, potentially extracting value from debtholders who have a fixed rate of claims regardless of the risk taken by the firm (Jenson and Meckling, 1976). Shareholders could impose stronger governance practices to facilitate managers' engagement in riskier but value-enhancing investments (John, Litov, and Yeung, 2008). Meanwhile, such governance improvements facilitate firms' rebalancing of their capital structures, potentially by incorporating it with riskier investment opportunities. On the other hand, FIIs interfere in over-leveraged firms' SOA decisions by reducing their financial leverage. Such interference should be appreciated by debtholders because it significantly reduces firms' bankruptcy risk associated with excessive debt.

able to assess the impact of FIIs on the SOA in a panel-regression framework. In the first step, we regress financial leverage on a set of leverage determinants and extract its fitted value as a proxy for the unobserved target leverage. Then, we use the target leverage obtained in the first step to estimate the partial adjustment model in the second step. This approach is described in detail as follows.

3.1 Target Leverage

The empirical literature on capital structure suggests that financial leverage is determined by a set of firm and industry characteristics (Rajan and Zingales, 1995; Fama and French, 2002; Flannery and Rangan, 2006; Frank and Goyal, 2009). To estimate the target leverage, we first regress the current period financial leverage (*LEV*) on a set of widely used leverage determinants in the previous year. The model is as follows:

$$LEV_{i,t} = \boldsymbol{\gamma} \boldsymbol{X}_{\boldsymbol{i,t-1}} + f_i + y_t + \varepsilon_{i,t}, \quad (1)$$

where *i* and *t* denote firm and year, respectively. *LEV* is book leverage, which is calculated as the ratio of the book value of debt to the book value of assets.[7] $\boldsymbol{X}$ is a vector of firm- and industry-level variables, including firm size (*SIZE*), tangibility (*TANG*), market-to-book ratio (*MTB*), profitability (*PROF*), depreciation (*DEP*), R&D expense (*RDEXP*), R&D dummy (*RD_DUM*), and industry leverage ratio (*LEV_IND*). $\boldsymbol{\gamma}$ is a vector of the corresponding coefficient estimates. All variables are defined in Appendix A. To capture the unobserved heterogeneity across firms and years, we include firm- and year-fixed effects (i.e., f_i and y_t) in the model (Lemmon, Roberts, and Zender, 2008). We estimate Equation (1) for each country to allow heterogeneous coefficients across our sampled countries. Then, we extract the fitted value of Equation (1) as a proxy for the unobserved target leverage (*TL*):

[7] We use book leverage as our primary measure of leverage. In a survey study, Graham and Harvey (2001) suggest that firms are more concerned about financial flexibility and credit ratings when issuing debt and do not adjust financial leverage in response to changes in the market value of equity. Welch (2004) shows that the variations in market leverage caused by stock price movements are long-lasting and that firms do little to counteract the influence of stock price fluctuations on financial leverage. A recent study by Yin and Ritter (2019) argues that existing SOA studies using market leverage are subject to a substantial upward bias due to the passive influence of stock price movements. They control for this bias and show that the actual market SOA is less than half of the biased market SOA. In a robustness test, we generate similar results when using market leverage (i.e., the ratio of the book value of debt to the sum of the market value of equity and the book value of debt); however, the estimated impact of *FIO* on the SOA is larger than that of the baseline regression using book leverage.

$$TL_{i,t} = \boldsymbol{\gamma X_{i,t-1}} + f_i + y_t. \quad (2)$$

3.2 Partial Adjustment Model

In the second step, we use the target leverage obtained in Equation (2) to estimate a partial adjustment model, which is as follows (Öztekin and Flannery, 2012):

$$LEV_{i,t} - LEV_{i,t-1} = \lambda\left(TL_{i,t} - LEV_{i,t-1}\right) + \delta_{i,t}. \quad (3)$$

In this model, the actual leverage adjustment ($LEV_{i,t} - LEV_{i,t-1}$) made by firms from years *t-1* to year *t* is modeled as a fraction of the target leverage adjustment ($TL_{i,t} - LEV_{i,t-1}$).[8] This model allows firms to move only partly toward their target leverage. The coefficient estimate, λ, measures the speed at which firms adjust their financial leverage toward the target from year *t-1* to year *t*. A higher value of λ indicates a faster SOA. However, this model assumes that all of the sample firms (e.g., in one country or with a similar institutional setting) adjust at a constant rate.

To examine the impact of FIIs on the SOA, we relax the assumption of a constant adjustment rate and allow the SOA to depend on firm, industry, and country characteristics (Öztekin and Flannery, 2012). We express λ as a function of FIIs' ownership to examine its impact on the SOA. The model is as follows:

$$\lambda_{i,t} = \beta_0 + \beta_1 FIO_{i,t-1} + \beta_2 DIO_{i,t-1} + \boldsymbol{\gamma X_{i,t-1}} + \boldsymbol{\eta Y_{j,t-1}}. \quad (4)$$

In this model, we control for domestic institutional ownership (*DIO*), the control variables used in Equation (1) (i.e., ***X***), and country-level variables (i.e., ***Y***). *FIO* (*DIO*) is the institutional ownership by foreign (domestic) institutional investors scaled by firms' market capitalization. $\boldsymbol{Y_{j,t-1}}$ represent the country-level variables of country *j* in year *t-1*, including GDP per capita (*GDPC*), market capitalization (*MCAP*), and GDP growth rate (*GGDP*) (Cook and Tang, 2010). The coefficient estimate, β_1 in Equation (4), measures the impact of *FIO* on the SOA.

We substitute Equation (4) into Equation (3) and rearrange to yield the following estimable specification:

[8] $TL_{i,t} - LEV_{i,t-1}$ is often called the leverage deviation from the target. In the following text, we denote it as $DLEV_{i,t-1}$ for brevity.

$$LEV_{i,t} - LEV_{i,t-1} = \beta_0 DLEV_{i,t-1} + \beta_1 FIO_{i,t-1} \times DLEV_{i,t-1} + \beta_2 DIO_{i,t-1} \times DLEV_{i,t-1} + \boldsymbol{\gamma X_{i,t-1}} \times DLEV_{i,t-1} + \boldsymbol{\eta Y_{j,t-1}} \times DLEV_{i,t-1} + c_j + ind_{ind} + y_t + \delta_{i,t}, \quad (5)$$

where $DLEV_{i,t-1}$ is the leverage deviation from the target ($TL_{i,t} - LEV_{i,t-1}$). The left-hand side of Equation (5) ($LEV_{i,t} - LEV_{i,t-1}$) is the actual leverage adjustment between year *t-1* and year *t*. The right-hand side of Equation (5) includes the interaction terms between $DLEV_{i,t-1}$ and each independent variable in Equation (4). In addition, we control for country-, industry-, and year-fixed effects (i.e., c_j, ind_{ind}, and y_t) in the model. By estimating Equation (5), we are able to obtain β_1, which captures the impact of *FIO* on the SOA. A positive and significant β_1 supports our **H1**. That is, a higher *FIO* is associated with a higher SOA.

To examine whether the impact of FIIs on the SOA is concentrated for over-leveraged firms, we include an over-leveraged dummy variable (*OL*) and its interaction terms with *FIO* and *DIO* in Equation (4). *OL* equals one if a firm's financial leverage is greater than the target leverage and zero otherwise (i.e., $DLEV_{i,t-1} < 0$). The model is as follows:

$$\lambda_{i,t} = \beta_0 + \beta_1 FIO_{i,t-1} + \beta_2 FIO_{i,t-1} \times OL_{i,t-1} + \beta_3 DIO_{i,t-1} + \beta_4 DIO_{i,t-1} \times OL_{i,t-1} + \beta_5 OL_{i,t-1} + \boldsymbol{\gamma X_{i,t-1}} + \boldsymbol{\eta Y_{j,t-1}}. \quad (6)$$

Similarly, we substitute Equation (6) into Equation (3) and rearrange to obtain the following estimable specification:

$$LEV_{i,t} - LEV_{i,t-1} = \beta_0 DLEV_{i,t-1} + \beta_1 FIO_{i,t-1} \times DLEV_{i,t-1} + \beta_2 FIO_{i,t-1} \times OL_{i,t-1} \times DLEV_{i,t-1} + \beta_3 DIO_{i,t-1} \times DLEV_{i,t-1} + \beta_4 DIO_{i,t-1} \times OL_{i,t-1} \times DLEV_{i,t-1} + \beta_5 OL_{i,t-1} \times DLEV_{i,t-1} + \boldsymbol{\gamma X_{i,t-1}} \times DLEV_{i,t-1} + \boldsymbol{\eta Y_{j,t-1}} \times DLEV_{i,t-1} + c_j + ind_{ind} + y_t + \delta_{i,t}. \quad (7)$$

A positive and significant β_2 supports our **H2**. That is, a positive relation between *FIO* and the SOA is concentrated for over-leveraged firms.

4. Data and Sample

The data used in this paper are obtained from several sources. In particular, firm-level accounting variables of our sample firms are collected from Worldscope. Country-level variables, such as GDP per capita, market capitalization, and GDP growth rate, are obtained from the World Development Indicator (WDI) of the World Bank. Institutional ownership data are collected from the FactSet (LionShares) database, which provides institutional ownership information for firms

worldwide. Country-level shareholder rights indices are extracted from La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) and Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008).

Our initial sample consists of all publicly listed firms recorded in Worldscope from 2000 to 2013. We apply several essential data filters to our initial sample. First, we exclude financial and utility firms that are subject to special regulations on capital structure policies (Flannery and Rangan, 2006). Then, we remove firms in economies with fewer than 100 firm-year observations. All continuous variables are winsorized at the 1st and 99th percentiles to reduce the effect of outliers. Finally, 79,702 firm-year observations exist in our sample, consisting of 7246 firms across 38 economies from 2000 to 2013.[9]

Table 1 reports the sample distribution and presents the number of years, number of firms, number of firm-year observations, and the means of *FIO* and *DIO* for each economy. Column 1 shows that our sample covers 14 years of data, from 2000 to 2013, for most economies. However, our sample covers only 9 and 11 years for firms in Poland and Russia, respectively, because the FactSet ownership data are missing in the first few years for these two countries. Regarding firm-year observations, Column 3 shows that our sample covers more observations of firms from developed economies than developing economies due to better data availability. Specifically, the U.S. and Japan contribute the highest number of observations to our sample (i.e., 15,400 and 16,221 firm-year observations, respectively).[10] Columns 4 and 5 show that the means of *FIO* and *DIO* vary across economies. For example, firms in Ireland have the highest average *FIO* (i.e., 14.1%), whereas firms in Pakistan have the lowest average *FIO* (i.e., 0.9%). Similar to prior studies, the U.S. firms have an average *FIO* of 3.5% but a much larger *DIO* (i.e., 48.4%) than the rest of the world.

[Insert Table 1]

Table 2 reports the descriptive statistics of the key variables used in the partial adjustment model and presents the number of observations, mean, standard deviation, 25th, 50th, and 75th percentile values of the firm-, industry-, and country-level variables. On average, 5.5% (14.5%) of

[9] Institutional ownership data are available from 1999 in the FactSet (LionShares) database. We use the one-year lagged institutional ownership variables as the independent variables in our regressions; thus, our sample starts from 2000.

[10] As a robustness check, we exclude firms from the U.S. or both the U.S. and Japan from our sample. The results are qualitatively unchanged, suggesting that our findings are less likely to be driven by firms from these two countries.

the equity of sample firms are held by FIIs (DIIs), which is consistent with prior studies (Aggarwal, Erel, Ferreira, and Matos, 2011; Bena, Ferreira, Matos, and Pires, 2017). An average sample firm finances 20.3% of its assets using debt, earns a 9.4% return on assets, and has a tangibility ratio of 29.7%, and a market-to-book ratio of 1.272. Among our sampled observations, 35.4% belong to over-leveraged firms. In addition, 17.4% of the firm-year observations in our sample belong to firms with MSCI membership. In general, the descriptive statistics of other firm, industry, and country characteristics resemble those in the literature.

[Insert Table 2]

Table 3 presents the correlation coefficients between financial leverage and its determinants in the model estimating the target leverage, as shown in Equation (1). Specifically, Table 3 shows that financial leverage is positively (negatively) related to *SIZE*, *TANG*, *DEP*, *RD_DUM*, and *LEV_IND* (*MTB*, *PROF*, and *RDEXP*). Overall, these results suggest that the independent variables in Equation (1) are less likely to be subject to a collinearity problem.

[Insert Table 3]

5. Empirical Results

5.1 Does Foreign Institution Ownership Increase the SOA?

Our main analysis is based on a two-step regression framework to estimate the partial adjustment model. In the first step, we regress the observed financial leverage on a set of leverage determinants for each country and then extract its fitted value as the target leverage. In the second step, we use the target leverage obtained in the first step regression to examine the impact of FIIs on the SOA by estimating the partial adjustment model shown in Equations (5) and (7).

Table 4 reports the ordinary least squares (OLS) regression results for the impact of FIIs on the SOA by estimating the partial adjustment model. The dependent variable is the actual leverage adjustment ($LEV_t - LEV_{t-1}$). All independent variables are multiplied by the leverage deviation from the target (*DLEV*). Column 1 shows that the coefficient estimate of *FIO* is not significant in the regression. However, we do not reject **H1** before we obtain the results from the 2SLS regression and DiD estimation because the OLS regression is likely subject to an endogeneity problem. Next, we examine whether FIIs can influence the SOA for over-leveraged firms, which are subject to higher bankruptcy risk than under-leveraged firms. We include an over-leveraged dummy variable,

OL, and its interactions with *FIO* and *DIO* (*FIO*×*OL* and *DIO*×*OL*) in the regression. Column 2 shows that *FIO* significantly increases the SOA for over-leveraged firms. The coefficient estimate (t-statistic) of *FIO*×*OL* is 0.152 (3.19). In terms of economic significance, for over-leveraged firms, a one-standard-deviation increase in *FIO* leads the SOA to increase by 1.2% (= 0.152 × 0.081), given that the standard deviation of *FIO* is 0.081. These results support our **H2**; that is, FIIs play a significant role in increasing the SOA for over-leveraged firms.

[Insert Table 4]

For under-leveraged firms (i.e., when *OL* = 0), FIIs' impacts on the SOA is reflected in the coefficient estimate of *FIO*. Column 2 of Table 4 shows that the coefficient estimate (t-statistic) of *FIO* is -0.074 (-3.08), indicating that *FIO* decreases the SOA for under-leveraged firms, potentially due to FIIs' bankruptcy risk concern as related to a higher leverage ratio. However, the results disappear in subsequent tests employing a 2SLS regression and DiD estimation (i.e., as shown in Column 3 of Table 5 and Column 4 of Panel B of Table 6), suggesting that our findings for under-leveraged firms do not hold when we consider the endogeneity issue. The inconsistent results of *FIO* on the SOA for under-leveraged firms suggest that FIIs' impacts on the SOA for under-leveraged firms are not robust and are inconclusive.

Regarding the impact of DIIs on firms' SOA, Table 4, Column 1 shows that the coefficient estimate of *DIO* is positive and significant, while Column 2 shows that the coefficient estimate of *DIO*×*OL* is positive and significant. The results are consistent in Table 5, which reports the 2SLS regression results. This result suggests that DIIs might also play a role in increasing the SOA, especially for over-leveraged firms. However, these results do not hold when we exclude U.S. firms from our sample. In a robustness test reported in Column 1 of Table 12, we find that the coefficient estimate of *DIO*×*OL* is insignificant when employing the non-U.S. subsample, suggesting that DIIs are less likely to play a role in affecting firms' leverage adjustment decisions in non-U.S. economies. Therefore, we focus on the impact of *FIO* on firms' SOA and treat *DIO* as a control variable.

5.2 Endogeneity Tests

Our results may be subject to an endogeneity problem. On the one hand, an unobserved factor may influence both *FIO* and the SOA, leading to the omitted variable concern. On the other hand, FIIs may prefer to invest in firms with certain characteristics that are associated with a faster adjustment

speed in financial leverage. Thus, our results may be subject to the reverse causality concern. To mitigate these endogeneity concerns, we employ (1) MSCI membership as an instrumental variable for *FIO* in the 2SLS regression and (2) a DiD estimation to exploit the exogenous variations in foreign ownership by U.S. institutions generated by the passage of the JGTRRA in the U.S. in 2003.

In our first identification strategy, we employ a widely used instrumental variable for *FIO*—membership in the MSCI ACWI—and conduct tests using the 2SLS regression (Aggarwal, Erel, Ferreira, and Matos, 2011; Luong, Moshirian, Nguyen, Tian, and Zhang, 2017). Ideally, a valid instrumental variable should be able to capture the variations in *FIO*, which are exogenous to firms' leverage adjustment decisions. The MSCI ACWI contains approximately 85% of the free-float-adjusted market capitalization in each economy and is designed to measure the performance of the global equity market. On the one hand, FIIs rely on the MSCI ACWI as a benchmark in their portfolio holdings, whereas DIIs tend to use the local index as a benchmark. Ferreira and Matos (2008) and Leuz, Lins, and Warnock (2010) both find that foreign investors tend to invest in firms with MSCI membership. On the other hand, the rule of inclusion in the MSCI ACWI relies solely on firms' free-float-adjusted market capitalization rankings within an economy. Thus, it is unlikely that the MSCI membership directly impacts firms' leverage adjustment decisions, making MSCI membership a valid instrument variable that generates exogenous variations in *FIO*. We define the instrumental variable, *MSCI*, as a dummy variable that equals one if a firm is included in the MSCI ACWI and zero otherwise.

We first assess the validity of the instrumental variable by regressing *FIO* on *MSCI* and the control variables used in the baseline regression. As shown in Column 1 of Table 5, in the first-stage regression, *MSCI* positively and significantly impacts *FIO*. The results at the bottom of Table 5 show that the *p-value* of the *F*-test of the instrumental variable is close to zero, suggesting that the instrumental variable, *MSCI*, is highly related to *FIO*. We use the rule of thumb with one instrument for one endogenous variable and reject the null hypothesis that the instrument is weak. Therefore, obtaining biased coefficient estimates and corresponding standard errors in the second-stage regression is unlikely.[11]

[11] A caveat of this identification strategy is that the exclusion restriction of our instrumental variable, *MSCI*, is inherently untestable. It is possible that the inclusion of MSCI membership increases the liquidity of firms' stocks,

[Insert Table 5]

Next, we extract the fitted *FIO* obtained in the first-stage regression (i.e., denoted by $\widehat{FIO}$) and examine its impact on the SOA in the second-stage regression. Column 2 shows that $\widehat{FIO}$ positively and significantly impacts the SOA. In the 2SLS regression, the coefficient estimate (t-statistic) of *FIO* is 0.306 (3.81). These results are not only statistically but also economically significant. Specifically, a one standard deviation increase in $\widehat{FIO}$ leads the SOA to increase by 1.4% (= 0.306 × 0.045), given that the standard deviation of $\widehat{FIO}$ is 0.045. This finding suggests that, after considering the endogeneity issue, our results support **H1**; that is, a higher *FIO* is associated with a faster SOA. In addition, Column 3 shows that *FIO* significantly increases the SOA for over-leveraged firms. The coefficient estimate of $\widehat{FIO} \times OL$ remains positive and statistically significant. These results confirm our findings in OLS estimation; that is, *FIO* is positively related to the SOA for over-leveraged firms.

Our second identification strategy is to conduct a DiD estimation to exploit the plausibly exogenous variations in foreign ownership by U.S. institutions (*FIO_US*) resulting from the passage of the JGTRRA in 2003 (Fang, Maffett, and Zhang, 2015; Luong, Moshirian, Nguyen, Tian, and Zhang, 2017). The passage of the JGTRRA significantly reduces the dividend tax, from 38.6% to 15%, for firms domiciled in economies that have tax treaties with the U.S. In contrast, the dividends of firms in nontreaty economies remain taxable at the ordinary income tax rate.[12] After the passage of the JGTRRA, dividend-paying firms in economies that have tax treaties with the U.S. became more attractive to U.S. FIIs relative to those in nontreaty economies. Therefore, the passage of the JGTRRA has generated plausibly exogenous variations in *FIO_US* in tax-treaty economies. The JGTRRA is designed to lower dividend tax rates; thus, it is unlikely to directly impact the SOA of firms in tax-treaty economies. In addition, reverse causality is less likely to be a concern because the expected change in firms' SOA in tax-treaty economies is less likely to affect the variations in *FIO_US* resulting from the passage of JGTRRA. Therefore, the JGTRRA

thus facilitating equity issuance and leverage adjustment. Therefore, our instrument variable needs to be conceptually motivated based on existing studies (Bena, Ferreira, Matos, and Pires, 2017; Luong, Moshirian, Nguyen, Tian, and Zhang, 2017).

[12] The nontreaty economies in our sample include Brazil, Chile, Hong Kong, Malaysia, Singapore, and Taiwan. Other nontreaty economies that are not in our sample include Argentina, Colombia, Jordan, Peru, and Sri Lanka.

appears to be a valid quasi-natural experiment for examining the causal relation between *FIO_US* and firms' leverage adjustment decisions.

We define the pretreatment (posttreatment) period as the three years before (after) the passage of the JGTRRA in 2003 (i.e., 2000-2002 and 2004-2006). The treatment (control) firms are dividend-paying firms domiciled in (non)treaty economies in the year prior to the passage of the JGTRRA. We follow Luong, Moshirian, Nguyen, Tian, and Zhang (2017) and match each control firm with five treatment firms using the nearest-neighbor propensity score matching approach. Specifically, we estimate a probit model by regressing the treatment firm dummy (i.e., equals one for treatment firms and zero otherwise) on the control variables used in the baseline regression. Finally, we obtain 692 treatment firms and 286 control firms in our sample. Panel A of Table 6 presents the means of the matching variables of treatment and control firms and the difference in means between the two groups. The t-statistics of the difference in the means of our covariates are all insignificant, suggesting that there are no observable pretreatment differences for these matching variables between the two groups.

[Insert Table 6]

Next, we perform a DiD estimation in a multivariate regression framework to examine how a plausibly exogenous shock to *FIO_US* from the passage of JGTRRA affects firms' SOA. We include two dummy variables, *TREAT* and *POST*, and their interaction, *TREAT*×*POST*, in the regression. *TREAT* is a dummy variable that equals one for treatment firms and zero otherwise. *POST* is a dummy variable that indicates the years after 2003. The coefficient estimate of *TREAT*×*POST* is the DiD estimator that captures the causal effect of *FIO_US* on the SOA. In addition, in the regression, we also control for foreign ownership by non-U.S. institutions (*FIO_NonUS*) as well as country-, industry-, and year-fixed effects.

Panel B of Table 6 presents the multivariate DiD estimation results.[13] Column 1, in which the dependent variable is *FIO_US*, shows that the coefficient estimate (t-statistic) of *TREAT*×*POST* is 0.035 (3.43), indicating that *FIO_US* of treatment firms significantly increased after the passage of the JGTRRA. Column 2 presents the results of how variations in *FIO_US* resulting from the passage of the JGTRRA affect firms' leverage adjustment decisions. The

[13] In Column 1, *POST* is subsumed by year-fixed effects. In Columns 2-4, all independent variables are multiplied by *DLEV*, which varies for each firm and year; thus, *POST* is not subsumed by year-fixed effects.

coefficient estimate (t-statistic) of *TREAT*×*POST* is 0.070 (2.72), indicating that, after the passage of the JGTRRA, treatment firms adjust their financial leverage more rapidly toward the target relative to control firms. Next, we examine the multivariate DiD estimation for the subsamples that separately consist of over- and under-leveraged firms. As shown in Columns 3-4, the coefficient estimate of *TREAT*×*POST* is positive and significant for over-leveraged firms but statistically insignificant for under-leveraged firms. These results confirm our previous findings that FIIs play a monitoring role in increasing firms' SOA and that this positive impact is concentrated for over-leveraged firms.[14, 15]

In addition, we conduct a number of additional tests to ensure that the use of the DiD approach based on the JGTRRA is appropriate in the context of our study. First, we conduct a test to verify the parallel-trend assumption. We create a dummy variable, *BEFORE* (i.e., equals one for the years 2000-2002 and zero otherwise) and include *TREAT*×*BEFORE* in our DiD estimation. We also include *POST* (i.e., equals one for the years 2004-2006 and zero otherwise) and *TREAT*×*POST* in the estimation. Table IA1 of the Internet Appendix shows that the coefficient estimates of *TREAT*×*BEFORE* are all insignificant, whereas the coefficient estimates of *TREAT*×*POST* remain positive and significant in the full sample and the over-leveraged subsample. These results suggest that treatment and control firms exhibit a similar trend in leverage adjustments in the years prior to the passage of the JGTRRA. Thus, it is less likely that the parallel-trend assumption is violated.

Second, we follow Fang, Maffett, and Zhang (2015) and assess the sharpness of the JGTRRA effect by narrowing the test window for the years immediately before and after the passage of the JGTRRA in 2003 (i.e., 2002 and 2004). Columns 1-3 of Table IA2 of the Internet Appendix show that the coefficient estimates of *TREAT*×*POST* are positive and significant in the full sample and the over-leveraged subsample, confirming that the effect of the JGTRRA on firms' SOA occurs

[14] We do not find supportive results for **H1** in the OLS regression, which could suffer from an endogeneity problem. However, in both the 2SLS regression and the DiD that considers the potential endogeneity issue, we find robust results to support our **H1**, i.e., FIIs play an important monitoring role in increasing firms' SOA.

[15] There is a caveat for this identification strategy. The JGTRRA is designed to lower dividend tax rates and thus may encourage firms in treaty economies to issue equity rather than debt (i.e., the cost of equity is lower due to lower dividend tax rates). Therefore, the passage of the JGTRRA could mechanically increase the SOA for over-leveraged firms rather than through the impact of FIIs. Nevertheless, both our 2SLS and DiD estimations show consistent results. The overall evidence suggests that the caveats of these tests are less likely to be a sufficiently serious problem to invalidate our main conclusions.

immediately after the enactment of the act. Next, we conduct two falsification tests to further establish the validity of the JGTRRA in the context of our study. We shift the event year of 2003 backward to 2001 or forward to 2005 and test the event window for the years immediately before and after these two pseudo-event years. That is, we compare 2000 with 2002 or 2004 with 2006. Columns 4-9 of Table IA2 of the Internet Appendix show that the coefficient estimates of *TREAT*×*POST* are all statistically insignificant when employing the pseudo-event years, suggesting that the passage of the JGTRRA (rather than the time trend in firms' SOA correlated with the passage of the JGTRRA) drives the observed effects.

Third, following Luong, Moshirian, Nguyen, Tian, and Zhang (2017), we conduct additional tests to ensure that our DiD estimation results are robust. First, it is possible that firms anticipated the passage of the JGTRRA in 2003; thus, our selection of treatment and control firms that pay dividends in the year prior to the enactment of the act (i.e., year 2002) could still be subject to endogeneity concerns. We address this concern by requiring firms to pay dividends in the two years prior to the passage of JGTRRA (i.e., years 2001 and 2002). Columns 1-3 of Table IA3 of the Internet Appendix show that the coefficient estimates of *TREAT*×*POST* remain positive and significant in the full sample and the over-leveraged subsample. Second, we conduct a falsification test by selecting firms that did not pay dividends in 2002 and expect that the SOA of non-dividend-paying firms in tax-treaty economies does not significantly differ from those in nontreaty economies. Columns 4-6 of Table IA3 of the Internet Appendix show that the coefficient estimates of *TREAT*×*POST* are statistically insignificant, suggesting that the passage of the JGTRRA does not have a significant effect on the SOA of firms that do not pay dividends in both tax-treaty and nontreaty economies. Third, we conduct another falsification test by selecting firms with zero *FIO_US* in 2002 and expect that the SOA of zero *FIO_US* dividend-paying firms in tax-treaty economies does not significantly differ from those in nontreaty economies. As shown in Columns 7-9 of Table IA3 of the Internet Appendix, the insignificant DiD estimators support our conjecture.

5.3 Independent, Long-Horizon, and Concentrated Foreign Institutional Investors

Not all types of institutional investors are willing or able to play a strong monitoring role. Almazan, Hartzell, and Starks (2005) suggest that investment advisors and mutual fund managers play a more active monitoring role than other types of institutions. Ferreira and Matos (2008) separate institutional investors into two groups: independent institutions (e.g., investment advisors and

mutual fund managers) and grey institutions (e.g., bank trusts, insurance companies, pension funds, and endowments). They argue that independent institutions actively collect information, are subject to less regulatory restrictions, and are less likely to have business ties with investee firms. Therefore, independent institutions take a more active stand in monitoring corporate management. Conversely, the current business relationships between grey institutions and investee firms make grey institutions more loyal to corporate management and more willing to hold shares without intervening in management actions that harm shareholder interests. Therefore, we expect that independent institutions play a stronger monitoring role than grey institutions.

In addition, prior literature has suggested that the investment horizon of institutional investors is an important determinant of their roles in corporate disclosure and governance (Bushee and Noe, 2000). On the one hand, to maximize firm value, FIIs with a long-term investment horizon have stronger incentives to provide effective management oversight. Bushee (1998) suggests that long-horizon institutions can reduce managers' myopic behavior by encouraging firms to pursue long-term goals. Chen, Harford, and Li (2007) suggest that long-horizon institutions focus more on monitoring and influencing efforts than on trading than short-horizon institutions. Tsang, Xie, and Xin (2019) show that long-horizon FIIs lead to an improvement in firms' voluntary disclosure practices. Therefore, we expect long-horizon FIIs to play a stronger monitoring role in influencing firms' SOA decisions than short-horizon FIIs.

To examine whether the impact of FIIs on the SOA is achieved through their monitoring role, we construct the different types of *FIO* variables, including *FIO_Independent*, *FIO_Grey*, *FIO_Long*, and *FIO_Short*. Specifically, *FIO_Independent* (*FIO_Grey*) represents the proportion of total *FIO* of independent (grey) FIIs. Independent (grey) FIIs consist of foreign investment advisors and mutual fund managers (foreign bank trusts, insurance companies, pension funds, and endowments). In addition, *FIO_Long* (*FIO_Short*) represents the proportion of total *FIO* of long-(short-)horizon FIIs. We classify FIIs with an annual portfolio turnover of 35% or less as long-horizon FIIs and all other FIIs as short-horizon FIIs (Froot, Perold, and Stein, 1992; Tsang, Xie, and Xin, 2019).[16]

[16] Following Gaspar, Massa, and Matos (2005), we measure each FII's investment horizon based on its annual portfolio turnover. We first calculate the quarterly turnover for each stock in an FII's portfolio. Then, we calculate the quarterly portfolio turnover of each FII as the weighted average of the stock turnover.

Column 1 of Table 7 shows that the coefficient estimate of *FIO_Independent*×*OL* (*FIO_Grey*×*OL*) is positive and significant (but insignificant), indicating that for over-leveraged firms, independent FIIs but not grey FIIs can play a monitoring role in increasing the SOA. In terms of economic significance, for over-leveraged firms, a one-standard-deviation increase in *FIO_Independent* leads the SOA to increase by 1.9% (= 0.245 × 0.079), given that the coefficient estimate of *FIO_Independent*×*OL* is 0.245, and the standard deviation of *FIO_Independent* is 0.079. In addition, Column 2 shows that the coefficient estimate of *FIO_Long*×*OL* is positive and significant, whereas the coefficient estimate of *FIO_Short*×*OL* is insignificant. The results are also economically significant. Specifically, for over-leveraged firms, a one-standard-deviation increase in *FIO_Long* leads the SOA to increase by 3.1% (= 0.643 × 0.048), given that the coefficient estimate of *FIO_Long*×*OL* is 0.643, and the standard deviation of *FIO_Long* is 0.048. In summary, we show that for over-leveraged firms, independent and long-horizon FIIs facilitate a faster rate of leverage adjustment.[17]

[Insert Table 7]

Furthermore, prior literature suggests that concentrated equity ownership plays a stronger monitoring role than that of diffused equity ownership (Shleifer and Vishny, 1986; Edmans, 2009). Large institutional investors tend to be more effective monitors because of their expertise and incentives to overcome the free-rider problem. For example, Li, Nguyen, Pham, and Wei (2011)

$$Portfolio\ turnover_{v,q} = \frac{\sum_{i \epsilon Q} \left| N_{i,v,q} P_{i,q} - N_{i,v,q-1} P_{i,q-1} - N_{i,v,q-1} \Delta P_{i,q} \right|}{\sum_{i \epsilon Q} \frac{N_{i,v,q} P_{i,q} + N_{i,v,q-1} P_{i,q-1}}{2}},$$

where the firm is indexed by *i*, investor by *v*, and quarter by *q*. *Q* is the set of firms that are held by investor *v*. *P* and *N* are, respectively, the stock price and the number of shares outstanding. Next, we aggregate the quarterly portfolio turnover into a yearly value by taking the average. Long-horizon investors frequently buy and sell and have a lower annual portfolio turnover.

[17] To mitigate the endogenous concern of this test, we conduct a similar test as in Panel B of Table 5 of Luong, Moshirian, Nguyen, Tian, and Zhang (2017) but using multivariate rather than univariate DiD analysis. Specifically, when matching the treatment and controls firms, we use the same set of matching variables as in Table 6 except that the *FIO_US* is replaced with a certain type of *FIO_US* (i.e., *FIO_US_Independent*, *FIO_US_Grey*, *FIO_US_Long*, or *FIO_US_Short*). Using this matching procedure, we assume that treatment firms experience, to some extent, exogenous changes in each type of *FIO_US* following the passage of the JGTRRA. Next, we perform the multivariate DiD analysis in the same way as in Table 6 for each type of *FIO_US*. The results are reported in Table IA4 of the Internet Appendix. Specifically, we find that the coefficient estimates of *TREAT*×*POST*, when using *FIO_US_Independent* or *FIO_US_Long* as matching variables, are positive and significant in the full and over-leveraged samples, whereas the coefficient estimates of *TREAT*×*POST* when using *FIO_US_Grey* and *FIO_US_Short* as matching variables are insignificant in all samples. These results suggest that the positive effect of *FIO_US* on the SOA is primarily driven by independent or long-term *FIO_US*.

show that large foreign shareholders can lower the stock return volatilities of firms in emerging markets by demanding higher management accountability and operational transparency. In addition, Hartzell and Starks (2003) document a positive (negative) relation between institutional ownership concentration and the pay-for-performance sensitivity of managerial compensation (the level of compensation). Thus, one may expect that foreign ownership concentration matters in influencing firms' SOA decisions though the monitoring channel. Following Hartzell and Starks (2003), we construct two variables to measure firms' foreign institutional ownership concentration. *FIO_TOP5* represents the institutional ownership of the five largest FIIs scaled by firms' total institutional ownership. In addition, we construct the Herfindahl index of foreign institutional ownership concentration (*FIO_HHI*). Then, we divide *FIO_HHI* into quartiles to mitigate the effect of large outliers (denoted by *FIO_HHI_Quartile*).

As shown in Column 1 of Table 8, the coefficient estimate of *FIO_TOP5*×*OL* is positive and significant, indicating that a higher proportion of equity held by the five largest FIIs increases the SOA for over-leveraged firms.[18] In addition, Column 2 shows that *FIO_HHI_Quartile*×*OL* loads a positive and significant coefficient, indicating that higher foreign ownership concentration increases the SOA for over-leveraged firms, controlling for the level of total *FIO*. In summary, these results suggest that foreign institutional blockholders or concentrated foreign ownership plays a stronger monitoring role in mitigating the agency problem and increasing the SOA of over-leveraged firms. These results provide further evidence that FIIs' impact on firms' SOA is achieved through the monitoring channel.

[Insert Table 8]

5.4 Does Foreign Institution Ownership Impact Debt and Equity Issuance?

Over-leveraged (under-leveraged) firms could adjust their financial leverage toward the target by issuing equity (debt) (Elsas, Flannery, and Garfinkel, 2014). However, conflicts of interest between shareholders and managers restrain firms from issuing capital. FIIs play an important monitoring role in mitigating agency conflicts and reducing the information asymmetry between shareholders and managers. Therefore, firms are able to access the capital market with fewer constraints and to issue capital at a lower cost. In this section, we explore whether FIIs can alleviate

[18] The results are similar if we replace *FIO_TOP5* with the ownership by the top one or three FIIs.

these capital constraints and facilitate firms' leverage adjustments. Specifically, we examine the impact of FIIs on both debt and equity issuances. Following Hovakimian, Opler, and Titman (2001), we define the debt (equity) issuance variable, *DI* (*EI*), which equals one if the change in the book value of debt (net equity issuance) scaled by the book value of assets is greater than 5% and zero otherwise.

Table 9 presents the probit regression results for the impact of FIIs on debt or equity issuance. The table shows that *FIO*×*OL* is positive and significant only in Column 2, for which the dependent variable is *EI*. These results indicate that, for over-leveraged firms, FIIs could facilitate equity financing to adjust the financial leverage toward the target. The coefficient estimate (t-statistic) of *FIO*×*OL* is 0.490 (2.30). That is, for over-leveraged firms, a one-standard-deviation increase in *FIO* increases the probability of equity issuance by 4% (= 0.490 × 0.081), given that the standard deviation of *FIO* is 0.081. In summary, we find that FIIs could facilitate over-leveraged firms' equity issuances to adjust their financial leverage toward the target.

[Insert Table 9]

In addition, Columns 1 and 2 of Table 9 show that the coefficient estimates of *FIO* are significant and positive. These results indicate that, for under-leveraged firms, FIIs facilitate both debt and equity issuances. Debt issuances adjust the leverage of under-leveraged firms toward the target, whereas equity issuances deviate their leverage from the target, leading to an inconclusive conclusion on the impact of FIIs on the SOA for under-leveraged firms.

5.5 Corporate Governance of the Investee and Home Countries of Foreign Institutional Investors

Thus far, we have shown that FIIs play an important monitoring role in facilitating firms' leverage adjustments toward targets, especially for over-leveraged firms. FIIs that invest their capital widely throughout the countries provide different levels of shareholder protection. Aggarwal, Erel, Ferreira, and Matos (2011) suggest that FIIs from countries with stronger shareholder protection bring substantial improvements to the governance of investee firms, especially for those from countries with weaker shareholder protection. One may expect that if FIIs could bring significant improvements in the governance of investee firms, then this governance-enhancing role should be stronger if FIIs invest in countries with weaker shareholder protection and in which investors are poorly protected and information is less credible.

To examine this conjecture, we create subsamples of investee firms in countries with high and low shareholder rights (i.e., high *SR* investee and low *SR* investee subsamples) based on the median shareholder rights index (*SR*) of investee countries. *SR* measures the aggregate level of shareholder rights in the country, which is the first principal component of the antidirector index (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998) and the anti-self-dealing index (Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2008). Both indices are widely used in the prior literature to measure country-level shareholder rights (Öztekin and Flannery, 2012). The antidirector index measures the extent of shareholder protection, and the anti-self-dealing index measures the quality of the enforcement of shareholder rights. We use these subsamples to examine whether the positive impact of FIIs on the SOA of over-leveraged firms is concentrated in the low *SR* investee subsample, in which FIIs are expected to play a stronger governance-enhancing role.

Table 10 shows that the coefficient estimate of *FIO*×*OL* is positive and significant for the low *SR* investee subsample in Column 2 but not for the high *SR* investee subsample in Column 1. These results suggest that the role of FIIs in increasing the SOA of over-leveraged firms is concentrated in investee countries with weakly protected shareholder rights. These results provide further evidence that FIIs' impact on firms' SOA is achieved through the monitoring channel, in which FIIs play a stronger governance-enhancing role in investee countries with weaker shareholder protection.

[Insert Table 10]

Next, we examine whether the shareholder protection of FIIs' home countries matters in influencing firms' leverage adjustment decisions. To the extent that FIIs act as bridges that facilitate the traveling of corporate governance practices from their home countries to investee countries, one may expect that for over-leveraged firms that need to adjust their financial leverage to a lower level, the SOA should be faster if FIIs are from countries providing stronger shareholder protection.

To validate this claim, we examine how the modified *FIO* influences firms' leverage adjustment decisions. We construct a modified *FIO* variable by adjusting *FIO* with the shareholder rights index of FIIs' home countries, constructed as follows:

$$FIO\_HomeSR_{i,t} = \sum_{v=1}^{n} FIO_{v,i,t} \times SR, \qquad (8)$$

where the firm is indexed by *i*, the year by *t*, and the investor by *v*. *SR* is the shareholder rights index of the home country of FII *v*. We multiply *SR* by $FIO_{v,i,t}$, which is firm *i*'s ownership held by FII *v* in year *t*, and then aggregate the products for all FIIs to calculate *FIO_HomeSR*. A higher value of *FIO_HomeSR* indicates that a larger proportion of shares are held by FIIs from strong shareholder protection countries.

Column 3 of Table 10 shows that the interaction between the modified *FIO* variable and *OL* (*FIO_HomeSR*×*OL*) is positively and significantly related to the SOA. These results indicate that FIIs from countries with stronger shareholder rights are associated with a faster SOA for over-leveraged firms. Then, we separately examine the model employed in Column 3 in high and low *SR* investee subsamples. Columns 4 and 5 show that the coefficient estimate of *FIO_HomeSR*×*OL* is positive and significant in the low *SR* investee subsample but not in the high *SR* investee subsample. These results suggest the FIIs from countries with stronger shareholder protection can exert their monitoring influence by affecting firms' SOA decisions, particularly for over-leveraged investee firms from countries with weaker shareholder protection. Collectively, our results show that the shareholder protection of both the investee and FIIs' home countries matter in influencing over-leveraged firms' SOA decisions. FIIs play a more significant role when a larger gap exists between the shareholder rights of the investee and the FIIs' home countries.

5.6 Robustness Tests

In this section, we perform a series of robustness tests to validate our findings. Specifically, we employ alternative model specifications, alternative samples, and alternative definitions of financial leverage.

Thus far, we have employed a two-step partial adjustment model to estimate the impact of FIIs on the SOA. As a robustness check, we employ an alternative specification based on a reduced-form model that allows us to estimate the value of SOA of the sample firms. We follow Öztekin and Flannery (2012) and modify Equation (2) to allow the target leverage to be determined by country characteristics (i.e., ***Y***):

$$TL_{i,t} = \boldsymbol{\gamma X_{i,t-1}} + \boldsymbol{\eta Y_{j,t-1}} + c_j + ind_{ind} + y_t. \qquad (9)$$

We substitute Equation (9) into Equation (3) and rearrange it to yield:

$$LEV_{i,t} = (1-\lambda)LEV_{i,t-1} + \lambda\boldsymbol{\gamma X_{i,t-1}} + \lambda\boldsymbol{\eta Y_{j,t-1}} + \lambda(c_j + ind_{ind} + y_t) + \delta_{i,t}. \qquad (10)$$

This reduced-form model allows us to calculate the SOA (λ) of the sample firms, which equals one minus the coefficient estimate of $LEV_{i,t-1}$. We note that Equation (10) is a dynamic panel data model with a lagged dependent variable. Due to the correlation between the fixed effects and the lagged dependent variable, the standard OLS estimation would lead to biased estimates of the SOA when the panel is short. Therefore, following Flannery and Hankins (2013), we estimate Equation (10) using Blundell and Bond's (1998) system generalized method of moments (SYSGMM) estimation.

Column 1 of Table 11 shows that the coefficient estimate $LEV_{i,t-1}$ is 0.805, indicating that the average sample firm closes 19.5% (= 1 - 0.805) of its gap between the current and target leverage within one year. The estimated SOA is similar to those in the SOA literature using international data, such as Öztekin and Flannery (2012) (i.e., 21.1%) and Drobetz, Schilling, and Schröder (2015) (i.e., 18.2%). Next, we create a high (low) *FIO* subsample consisting of firm-year observations with above- (below-)median *FIO*. Then, we separately estimate Equation (10) for each subsample. As shown in Columns 2 and 3, the coefficient estimates of $LEV_{i,t-1}$ are 0.800 and 0.814 in high and low *FIO* subsamples, respectively. These results suggest that the average firm in the high *FIO* subsample closes 20.0% (= 1 - 0.800) of its gap between the current and target leverage within one year, which is faster than that of the average firm in the low *FIO* subsample (i.e., 18.6% = 1 - 0.814). Next, we keep only the over-leveraged observations in both high and low *FIO* subsamples and re-estimate Equation (10). Columns 4 and 5 show that the coefficient estimates of $LEV_{i,t-1}$ are 0.751 and 0.832, respectively. These results suggest that the SOA is 24.9% (= 1 - 0.751) for the average over-leveraged firm with high *FIO*, which is faster than the average over-leveraged firm with low *FIO* (i.e., 16.8% = 1 - 0.832).

[Insert Table 11]

As an alternative approach, we follow Cook and Tang (2010) and augment Equation (10) by including *FIO* and its interaction term with $LEV_{i,t-1}$ to examine whether *FIO* can increase the SOA:

$$LEV_{i,t} = (1-\lambda)LEV_{i,t-1} + \beta_1 FIO_{i,t-1} + \beta_2 LEV_{i,t-1} \times FIO_{i,t-1} + \beta_3 DIO_{i,t-1} + \beta_4 LEV_{i,t-1} \times DIO_{i,t-1} + \lambda \boldsymbol{\gamma X_{i,t-1}} + \lambda \boldsymbol{\eta Y_{j,t-1}} + \lambda(c_j + ind_{ind} + y_t) + \delta_{i,t}. \quad (11)$$

As shown in Equation (11), the current year's leverage is regressed on lagged leverage, *FIO*, and their interaction. In the model, we also control for *DIO* and its interaction term with *LEV*. The

aggregate impact of $LEV_{i,t-1}$ on $LEV_{i,t}$ is measured by both the coefficient estimates of $LEV_{i,t-1}$and $FIO_{i,t-1} \times LEV_{i,t-1}$. A negative and significant β_2 indicates that a higher *FIO* reduces the aggregate impact of $LEV_{i,t-1}$; that is, firms close a larger gap between their actual and target leverage. Column 6 of Table 11 shows that the coefficient estimate of $FIO_{i,t-1} \times LEV_{i,t-1}$ is negative and significant, suggesting that higher *FIO* is related to higher SOA. Next, we separately examine this model for subsamples consisting of over- and under-leveraged firms. As shown in Columns 7 and 8, the coefficient estimate of $FIO_{i,t-1} \times LEV_{i,t-1}$is negative and significant for over-leveraged firms but insignificant for under-leveraged firms. These results suggest that the SOA is faster for firms with a higher *FIO*, and this relation is strengthened for over-leveraged firms. In summary, the results in the reduced-form model confirm our findings from the two-step partial adjustment model, suggesting that employing the alternative model specifications provides robust results.

A substantial portion of our sample comprises firms from developed economies. Our sample consists of 15,400 U.S. and 16,221 Japanese firm-year observations, which account for a significant proportion of the entire sample. Thus, our findings could be dominated by these two countries. To address this concern, we re-estimate the 2SLS regressions but employ subsamples that exclude either only the U.S. firms or both the U.S. and Japanese firms. Columns 1 and 2 of Table 12 show that the results are qualitatively unchanged, suggesting that our findings are less likely to be driven by firms from these two countries. In addition, we re-estimate the 2SLS regressions but employ subsamples consisting of firms from either developed or developing economies. Columns 3 and 4 show that the results remain valid in both subsamples, indicating that our findings are also not driven by countries' economic development.

[Insert Table 12]

Next, we examine the partial adjustment model using market leverage (*ML*), which is the ratio of the book value of debt to the sum of the market value of equity and the book value of debt. We conduct this test using 2SLS regression. As shown in Column 5 of Table 12, $\widehat{FIO}$ is positively related to the SOA. In addition, Column 6 shows that the coefficient estimate of $\widehat{FIO} \times OL$ is positive and significant, indicating that $\widehat{FIO}$ is positively related to the SOA for over-leveraged firms. These results are similar to the 2SLS results in Table 5 obtained through book leverage; however, the estimated impact of $\widehat{FIO}$ on the SOA is larger. For example, Column 6 shows that

the coefficient estimate of $\widehat{FIO} \times OL$ is 0.856, which is larger than the corresponding coefficient estimate using the book leverage (i.e., 0.834) reported in Column 3 of Table 5. These results are consistent with the finding in Yin and Ritter (2019) that, given the passive influence of stock price movements, existing SOA studies using market leverage are subject to substantial upward bias. Nevertheless, our results remain valid when alternative definitions of the leverage ratio are employed.

6. Conclusion

Employing a large sample of 7246 firms (i.e., 79,702 firm-year observations) across 38 economies from 2000 to 2013, we show a positive relation between *FIO* and firms' SOA. This positive relation is concentrated for over-leveraged firms. Furthermore, we show that only independent, long-horizon, and concentrated FIIs can increase the SOA of over-leveraged firms, indicating that the impact of FIIs on the SOA is achieved through the monitoring channel. We also show that higher ownership by FIIs is related to a higher probability of equity issuance, suggesting that FIIs are able to facilitate over-leveraged firms rebalancing their capital structures by lowering their leverage ratios. Additional analyses show that FIIs' governance-enhancing role is related to the shareholder protection of both the investee and FIIs' home countries. Specifically, FIIs from countries with stronger shareholder protection significantly increase the SOA, particularly for over-leveraged firms from countries with weaker shareholder protection. In addition, our findings are robust when employing alternative model specifications, alternative samples, and alternative definitions of financial leverage.

To address the potential endogeneity problem, we employ 2SLS regression, using the inclusion of MSCI membership as an instrumental variable and DiD estimation to exploit the exogenous variations in *FIO_US* generated by the passage of the JGTRRA in 2003. Our results remain valid in these tests, suggesting that our findings are robust and less likely to suffer from the endogeneity issue.

In summary, this paper highlights the important role of FIIs in capital structure dynamics, particularly regarding firms' leverage adjustment decisions. We show that FIIs play an important monitoring role in mitigating agency conflicts between shareholders and managers of investee firms. Such benefits outweigh the cost of leverage adjustments, thereby increasing the SOA. In addition, FIIs are able to improve corporate governance practices at investee firms, especially

when shareholder rights are poorly protected in investee countries. Overall, this paper lends support to the dynamic trade-off theory; that is, firms adjust their financial leverage toward the target when the benefits dominate the cost of reducing their leverage deviations.

References

Aggarwal, R., Erel, I., Ferreira, M., and Matos, P., 2011. Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics* 100, 154-181.

Aggarwal, R., Klapper, L., and Wysocki, P. D., 2005. Portfolio preferences of foreign institutional investors. *Journal of Banking and Finance* 29, 2919-2946.

Almazan, A., Hartzell, J., and Starks, L., 2005. Active institutional shareholders and cost of monitoring: Evidence from executive compensation. *Financial Management* 34, 5-34.

An, Z., Li, D., and Yu, J., 2015. Firm crash risk, information environment, and speed of leverage adjustment. *Journal of Corporate Finance* 31, 132-151.

Bamiatzi, V., Efthyvoulou, G., Jabbour, L., 2017. Foreign vs domestic ownership on debt reduction: An investigation of acquisition targets in Italy and Spain. *International Business Review* 26, 801-815

Bekaert, G., Harvey, C. R., and Lumsdaine, R. L., 2002. Dating the integration of world equity markets. *Journal of Financial Economics* 65, 203-247.

Bena, J., Ferreira, M. A, Matos, P., and Pires P., 2017. Are foreign investors locusts? The long-term effects of foreign institutional ownership. *Journal of Financial Economics* 1, 122-146.

Blundell, R., and Bond, S., 1998. Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics* 87, 115-143.

Boubakri, N., Cosset, J. C., and Saffar, W., 2013. The role of state and foreign owners in corporate risk-taking: Evidence from privatization. *Journal of Financial Economics* 108, 641-658.

Bushee, B. J., 1998. The influence of institutional investors on myopic R&D investment behavior. *The Accounting Review* 73, 305-333.

Bushee, B., and Noe, C., 2000. Corporate disclosure practices, institutional investors, and stock return volatility. *Journal of Accounting Research* 38, 171-202.

Byoun, S., 2008. How and when do firms adjust their capital structures toward targets? *The Journal of Finance* 63, 3069-3096.

BusinessWeek, 2006. Special report: Fidelity's divided loyalties. October 16.

Chang, Y., Chou, R. K., and Huang, T., 2014. Corporate governance and the dynamics of capital structure: New evidence. *Journal of Banking and Finance* 48, 374-385.

Chen, R., El Ghoul, S., Guedhami, O., and Wang, H., 2017. Do state and foreign ownership affect investment efficiency? Evidence from privatizations. *Journal of Corporate Finance* 42, 408-421.

Chen, X., Harford, J., and Li, K., 2007. Monitoring: Which institutions matter? *Journal of Financial Economics* 86, 279-305.

Çolak, G., Gungoraydinoglu, A., and Öztekin, Ö., 2018. Global leverage adjustments, uncertainty, and country institutional strength. *Journal of Financial Intermediation* 35, 41-56.

Cook, D. O., and Tang, T., 2010. Macroeconomic conditions and capital structure adjustment speed. *Journal of Corporate Finance* 16, 73-87.

Dang, T. L., Dang, V. A., Moshirian, F., Nguyen, L., and Zhang, B., 2019. News media coverage and corporate leverage adjustments. *Journal of Banking and Finance*, 109, 105666.

Devos, E., Rahman, S., and Tsang, D., 2017. Debt covenants and the speed of capital structure adjustment. *Journal of Corporate Finance* 45, 1-18.

Djankov, S., La Porta, R., Lopez-de-Silanes, F., and Shleifer, A., 2008.The Law and economics of self-dealing. *Journal of Financial Economics* 88, 430-465.

Do, T., Lai, T., and Tran, T., 2019. Foreign ownership and capital structure dynamics. *Finance Research Letters*, 101337.

Drobetz, W., Schilling, D. C., and Schröder, H., 2015. Heterogeneity in the speed of capital structure adjustment across countries and over the business cycle. *European Financial Management* 21, 936-973.

Edmans, A., 2009. Blockholder trading, market efficiency, and managerial myopia. *The Journal of Finance* 64, 2481-2513.

Elsas, R., Flannery, M. J., and Garfinkel, J. A., 2014. Financing major investments: Information about capital structure decisions. *Review of Finance* 18, 1341-1386.

Fama, E. F., and French, K. R., 2002. Testing trade-off and pecking order Predictions about dividends and debt. *Review of Financial Studies* 15, 1-33.

Fang, V. W., Maffett, M., and Zhang, B., 2015. Foreign institutional ownership and the global convergence of financial reporting practices. *Journal of Accounting Research* 53, 593-631.

Faulkender, M., Flannery, M. J., Hankins, K. W., and Smith, J. M., 2012. Cash flows and leverage adjustments. *Journal of Financial Economics* 103, 632-646.

Ferreira, M. A., and Matos, P., 2008. The colors of investors' money: The role of institutional investors around the world. *Journal of Financial Economics* 88, 499-533.

Ferreira, M., Massa, M., and Matos, P., 2010. Shareholders at the gate? Institutional investors and cross-border mergers and acquisitions. *Review of Financial Studies* 23, 601-644.

Fier, S. G., McCullough, K. A., and Carson, J. M., 2013. Internal capital markets and the partial adjustment of leverage. *Journal of Banking and Finance* 37, 1029-1039.

Fischer, E. O., Heinkel, R., and Zechner, J., 1989. Dynamic capital structure choice: Theory and tests. *The Journal of Finance* 44, 19-40.

Flannery, M. J., and Rangan, K. P., 2006. Partial adjustment toward target capital structures. *Journal of Financial Economics* 79, 469-506.

Frank, M. Z., and Goyal, V. K., 2009. Capital structure decisions: Which factors are reliably important? *Financial Management* 38, 1-37.

Froot, K. A., Perold, A. F., and Stein, J. C., 1992. Shareholder trading practices and corporate investment horizons. *Journal of Applied Corporate Finance* 5, 42-58.

Gaspar, J., Massa, M., and Matos, P., 2005. Shareholder investment horizons and the market for corporate control. *Journal of Financial Economics* 76, 133-165.

Gillan, S. L., and Starks, L.T., 2003. Corporate governance, corporate ownership, and the role of institutional investors: A global perspective. *Journal of Applied Finance* 13, 4-22.

Goldstein, R., Ju, N., and Leland, H., 2001 An EBIT-based model of dynamic capital structure. *Journal of Business* 74, 483-512.

Graham, J., and Harvey, C., 2001. The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics* 60, 187-243.

Guedhami, O., Pittman, J. A., and Saffar, W., 2009. Auditor choice in privatized firms: Empirical

evidence on the role of state and foreign owners. *Journal of Accounting and Economics* 48, 151-171.

Halling, M., Yu, J., and Zechner, J., 2015. Leverage dynamics over the business cycle. *Journal of Financial Economics* 122, 21-41.

Harford, J., Klasa. S., and Walcott, N., 2009. Do firms have leverage targets? Evidence from acquisitions. *Journal of Financial Economics* 93, 1-14,

Hartzell, J. C., and Starks, L. T., 2003. Institutional investors and executive compensation. *The Journal of Finance* 58, 2351-2374.

Hovakimian, A., and Li, G., 2011. In search of conclusive evidence: How to test for adjustment to target capital structure. *Journal of Corporate Finance* 17, 33-44.

Hovakimian, A., Opler, T., and Titman, S., 2001. The debt-equity choice. *Journal of Financial and Quantitative Analysis* 36, 1-24.

Huang, R., and Ritter, J., 2009. Testing theories of capital structure and estimating the speed of adjustment. *Journal of Financial and Quantitative Analysis* 44, 237-271.

IMF, 2019. Coordinated portfolio investment survey. *The International Monetary Fund,* Washington. Access via https://data.imf.org/?sk=B981B4E3-4E58-467E-9B90-9DE0C3367363

Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review* 76, 323-329.

Jensen, M. C., and Meckling, W. H., 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3, 305-360.

John, K., Litov, L., and Yeung, B., 2008. Corporate governance and risk-taking. *The Journal of Finance* 63, 1679-1728.

Kacperczyk, M., Sundaresan, S., Wang, T., 2020. Do foreign investors improve market efficiency? *Review of Financial Studies forthcoming.*

Kang, J. K., and Stulz, R., 1997. Why is there a home bias? An analysis of foreign portfolio equity ownership in Japan. *Journal of Financial Economics* 46, 3-28.

Kim, J., Pevzner, M., and Xin, X., 2019. Foreign institutional ownership and auditor choice: Evidence from worldwide institutional ownership, *Journal of International Business Studies* 50, 83-110.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. W., 1998. Law and finance. *Journal of Political Economy* 106, 1113-1155.

Leary, M. T., and Roberts, M. R., 2005. Do firms rebalance their capital structures? *The Journal of Finance* 60, 2575-2619.

Lel, U., 2019. The role of foreign institutional investors in restraining earnings management activities across countries. *Journal of International Business Studies* 50, 895-922.

Lemmon, M. L., Roberts, M. R., and Zender, J. F., 2008. Back to the beginning: Persistence and the cross-section of corporate capital structure. *The Journal of Finance* 63, 1575-1608.

Leuz, C., Lins, K., and Warnock, F., 2009. Do foreigners invest less in poorly governed firms? *Review of Financial Studies* 22, 3245-3285.

Li, D., Nguyen, Q. N., Pham, P. K., and Wei, S. X., 2011. Large foreign ownership and firm-level stock return volatility in emerging markets. *Journal of Financial and Quantitative Analysis* 46, 1127-1155.

Li, K., Yue, H., and Zhao, L., 2009. Ownership, institutions, and capital structure: Evidence from China. *Journal of Comparative Economics* 37, 471-490

Liao, L., Mukherjee, T., and Wang, W., 2015. Corporate governance and capital structure dynamics: An empirical study. *Journal of Financial Research* 38, 169-192.

Lockhart, G. B., 2014. Credit lines and leverage adjustments. *Journal of Corporate Finance* 25, 274-288.

Luong, L. H., Moshirian, F., Nguyen, L. H. G., Tian, X., and Zhang, B., 2017. How do foreign institutional investors enhance firm innovation? *Journal of Financial and Quantitative Analysis* 52, 1449-1490.

Modigliani, F., and Miller, M. H., 1958. The cost of capital, corporation finance and the theory of investment. *American Economic Review* 48, 261-297.

Morellec, E., Nikolov, B., and Schürhoff, N., 2012, Corporate governance and capital structure dynamics. *The Journal of Finance* 67, 803-848.

Myers, S. C., 1984. The capital structure puzzle. *The Journal of Finance* 39, 575-592.

Myers, S. C., and Majluf, N. S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13, 187-221.

Öztekin, O., and Flannery, M. J., 2012. Institutional determinants of capital structure adjustment speeds. *Journal of Financial Economics* 103, 88-112.

Rajan, R. G., and Zingales, L., 1995. What do we know about capital structure? Some evidence from international data. *The Journal of Finance* 50, 1421-1460.

Shleifer, A., and Vishny, R.W., 1986. Large shareholders and corporate control. *Journal of Political Economy* 94, 461-488.

Strebulaev, I. A., 2007. Do tests of capital structure theory mean what they say? *The Journal of Finance* 62, 1747-1787.

Tsang, A., Xie, F., and Xin, X., 2019. Foreign institutional investors and voluntary disclosure around the world. *The Accounting Review* 94, 319-348.

Warr, R. S., Elliott, W. B., Koeter-Kant, J., and Öztekin, O., 2012. Equity mispricing and leverage adjustment costs. *Journal of Financial and Quantitative Analysis* 47, 589-616.

Welch, I., 2004. Capital structure and stock returns. *Journal of Political Economy* 112, 106-131.

Yin, Q. E., and Ritter, J. R., 2019. The speed of adjustment to the target market value leverage is slower than you think. *Journal of Financial and Quantitative Analysis*, 1-32.

Zhou, Q., Tan, K. J. K., Faff, R., and Zhu, Y., 2016. Deviation from target capital structure, cost of equity and speed of adjustment. *Journal of Corporate Finance* 39, 99-120.

Table 1. Sample Distribution

This table presents the number of years, number of firms, number of firm-year observations, and the means of *FIO* and *DIO* for each economy. *FIO* (*DIO*) is the institutional ownership by foreign (domestic) institutional investors scaled by firms' market capitalization. The sample consists of 7246 firms (i.e., 79,702 firm-year observations) across 38 economies from 2000 to 2013.

Market	*No. of Years*	*No. of Firms*	*No. of Obs.*	*FIO (Mean)*	*DIO (Mean)*
	[1]	[2]	[3]	[4]	[5]
Australia	14	321	2794	0.055	0.016
Austria	14	18	162	0.105	0.020
Belgium	14	49	476	0.079	0.035
Brazil	14	20	230	0.107	0.046
Canada	14	457	2397	0.090	0.153
Chile	14	15	147	0.027	0.015
Denmark	14	25	336	0.060	0.092
Finland	14	62	593	0.079	0.099
France	14	285	3107	0.064	0.048
Germany	14	284	2581	0.080	0.046
Greece	14	66	643	0.031	0.004
Hong Kong	14	226	2593	0.055	0.018
India	14	341	3178	0.042	0.042
Indonesia	14	47	620	0.052	0.001
Ireland	14	28	165	0.141	0.010
Italy	14	100	1046	0.060	0.019
Japan	14	631	16,221	0.040	0.027
Korea	14	251	4213	0.048	0.001
Malaysia	14	169	2282	0.024	0.007
Mexico	14	32	206	0.083	0.008
Netherlands	14	61	699	0.122	0.060
New Zealand	14	20	199	0.043	0.019
Norway	14	41	480	0.085	0.114
Pakistan	14	34	278	0.009	0.000
Philippines	14	28	285	0.055	0.001
Poland	9	54	460	0.033	0.258
Portugal	14	17	160	0.036	0.039
Russia	11	26	196	0.095	0.001
Singapore	14	114	1286	0.049	0.010
South Africa	14	82	883	0.062	0.058
Spain	14	49	547	0.057	0.041

Sweden	14	80	949	0.075	0.176
Switzerland	14	64	1104	0.138	0.069
Taiwan	14	267	3842	0.043	0.008
Thailand	14	72	871	0.049	0.007
Turkey	14	80	809	0.041	0.001
U.K.	14	581	7264	0.048	0.162
U.S.	14	2149	15,400	0.035	0.484
Mean	13.8	191	2097	0.063	0.058
Total		7246	79,702		

Table 2. Descriptive Statistics

This table presents the number of observations, mean, standard deviation, 25th, 50th, and 75th percentile values of firm-, industry-, and country-level variables. All variables are defined in Appendix A.

	N	*Mean*	*Std. Dev.*	*p25*	*Median*	*p75*
	[1]	[2]	[3]	[4]	[5]	[6]
Panel A: Institutional Ownership Variables						
FIO	79,702	0.055	0.081	0.004	0.022	0.072
FIO_Independent	79,702	0.050	0.079	0.006	0.028	0.080
FIO_Grey	79,702	0.005	0.009	0.000	0.009	0.037
FIO_Long	79,702	0.031	0.048	0.000	0.009	0.037
FIO_Short	79,702	0.024	0.033	0.001	0.009	0.032
FIO_TOP5	79,702	0.400	0.370	0.020	0.310	0.740
FIO_HHI	79,702	0.415	0.415	0.119	0.310	0.703
DIO	79,702	0.145	0.248	0.002	0.028	0.137
Panel B: Firm- and Industry-Level Variables						
LEV	79,702	0.203	0.173	0.038	0.180	0.323
SIZE	79,702	13.126	1.757	11.949	13.029	14.228
TANG	79,702	0.297	0.215	0.120	0.262	0.429
MTB	79,702	1.272	1.089	0.641	0.911	1.456
PROF	79,702	0.094	0.126	0.052	0.101	0.156
DEP	79,702	0.040	0.028	0.021	0.035	0.052
RDEXP	79,702	0.022	0.049	0.000	0.000	0.020
RD_DUM	79,702	0.417	0.493	0.000	0.000	1.000
LEV_IND	79,702	0.176	0.102	0.108	0.171	0.245
OL	79,702	0.354	0.478	0.000	0.000	1.000
MSCI	79,702	0.174	0.379	0.000	0.000	0.000
Panel C: Country-Level Variables						
GDPC	563	9.63	1.224	8.832	10.215	10.523
MCAP	563	90.567	74.796	41.875	70.734	115.780
GGDP	563	2.865	2.988	1.315	2.884	4.736

Table 3. Correlation Matrix

This table provides the correlation matrix for financial leverage and its determinants in the model to estimate the target leverage, as shown in Equation (1). All variables are defined in Appendix A.

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
LEV	[1]	1.000								
SIZE	[2]	0.291	1.000							
TANG	[3]	0.314	0.157	1.000						
MTB	[4]	-0.198	-0.129	-0.136	1.000					
PROF	[5]	-0.085	0.208	0.088	0.172	1.000				
DEP	[6]	0.094	-0.022	0.289	0.032	0.133	1.000			
RDEXP	[7]	-0.204	-0.171	-0.272	0.304	-0.284	0.092	1.000		
RD_DUM	[8]	0.102	-0.077	0.153	-0.082	0.061	-0.029	-0.354	1.000	
LEV_IND	[9]	0.403	0.219	0.287	-0.221	0.130	-0.004	-0.354	0.157	1.000

Table 4. Does Foreign Institution Ownership Increase the SOA?

This table reports the OLS regression results for the impact of foreign institutional ownership (*FIO*) on the speed of leverage adjustment (SOA) by estimating the partial adjustment model. The dependent variable is the actual leverage adjustment ($\boldsymbol{LEV_t - LEV_{t-1}}$). All independent variables are multiplied by the leverage deviation from the target (*DLEV*). *FIO* (*DIO*) is the institutional ownership by foreign (domestic) institutional investors scaled by firms' market capitalization. *OL* is a dummy variable that equals one if a firm is over-leveraged and zero otherwise. Firm-, industry-, and country-level variables, including *DIO*, *SIZE*, *TANG*, *MTB*, *PROF*, *DEP*, *RDEXP*, *RD_DUM*, *LEV_IND*, *GDPC*, *MCAP*, and *GGDP*, are controlled in each regression. All variables are defined in Appendix A. Standard errors are robust to heteroskedasticity. ***, **, or * next to the coefficients indicates that the coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

	[1]	[2]
FIO	-0.009	-0.074***
	[-0.37]	[-3.08]
FIO × *OL*		0.152***
		[3.19]
DIO	0.032***	-0.031**
	[3.49]	[-2.25]
DIO × *OL*		0.100***
		[4.86]
OL		0.018***
		[2.69]
SIZE	-0.014***	-0.012***
	[-9.88]	[-8.44]
TANG	0.011	0.009
	[0.96]	[0.81]
MTB	0.019***	0.020***
	[6.84]	[6.95]
PROF	-0.111***	-0.101***
	[-3.82]	[-3.46]
DEP	0.302***	0.314***
	[3.17]	[3.30]
RDEXP	0.005	0.005
	[0.06]	[0.06]
RD_DUM	0.011**	0.009**
	[2.46]	[2.09]
LEV_IND	-0.058**	-0.063**
	[-2.29]	[-2.48]
GDPC	-0.004*	-0.005**
	[-1.67]	[-2.00]

MCAP	0.000***	0.000***
	[3.54]	[3.52]
GGDP	0.000	0.001
	[0.51]	[0.76]
Country FE	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	79,702	79,702
$Adj.R^2$	0.074	0.075

Table 5. 2SLS Regression

This table reports the two-stage least squares (2SLS) regression results for the impact of foreign institutional ownership (*FIO*) on the speed of leverage adjustment (SOA) by estimating the partial adjustment model. In the first-stage regression (i.e., Column 1), we regress *FIO* on *MSCI* and the same set of control variables as used in the baseline regression. Then, in the second-stage regression, we extract its fitted value as $\widehat{\boldsymbol{FIO}}$ and examine its impact on the SOA (i.e., Columns 2 and 3). In Columns 2 and 3, the dependent variable is the actual leverage adjustment ($\boldsymbol{LEV_t - LEV_{t-1}}$), and all independent variables are multiplied by the leverage deviation from the target (*DLEV*). *FIO* (*DIO*) is the institutional ownership by foreign (domestic) institutional investors scaled by firms' market capitalization. The instrumental variable, *MSCI*, is a dummy variable that equals one if a firm is included in the Morgan Stanley Capital International All Country World Index and zero otherwise. *OL* is a dummy variable that equals one if a firm is over-leveraged and zero otherwise. Firm-, industry-, and country-level variables are controlled in each regression but are suppressed for brevity. All variables are defined in Appendix A. Standard errors are robust to heteroskedasticity. ***, **, or * next to the coefficients indicates that the coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

	1st Stage	***2nd Stage***	***2nd Stage***
Dependent Variable =	*FIO*	$LEV_t - LEV_{t-1}$	$LEV_t - LEV_{t-1}$
	[1]	[2]	[3]
MSCI	0.032***		
	[37.09]		
$\widehat{FIO}$		0.306***	-0.004
		[3.81]	[-0.04]
$\widehat{FIO} \times OL$			0.834***
			[6.67]
DIO	-0.040***	0.045***	-0.010
	[-18.74]	[4.38]	[-0.66]
DIO × *OL*			0.075***
			[3.18]
OL			0.000
			[0.03]
Controls	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	75,283	67,416	67,416
$Adj.R^2$	0.382	0.071	0.073
F-test (p-value)	305.64 (<0.001)		

Table 6. DiD Estimation

This table reports the results of difference-in-differences (DiD) estimation on how a plausibly exogenous shock to U.S. foreign institutional ownership (*FIO_US*) resulting from the passage of the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) affects the speed of leverage adjustment (SOA). Treatment (control) firms are dividend-paying firms domiciled in tax-treaty (nontreaty) economies. We match each control firm with five treatment firms using the nearest-neighbor propensity score matching approach. Panel A presents the means of the matching variables of treatment and control firms and the difference in means between the two groups. Panel B reports the multivariate DiD estimation results. In Columns 2-4, the dependent variable is the actual leverage adjustment ($LEV_t - LEV_{t-1}$), and all independent variables are multiplied by the leverage deviation from the target (*DLEV*). *TREAT* equals one for dividend-paying firms domiciled in economies that have tax treaties with the U.S and zero otherwise. *POST* equals one for the years after the passage of the JGTRRA in 2003 and zero otherwise. *FIO_NonUS* (*DIO*) is the institutional ownership by non-U.S. foreign (domestic) institutional investors scaled by firms' market capitalization. Firm-, industry-, and country-level variables are controlled in each regression but are suppressed for brevity. All variables are defined in Appendix A. Standard errors are robust to heteroskedasticity. ***, **, or * next to the coefficients indicates that the coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

Panel A: Pretreatment Statistics

	Treatment (Mean)	*Control (Mean)*	*Difference [1]-[2]*	*t-statistic*
	[1]	[2]	[3]	[4]
FIO_US	0.009	0.008	0.001	0.17
FIO_NonUS	0.030	0.027	0.003	0.66
DIO	0.011	0.014	-0.003	-1.42
SIZE	13.186	13.091	0.095	0.85
TANG	0.391	0.387	0.004	0.22
MTB	0.958	1.039	-0.081	-1.26
PROF	0.110	0.117	-0.007	-1.07
DEP	0.036	0.037	-0.001	-0.51
RDEXP	0.006	0.007	0.001	-0.10
RD_DUM	0.662	0.682	-0.020	-0.50
LEV_IND	0.211	0.213	-0.002	-0.17

Panel B: Multivariate DiD Estimation

Sample =	*Full*	*Full*	*Over-Leveraged*	*Under-Leveraged*
Dependent Variable =	*FIO_US*	$LEV_t - LEV_{t-1}$	$LEV_t - LEV_{t-1}$	$LEV_t - LEV_{t-1}$
	[1]	[2]	[3]	[4]
TREAT × POST	0.035***	0.070***	0.136**	0.046
	[3.43]	[2.72]	[2.32]	[1.59]
TREAT	0.001	-0.035*	-0.165***	0.008
	[0.04]	[-1.93]	[-3.93]	[0.33]
POST		-0.046**	-0.092	-0.030
		[-2.13]	[-1.49]	[-1.13]

FIO_NonUS	-0.07	-0.243	-0.482	-0.124
	[-1.24]	[-1.54]	[-1.02]	[-0.67]
DIO	0.022	0.422*	0.388	-0.205
	[0.94]	[1.96]	[0.85]	[-0.71]
Controls	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	5444	5444	1780	3664
$Adj.R^2$	0.261	0.097	0.168	0.080

Table 7. Independent and Long-Horizon Foreign Institutional Investors

This table reports the OLS regression results for the impact of foreign institutional ownership (*FIO*) on the speed of leverage adjustment (SOA) by estimating the partial adjustment model. The dependent variable is the actual leverage adjustment ($\boldsymbol{LEV_t - LEV_{t-1}}$). All independent variables are multiplied by the leverage deviation from the target (*DLEV*). *FIO_Independent* (*FIO_Grey*) is the institutional ownership by foreign independent (grey) institutional investors scaled by firms' market capitalization. *FIO_Long* (*FIO_Short*) is the institutional ownership by foreign long- (short-)horizon institutional investors scaled by firms' market capitalization. *OL* is a dummy variable that equals one if a firm is over-leveraged and zero otherwise. Firm-, industry-, and country-level variables are controlled in each regression but are suppressed for brevity. All variables are defined in Appendix A. Standard errors are robust to heteroskedasticity. ***, **, or * next to the coefficients indicates that the coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

	[1]	[2]
FIO_Independent	-0.118***	
	[-3.65]	
FIO_Independent × *OL*	0.245***	
	[2.97]	
FIO_Grey	0.315	
	[1.08]	
FIO_Grey × *OL*	0.287	
	[0.47]	
FIO_Long		-0.273***
		[-3.98]
FIO_Long × *OL*		0.643***
		[2.87]
FIO_Short		0.240*
		[1.67]
FIO_Short × *OL*		-0.299
		[-0.74]
DIO	0.034***	-0.030**
	[3.18]	[-2.20]
DIO × *OL*	-0.007	0.097***
	[-0.43]	[4.68]
OL	0.020***	0.014**
	[2.99]	[2.06]
Controls	Yes	Yes
Country FE	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	79,702	79,702
$Adj.R^2$	0.064	0.075

Table 8. Concentrated Foreign Institutional Investors

This table reports the OLS regression results for the impact of foreign institutional ownership (*FIO*) on the speed of leverage adjustment (SOA) by estimating the partial adjustment model. The dependent variable is the actual leverage adjustment ($\boldsymbol{LEV_t - LEV_{t-1}}$). All independent variables are multiplied by the leverage deviation from the target (*DLEV*). *FIO_TOP5* is institutional ownership by the five largest foreign institutional investors scaled by firms' total institutional ownership. *FIO_HHI* is the Herfindahl index of foreign institutional ownership concentration. Then, we divide *FIO_HHI* into quartiles to mitigate the effect of large outliers (denoted by *FIO_HHI_Quartile*). Firm-, industry-, and country-level variables are controlled in each regression but are suppressed for brevity. All variables are defined in Appendix A. Standard errors are robust to heteroskedasticity. ***, **, or * next to the coefficients indicates that the coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

	[1]	[2]
FIO_TOP5	-0.034***	
	[-4.44]	
FIO_TOP5 × OL	0.071***	
	[5.98]	
FIO_HHI_Quartile		-0.015***
		[-7.18]
FIO_HHI_Quartile × OL		0.016***
		[4.35]
FIO		-0.092***
		[-3.77]
FIO × OL		0.162***
		[3.36]
DIO	-0.034**	-0.024*
	[-2.43]	[-1.77]
DIO × OL	0.114***	0.085***
	[5.52]	[4.12]
OL	0.007	0.005
	[0.99]	[0.46]
Controls	Yes	Yes
Country FE	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	79,702	79,702
$Adj.R^2$	0.075	0.076

Table 9. Does Foreign Institution Ownership Impact Debt and Equity Issuance?

This table reports the probit regression results for the impact of foreign institutional ownership (*FIO*) on debt (*DI*) and equity issuance (*EI*). *DI* (*EI*) equals one if the change in the book value of debt (net equity issuance) scaled by the book value of assets is greater than 5% and zero otherwise. *FIO* (*DIO*) is the institutional ownership by foreign (domestic) institutional investors scaled by firms' market capitalization. *OL* is a dummy variable that equals one if a firm is over-leveraged and zero otherwise. Firm-, industry-, and country-level variables are controlled in each regression but are suppressed for brevity. All variables are defined in Appendix A. Standard errors are robust to heteroskedasticity. ***, **, or * next to the coefficients indicates that the coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

Dependent Variable =	*Debt Issuance (DI)*	*Equity Issuance (EI)*
	[1]	[2]
FIO	0.544***	0.581***
	[5.03]	[3.76]
FIO × *OL*	0.022	0.490**
	[0.13]	[2.30]
DIO	0.299***	0.520***
	[8.91]	[12.45]
DIO × *OL*	-0.139***	-0.253***
	[-2.87]	[-4.29]
OL	0.066***	0.073***
	[3.41]	[2.76]
Controls	Yes	Yes
Country FE	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
N	64,884	64,817
Pseudo R^2	0.050	0.149

Table 10. The Corporate Governance of the Investee and Home Countries of Foreign Institutional Investors

This table reports the OLS regression results for the impact of foreign institutional ownership (*FIO*) on the speed of leverage adjustment (SOA) by estimating the partial adjustment model. The dependent variable is the actual leverage adjustment ($\boldsymbol{LEV_t - LEV_{t-1}}$). All independent variables are multiplied by the leverage deviation from the target (*DLEV*). We create high and low *SR* investee subsamples based on the median shareholder rights index (*SR*) of investee countries. *SR* is the first principal component of the antidirector index and the anti-self-dealing index. *FIO* (*DIO*) is the institutional ownership by foreign (domestic) institutional investors scaled by firms' market capitalization. *FIO_HomeSR* is weighted *FIO* adjusted by the *SR* of the home countries of foreign institutional investors. *OL* is a dummy variable that equals one if a firm is over-leveraged and zero otherwise. Firm-, industry-, and country-level variables are controlled in each regression but are suppressed for brevity. All variables are defined in Appendix A. Standard errors are robust to heteroskedasticity. ***, **, or * next to the coefficients indicates that the coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

Sample =	*High SR Investee*	*Low SR Investee*	*Full*	*High SR Investee*	*Low SR Investee*
	[1]	[2]	[3]	[4]	[5]
FIO	-0.050	-0.105***			
	[-1.45]	[-3.15]			
FIO × OL	0.055	0.288***			
	[0.89]	[4.59]			
FIO_HomeSR			-0.076**	-0.071	-0.123***
			[-2.09]	[-1.34]	[-2.58]
FIO_HomeSR × OL			0.218***	0.139	0.384***
			[3.07]	[1.51]	[3.97]
DIO	-0.017	0.160**	0.018	-0.020	0.153*
	[-1.09]	[2.18]	[1.48]	[-1.28]	[1.91]
DIO × OL	0.029	-0.059	0.031	0.037	-0.024
	[1.63]	[-0.55]	[1.49]	[1.54]	[-0.20]
OL	0.022**	0.031***	0.015**	0.010	0.026**
	[2.18]	[3.44]	[2.01]	[0.77]	[2.52]
Controls	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
N	38,866	40,180	79,702	39,522	40,180
$Adj.R^2$	0.082	0.070	0.075	0.082	0.073

Table 11. Reduced-Form Model

This table reports the SYSGMM regression results for the impact of foreign institutional ownership (*FIO*) on the speed of leverage adjustment (SOA) by estimating the reduced-form model. The dependent variable is book leverage ($\boldsymbol{LEV_{i,t}}$). All independent variables are lagged by one year. *FIO* (*DIO*) is the institutional ownership by foreign (domestic) institutional investors scaled by firms' market capitalization. Firm-, industry-, and country-level variables are controlled in each regression but are suppressed for brevity. All variables are defined in Appendix A. Standard errors are robust to heteroskedasticity. ***, **, or * next to the coefficients indicates that the coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

Sample =	*Full*	*High FIO*	*Low FIO*	*High FIO and Over-Leveraged*	*Low FIO and Over-Leveraged*	*Full*	*Over-Leveraged*	*Under-Leveraged*
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
$LEV_{i,t-1}$	0.805***	0.800***	0.814***	0.751***	0.832***	0.837***	0.889***	0.850***
	[66.32]	[38.82]	[50.49]	[13.54]	[15.93]	[58.01]	[47.99]	[41.79]
$FIO_{i,t-1}$						0.115	0.276**	0.041
						[1.46]	[2.34]	[0.52]
$FIO_{i,t-1} \times LEV_{i,t-1}$						-0.299*	-0.603***	-0.258
						[-1.89]	[-2.88]	[-1.23]
$DIO_{i,t-1}$						-0.025**	-0.047***	-0.000
						[-2.12]	[-2.77]	[-0.02]
$DIO_{i,t-1} \times LEV_{i,t-1}$						0.037	-0.037	0.006
						[1.49]	[-0.93]	[0.18]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	79,702	40,631	39,071	12,458	15,747	79,702	28,205	51,497
$Adj.R^2$	0.819	0.818	0.816	0.818	0.818	0.829	0.818	0.830

Table 12. Additional Tests

This table reports the two-stage least squares (2SLS) regression results for the impact of foreign institutional ownership (*FIO*) on the speed of leverage adjustment (SOA) by estimating the partial adjustment model. In the first-stage regression, we regress *FIO* on *MSCI* and the same set of control variables as used in the baseline regression. Then, in the second-stage regression, we extract its fitted value as $\widehat{\boldsymbol{FIO}}$ and examine its impact on the SOA. The dependent variable is the actual book (market) leverage adjustment in Columns 1-4 (5-6). All independent variables are multiplied by the leverage deviation from the target (*DLEV*). *FIO* (*DIO*) is the institutional ownership by foreign (domestic) institutional investors scaled by firms' market capitalization. The instrumental variable, *MSCI*, is a dummy variable that equals one if a firm is included in the Morgan Stanley Capital International All Country World Index and zero otherwise. *OL* is a dummy variable that equals one if a firm is over-leveraged and zero otherwise. Firm-, industry-, and country-level variables are controlled in each regression but are suppressed for brevity. All variables are defined in Appendix A. Standard errors are robust to heteroskedasticity. ***, **, or * next to the coefficients indicates that the coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

Sample =	*Exclude U.S. Firms*	*Exclude U.S. and Japanese Firms*	*Developed Economies*	*Developing Economies*	*Full*	*Full*
Dependent Variable =	$LEV_t - LEV_{t-1}$	$LEV_t - LEV_{t-1}$	$LEV_t - LEV_{t-1}$	$LEV_t - LEV_{t-1}$	$ML_t - ML_{t-1}$	$ML_t - ML_{t-1}$
	[1]	[2]	[3]	[4]	[5]	[6]
$\widehat{FIO}$	0.105	-0.062	0.089	-0.467**	0.568***	0.127
	[1.09]	[-0.43]	[0.85]	[-2.03]	[6.89]	[1.47]
$\widehat{FIO} \times OL$	0.807***	0.594***	0.823***	0.544*		0.856***
	[5.65]	[3.22]	[5.90]	[1.86]		[5.98]
DIO	0.004	-0.008	-0.009	-0.133	0.069***	-0.083***
	[0.10]	[-0.19]	[-0.51]	[-1.43]	[5.56]	[-5.36]
DIO × *OL*	0.103	0.075	0.091***	0.348*		0.260***
	[1.45]	[1.01]	[3.74]	[1.87]		[9.20]
OL	0.001	0.022	-0.015	0.043**		-0.031***
	[0.12]	[1.47]	[-1.34]	[2.25]		[-3.07]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

N	55,571	40,466	48,815	18,601	67,416	67,416
$Adj.R^2$	0.074	0.077	0.078	0.075	0.162	0.167

Appendix A: Variable Definitions

Variable	Acronym	Definitions	Source
Panel A: Institutional Ownership Variables			
Foreign Institutional Ownership	*FIO*	Institutional ownership by foreign institutional investors scaled by firms' market capitalization.	FactSet
	FIO_Independent	Institutional ownership by independent foreign institutional investors (e.g., mutual funds and independent investment advisors) scaled by firms' market capitalization.	FactSet
	FIO_Grey	Institutional ownership by grey foreign institutional investors (e.g., bank trusts, insurance companies, pension funds, and endowments) scaled by firms' market capitalization.	FactSet
	FIO_Long	Institutional ownership by long-horizon foreign institutional investors scaled by firms' market capitalization. We classify FIIs with an annual portfolio turnover of 35% or less as long-horizon FIIs.	FactSet
	FIO_Short	Institutional ownership by short-horizon foreign institutional investors scaled by firms' market capitalization. We classify FIIs with an annual portfolio turnover of greater than 35% as short-horizon FIIs.	FactSet
	FIO_TOP5	Institutional ownership by the five largest foreign institutional investors scaled by firms' total institutional ownership.	FactSet
	FIO_HHI_Quartile	*FIO_HHI* is the Herfindahl index of foreign institutional ownership concentration. Then, we divide *FIO_HHI* into quartile to mitigate the effect of large outliers (denoted by *FIO_HHI_Quartile*).	FactSet
Domestic Institutional Ownership	*DIO*	Institutional ownership by domestic institutional investors scaled by firms' market capitalization.	FactSet

Panel B: Firm- and Industry-Level Variables			
Book Leverage	*LEV*	Book value of debt scaled by the book value of assets.	Worldscope
Firm Size	*SIZE*	The natural logarithm of the book value of assets deflated to 2005 U.S. dollars.	Worldscope
Tangibility	*TANG*	Net property, plant, and equipment scaled by the book value of assets.	Worldscope
Market-to-Book Ratio	*MTB*	Book value of assets less book value of equity plus the market value of equity scaled by the book value of assets.	Worldscope
Profitability	*PROF*	Earnings before interest, taxes, depreciation, and amortization scaled by the book value of assets.	Worldscope
Depreciation	*DEP*	Depreciation and amortization scaled by the book value of assets.	Worldscope
R&D Expense	*RDEXP*	R&D expenses scaled by the book value of assets.	Worldscope
R&D Dummy	*RD_DUM*	Dummy variable that equals one if R&D expenses are not reported and zero otherwise.	Worldscope
Industry Median Leverage	*LEV_IND*	The median leverage ratio of an industry to which a firm belongs.	Worldscope
Over-Leveraged Dummy	*OL*	Dummy variable that equals one if a firm's financial leverage is greater than the target leverage and zero otherwise.	Worldscope
MSCI Membership	*MSCI*	Dummy variable equals one if a firm is included in the Morgan Stanley Capital International All Country World Index and zero otherwise.	MSCI ACWI
Debt Issuance	*DI*	Dummy variable that equals one if the change in the book value of debt scaled by the book value of assets is greater than 5% and zero otherwise.	Worldscope
Equity Issuance	*EI*	Dummy variable that equals one if the change in the net equity issuance scaled by the book value of assets is greater than 5% and zero otherwise.	Worldscope
Market Leverage	*ML*	Book value of debt scaled by the sum of the market value of equity and the book value of debt.	Worldscope
Panel C: Country-Level Variables			

GDP per Capita	*GDPC*	The natural logarithm of GDP per capita in U.S. dollars.	WDI
Market Capitalization	*MCAP*	Stock market capitalization scaled by GDP.	WDI
GDP Growth	*GGDP*	Annual GDP growth rate.	WDI
Shareholder Rights Index	*SR*	The first principal component of the antidirector index and the anti-self-dealing index. The antidirector index measures aggregate shareholder rights. It is constructed by adding one when (1) the country allows shareholders to mail their proxy votes to the firm, (2) there is no requirement to deposit shares prior to shareholders' general meetings, (3) cumulative voting or proportional representation of minorities in the board of directors is allowed, (4) an oppressed minorities mechanism is in place, (5) the minimum percentage of shares that entitles a shareholder to call for a meeting is less than or equal to 10%, or (6) shareholders have preemptive rights that can be waived only by shareholder vote. The anti-self-dealing index measures the quality of shareholder rights enforcement and is the average ex-ante and ex-post control of self-dealing.	La Porta et al. (1998), Djankov et al. (2008)