Institutional Investor Horizon and Firm Valuation around the World

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ABSTRACT

Using a comprehensive dataset of firms from 34 countries, we study the effect of institutional investors' investment horizons on firm valuation around the world. Long-term investors invest in firms domiciled in countries with a more investor-friendly institutional environment, while short-term investors tend to be less concerned about the quality of the financial and legal environment. The positive relation between institutional ownership and firm value is driven by short-horizon institutions. This valuation effect of short-horizon institutions is stronger in countries with high market liquidity, in firms with high stock liquidity, and in cash-rich firms that are prone to free cash flow agency problems. Our results are consistent with short-term investors affecting firm value by disciplining managers through a credible threat of exit. Finally, foreign short-term institutions have a stronger effect on firm value, suggesting that they are more independent and are associated with a more credible threat of exit.

Keywords: Institutional investors, investment horizon, institutional environments, corporate governance, foreign investors, firm value

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INTRODUCTION

Ownership of listed firms by institutional investors has increased steadily. For example, more than 50% of the equity of U.S. firms is held by institutions such as mutual funds, pension funds, insurance companies, and hedge funds. As shown in Figure 1, outside the U.S., institutional ownership (as a fraction of market capitalization in each country) is lower, but it has recently exceeded 15% in many countries. Institutional ownership is higher in developed and common law countries. A growing literature discusses the corporate governance and firm value implications of rising levels of institutional ownership.[1] However, the majority of these studies do not consider the heterogeneity in institutional investor horizon. The literature related to investor horizon focuses mainly on the U.S. market (Chen, Harford, & Li, 2007; Derrien, Kecskés, & Thesmar, 2013; Gaspar, Massa, & Matos, 2005), hence overlooks country-level factors that affect both the level of institutional ownership and institutions' investment horizon. Some studies examine the effect of institutions on firm valuation outside the U.S. (Aggarwal, Erel, Ferreira, & Matos, 2011; Bena, Ferreira, Matos, & Pires, 2017; Ferreira & Matos, 2008; Homanen & Liang, 2018), but they do not account for the role of heterogeneity across institutional investors.

[Insert Figure 1 here]

The horizon over which institutions allow managers to reach their goals is likely to influence the way investors choose to influence managers. Hirschman (1970) describes how institutional investors can exert influence over a portfolio firm by (i) engaging with management directly and trying to effect change ("voice"), or (ii) exiting the firm by selling shares ("voting with their feet"). Recent theoretical models suggest that the threat of exit alone can discipline management (Admati & Pfleiderer, 2009; Edmans, 2009; Edmans & Manso, 2011).

[1] See Homanen and Liang (2018) for a summary of the literature and global empirical evidence.

Investors with a longer investment horizon may have stronger incentives to engage with managers, e.g., because they are likely to hold shares long enough to realize the benefits of intervention (Burkart, Gromb, & Panunzi, 1997; Faure-Grimaud & Gromb, 2004; McCahery, Sautner, & Starks, 2016). Long-term investors are thus more inclined to build relationships with managers and monitor them closely. In contrast, by their very nature, short-term investors are more willing to sell their shares if they are not satisfied with managers' decisions. For the threat of exit to be credible, a stock must be sufficiently liquid so that investors are able to easily sell their shares in the market (Bharath, Jayaraman, & Nagar, 2013; Edmans, Fang, & Zur, 2013).

Regardless of the approach taken, the main purpose of institutional investors' monitoring pressure is to increase shareholder value. It is unclear, however, whether the different corporate governance approaches employed by long-term and short-term investors increase firm value equally. This is the research question we undertake in this paper. In a first step, given that the mechanisms through which institutional investors exert control may depend on the corporate governance framework of the country they invest in, we analyze the extent to which a country's institutional environment can explain cross-sectional differences in investment horizon. In a second step, we examine whether the positive relation between institutional ownership and firm value is driven by long-term or short-term institutions (or both). Analyzing whether short-term investors govern through exit threat, we test whether their positive impact on firm value is stronger when liquidity is higher and free cash flow agency problems are more pronounced.

We use a comprehensive dataset that consists of firm-level data from 34 countries excluding the U.S. Data are taken from the FactSet database. Although we exclude U.S. firms from our analysis, as they would otherwise dominate the sample, we take into account ownership by U.S. institutions, which

constitute the largest group of investors in many countries outside the U.S.[2] This approach allows us to obtain a complete picture of each firm's institutional investors. We thus combine 13F filings data, which include data from U.S. institutions, with the International Funds database, which includes portfolio ownership data for institutions from a number of countries around the world. The merged database enables us to compute churn rates as in Gaspar et al. (2005), which we use to classify institutions into long-term and short-term investors. Compared to alternative approaches that examine the time period an institution is invested in each specific firm, we determine the investment horizon at the institution level, obtaining a measure that is less prone to causality concerns. To the best of our knowledge, no prior study has compiled a comparable dataset and constructed churn rates on a global scale. Our study is the first to analyze the relation between a country's institutional framework, institutional investors' investment horizon, and firm valuation on a global scale.

Our results indicate that the share of firms' long-term institutional ownership is higher in countries with a more investor-friendly environment. Long-term investors are more concerned about investor-friendly conditions compared to short-term investors, who engage with a firm only for a short time. In particular, long-term investors tend to invest in countries with strong shareholder rights, an effective rule of law, and high accounting standards. Long-term investors attach importance to these institutional characteristics because they bear all the related costs in the long run, while short-term investors can possibly behave more opportunistically.

Most importantly, investor horizon has a significant effect on firm valuation in our sample of international firms. Firms whose institutional investors have higher average portfolio turnover and a shorter investment horizon exhibit higher market-to-book ratios. These results hold when we use the

[2] Prior U.S. evidence on institutional investor horizons may not generalize to other countries because of differences in institutional environments, which can affect the effectiveness of governance through the channels of voice and exit.

relative share of total equity that is held by long-term versus short-term investors as an explanatory variable: the ratio of short-term institutional ownership is significantly positively related to the market-to-book ratio. The positive effect of institutional ownership on firm valuation is driven by short-term investors in our international dataset. Our results are robust to including firm- and country-level control variables and to addressing endogeneity concerns using three-stage least squares as well as a placebo test. We then repeat our analysis excluding hedge funds to rule out that hedge fund activism drives our findings and obtain very similar results. The results are also robust to replacing the market-to-book ratio as the dependent variable by the return on assets to alleviate concerns associated with using the market-to-book ratio of assets as a measure of firm value.

We next explore the channels through which short-term institutions increase firm value. Prior research suggests that short-term institutions trade more often, and are therefore more likely to sell their shares when they are dissatisfied with a firm instead of engaging in costly monitoring. Accordingly, we explore whether short-term institutions govern through exit or the threat of exit, which is only credible if the stock market is sufficiently liquid. Our analysis involves splitting our sample into groups based on market- and stock-level liquidity. In support of the notion that the threat of exit acts as a mediating factor between investor horizon and firm value, we find that the positive valuation effect of short-term investors is stronger in countries with high market liquidity and in firms with high stock liquidity. Further supporting the role of the exit threat, we find that short-term investors have a stronger positive effect on firm value in cash-rich firms. These firms are particularly prone to free cash flow agency problems, which can be effectively curbed through exit threats (Admati & Pfleiderer, 2009). Overall, the conditioning roles of liquidity and agency problems support the hypothesis that short-term investors increase firm value by exerting governance through the threat of exit.

Finally, we examine whether an institutional investor's country of origin drives our results. We find that the positive valuation effect of short-term investors is strongest for foreign short-term institutions.

This result corroborates the notion that this subgroup of institutional investors is more independent, and thus may convey a more credible threat of exit.

Our study makes several contributions to the existing literature on institutional ownership. First, we explore the cross-country determinants of institutional investors' investment horizons on a global scale. While Ferreira and Matos (2008) account for cross-country differences as determinants of institutional ownership, the effects on the investment horizon are so far unexplored. Yan and Zhang (2009) examine the different preferences of long-term and short-term institutions with respect to firm characteristics in the U.S. market, leaving country-level determinants of institutional investors' investment horizons unexplored. Our study extends this literature by examining how country characteristics affect the attractiveness of firms to long-term versus short-term institutional investors.

Second, and more importantly, we explore the relation between institutional investors' investment horizons and firm valuation for a large sample of international firms. Recent studies find that institutional ownership is positively associated with firm valuations across countries (Aggarwal et al., 2011; Bena et al., 2017; Ferreira & Matos, 2008; Homanen & Liang, 2018). However, these studies do not account for differences in the institutions' investment horizons. Only Alvarez, Jara, and Pombo (2018) investigate the effects of institutional investors' investment horizons for non-U.S. firms, and show that long-term institutions increase corporate investment. However, they focus only on firms from emerging markets, they do not use churn rates but rely on a more simplistic measure of investor horizon, and they do not directly examine the valuation implications. Our study is the first to examine the valuation effects of institutional investors' investment horizons on a global scale.

In doing so, our study also adds to the debate in the literature that compares the effects of long-term and short-term institutional investors. Studies that analyze the effect of investor horizon on firm valuation using U.S. firms provide inconclusive evidence. While Yan and Zhang (2009) find that short-term institutions are associated with higher stock returns, both Cremers and Pareek (2015) and Cremers, Pareek, and Sautner (2018) suggest that this relation reverses in the long-run. Borochin and Yang (2017)

also provide support for this latter view, documenting that transient institutions increase firm misvaluation. Harford, Kecskés, and Mansi (2018) measure a positive effect of long-term institutions on stock returns in general, while Giannetti and Yu (2017) provide evidence for a positive long-run performance effect of short-term institutions subsequent to large permanent negative shocks. We extend this ongoing debate by documenting a positive effect of short-term institutions in an international setting.

Third, we provide evidence that liquidity plays an important role as a mediating factor in the relation between investor horizon and firm valuation. The extant literature mainly focuses on corporate policies such as investment or M&A when evaluating possible explanations. However, except in the literature on activist hedge funds (Kahan & Rock, 2007; Brav, Jiang, Partnoy, & Thomas, 2008; Greenwood & Schor, 2011), there is no evidence on whether institutional investors effectively discipline managers to act in their interest. Our study is the first to identify liquidity as a driving force behind the positive valuation effect of short-term institutions. Our empirical results corroborate recent theoretical models (Admati & Pfleiderer, 2009; Edmans, 2009; Edmans & Manso, 2011) and survey evidence (McCahery et al., 2016), all suggesting a positive corporate governance effect of liquidity through the threat of exit. We also extend empirical evidence showing that blockholders govern through the threat of exit (Bharath et al., 2013). In addition, we provide support for corporate governance via exit as a conditioning factor in the relation between short-term institutions and firm valuation by showing that this relation is stronger in cash-rich firms (Admati & Pfleiderer, 2009).

Finally, we contribute to the literature that examines the effects of domestic and foreign institutional investors. While prior work that accounts for the heterogeneity across institutional investors focuses either on the institutional investor's domicile (Aggarwal et al., 2011; Bena et al., 2017; Ferreira & Matos, 2008) or its investment horizon (Chen et al., 2007; Gaspar et al., 2005; Yan & Zhang, 2009), we find that the positive effect of short-term institutions on firm value is stronger for foreign short-term institutions. Our study is the first to show that the presence of institutional investors with similar investment horizons can have different implications if investors differ with respect to their country of domicile. We thus suggest

that both dimensions—investor nationality and horizon—are interrelated and thus should not be considered separately.

The remainder is as follows. The next section surveys the literature and develops testable hypotheses. The following section describes the data and methodology. Then we examine the determinants of investor horizon and, in the next section, test the effect of investor horizon on firm valuation. The final section concludes.

RELATED LITERATURE AND HYPOTHESES

In this section, we first survey studies that examine the effect of institutional investors on corporate governance as well as the relation between institutional ownership and firms' investment and financing preferences. We then present our testable hypotheses.

Institutional Investors and Corporate Governance

In their seminal paper, Shleifer and Vishny (1986) argue that institutional investors can discipline managers through monitoring and intervention.[3] In many firms institutional investors collectively hold a dominant position; such presence in terms of ownership concentration reduces coordination costs and provides greater monitoring incentives. Compared to retail investors, institutional investors are relatively independent, as they often have fewer business ties to portfolio firms. Moreover, they tend to be better informed ("smart money"; Borochin & Yang, 2017) because they employ teams of professional

[3] Concentrated institutional ownership, a form of blockholding, is an important governance mechanism. The majority of blockholder models suggest that large shareholders add value through direct intervention, or "voice" (Hirschman, 1970). In these models, incentives to exert voice are largest in the presence of large blocks, as they reduce the free-rider problem (Admati, Pfleiderer, & Zechner, 1994; Kahn & Winton, 1998; Maug, 1998; Mello & Repullo, 2004; Shleifer & Vishny, 1986). On the other hand, too large blocks may deter managerial initiatives ex ante (Burkart et al., 1997) or reduce free float (Bolton & von Thadden, 1998; Faure-Grimaud & Gromb, 2004).

investment managers who are knowledgeable and experienced in business and finance (Goshen & Hannes, 2018).

Most empirical studies on institutional ownership find that, given their independence, expertise, and ability to monitor managers effectively, institutional investors have a positive effect on firm value that is attributable to better monitoring and changes in the corporate governance structures (Aggarwal et al., 2011; Gompers & Metrick, 2001; McConnell & Servaes, 1990; Smith, 1996). Using international samples, Ferreira and Matos (2008) and Bena et al. (2017) document a positive effect of institutional ownership on firm value, with this effect driven primarily by foreign and thus more independent institutions. Homanen and Liang (2018) show that higher institutional ownership is unconditionally correlated with higher firm valuation. In sum, institutional ownership seems to be a "universal" corporate governance mechanism.[4]

Only recently researchers have started to investigate the role of heterogeneity across institutions. While, taken as a whole, institutions exert influence over portfolio firms through monitoring and governance changes, different institutions likely vary in how they engage with portfolio firms' management. An institution's investment horizon might affect its intervention decisions. Long-term investors are able to spread the costs and benefits of monitoring over a longer period of time and thus

[4] Empirical evidence further suggests that governance practices can spill over to other countries (Aggarwal et al., 2009, 2011; Albuquerque, Brandão–Marques, Ferreira, & Matos, 2019). However, a central question in this literature is the extent to which "good" governance practices are universal (i.e., "one size mostly fits all") versus a function of country and firm characteristics (see Cumming, Filatotchev, Knill, Reeb, and Senbet (2017) for a review of channels such as international mergers and acquisitions, foreign ownership, foreign political connections, and foreign directors). Homanen and Liang (2018) find that, while the relation between rule-based governance practices and firm value varies substantially across countries (implying there is no universal set of corporate governance practices across countries), institutional investors have a unique (universal) ability to mitigate agency problems in their portfolio firms that is independent of the institutional environment.

possess a comparative advantage in influencing managers through active engagement or "voice" (Chen et al., 2007; Gaspar et al., 2005).[5] Moreover, institutional investors with a long investment horizon have incentives to build relationships with portfolio firms' management, engage in high quality research, and collect more detailed information about the firm (Attig, Cleary, El Ghoul, & Guedhami, 2012). Long-term investors are more likely to exert influence on firm management through engagement or voice than trading.

Survey evidence in McCahery et al. (2016) confirms that long-term investors use the voice channel more intensively. In line with this, Chen et al. (2007) document that only long-term institutions exert monitoring and enhance post-merger performance; they make long-term portfolio adjustments through acquisition bids rather than through trading, selling only ahead of very bad outcomes. Appel, Gormley, and Keim (2016) show that even passive institutional investors such as index funds engage in governance activities, mitigating agency problems by improving voting rights as well as board structures and boosting long-term performance.[6]

[5] Any hypothesized relation between investor horizon and corporate outcomes is subject to the critique raised by Demsetz (1983: 384) that a firm's ownership structure is "an endogenous outcome of competitive selection in which various cost advantages and disadvantages are balanced to arrive at an equilibrium organization of the firm". If both owners and investors are value maximizers, then given a firm's circumstances, there should be no relation between investor horizon and corporate outcomes.

[6] Opposing this view, Dasgupta and Piacentino's (2015) theoretical model suggests that, when passive fund managers compete for investor capital, their threat of exit loses credibility, and this also weakens the voice channel. As a result, passive institutions are unlikely to improve governance. Schmidt and Fahlenbrach (2017) find that passive institutional investors increase agency problems in the form of higher CEO power. Even if passive institutions possibly take low-cost governance measures, they forgo higher-cost governance activities because their stakes are typically small, and they are expected to maintain a low-cost portfolio management.

Short-term institutional investors, in contrast, are less likely to invest in extensive monitoring or information collection and tend to govern through the threat of exit or "voting with their feet" (Admati & Pfleiderer, 2009; Edmans, 2009; Edmans & Manso, 2011; Hirschman, 1970). According to exit models, blockholder exit such as a sale by an institutional investor exerts downward pressure on the stock price, which negatively affects managerial compensation tied to the share price. Because blockholders' private information on the fundamental value of the firm is impounded in the firm's stock price through trading, managers have the incentive to make value-increasing investments to induce blockholders to stay with the firm.[7]

Nevertheless, blockholders' acquisition of private information about firm fundamentals is not enough to discipline managers. For the threat of exit to be credible, the private information must reach the stock price and affect the value of managers' shareholdings. Exit models thus posit that a stock's liquidity is essential to the effectiveness of the exit threat, as liquidity determines the extent to which a blockholder's private information can be impounded into the price.[8] Edmans (2009), for example, shows that liquidity increases the credibility of the exit threat by encouraging blockholders to collect information about the

[7] As Edmans (2009) notes, blockholders can buy on positive information and sell on negative information (while other investors may face short-sale constraints or non-trivial short-sale costs), and thus have greater incentives to acquire information in the first place.

[8] The theoretical literature offers conflicting predictions on the desirability of liquidity for corporate governance. The traditional view is that blockholders govern through intervention (or voice), and that stock market liquidity impedes voice because it facilitates blockholders selling stakes in a distressed firm instead of bearing the cost of intervening to fix it (Bhide, 1993; Coffee, 1991). If liquidity is high, shareholders have lower incentives to actively monitor and prevent misconduct due to reduced costs of "exit". However, liquidity can encourage voice by enabling a block to form in the first place (Kahn & Winton, 1998; Maug, 1998). It may also allow blockholders to acquire shares in the open market, which does not (yet) fully reflect the value effect of intervention, to cover the cost of monitoring (Faure-Grimaud & Gromb, 2004; Maug, 1998).

firm, allowing blockholders to trade more aggressively on that information, and leading to larger initial blocks. Taken together, these arguments suggest that by increasing the credibility of exit threats, liquidity helps short-horizon institutions to discipline firm managers and in turn increase firm value.

Empirical evidence supports the above predictions. Fang, Noe, and Tice (2009) document that firms with more liquid stocks have higher market-to-book ratios. Liquidity stimulates the entry of informed traders, which make prices more informative and lead in turn to reduced financial constraints and improved operating performance. Bharath et al. (2013) show that firm value increases in firms with large blockholders after positive liquidity shocks, which is attributed to the disciplining effect of a more powerful exit threat. Back, Li, and Ljungqvist (2015) also show that blockholder activity, as measured by hedge fund activism and the number of shareholder proposals submitted in opposition to management, decreases when liquidity increases.[9]

The survey evidence in McCahery et al. (2016) shows that, among institutional investors, both behind-the-scenes intervention and governance-motivated exit are widespread, but long-term investors intervene more intensively than short-term investors in practice. Investors who choose intervention are more concerned about a firm's corporate governance or strategy than reaping (possibly myopic) short-term gains, while investors who are more concerned about liquidity (e.g., because they hold more liquid stocks) use voice less intensively.

[9] In contrast, Roosenboom, Schlingemann, and Vasconcelos (2014) interpret their evidence from corporate takeovers as suggesting that high stock liquidity impedes institutions' incentives to monitor management. However, in cases in which the threat of exit has a strong disciplining effect, the negative effects of liquidity on monitoring incentives are offset by the positive effects of liquidity on the effectiveness of the threat of exit. In the presence of an effective threat of exit (i.e., high liquidity of the firm's stock), managers make less value-destroying takeover decisions.

Institutional Investors and Corporate Decision-making

Differences in the goals and governance mechanisms between long- and short-term institutional investors affect firm investment. For instance, Bushee (1998) and Aghion, van Reenen, and Zingales (2013) find that institutions with short investment horizons encourage myopic investment behavior such as reducing R&D expenditures to reverse an earnings decline, while long-term institutional investors prevent managers from such behavior. Alvarez et al. (2018) find that short-term investors in emerging markets pressure managers to cut investment ratios to increase short-run returns. Using patent data, Kim, Park, and Roy Song (2017) show that institutional investors with longer investment horizons mitigate managerial myopia through better monitoring, which results in higher investments in innovation.

The investment horizon of firms' institutional investors also affects acquisitions and the probability of becoming a takeover target. Chen et al. (2007) find that acquisitions are positively related to post-merger performance only if independent long-term institutions own a large share of the acquiring firm. Gaspar et al. (2005) show that firms with more short-term investors realize lower acquisition premiums. Firms with short-term investors negotiate less efficiently, and their managers are more likely to trade off shareholder value for private benefits. Therefore, firms with more short-horizon investors are more frequent and cheaper takeover targets.

Turning to the effect of investor horizon on firm financing, Huang and Petkevich (2016) show that firms with larger short-term institutional ownership have higher future corporate bond yield spreads. Attig, Cleary, El Ghoul, and Guedhami (2013) show that firms with large short-term institutional ownership exhibit a higher cost of equity capital. Similarly, Attig et al. (2012) find that long-term institutional investors reduce the wedge between the cost of internal and external funds, thus firms with long-term institutional investors have lower investment-cash flow sensitivity. Derrien et al. (2013) show that the effect of stock mispricing on corporate policies is smaller in the presence of larger long-term investor ownership. Firms with more long-term investors tend to invest more, raise more equity financing, and have lower payouts to shareholders when the firm is undervalued.

Previous research also establishes an association between investor horizon and stock returns. Yan and Zhang (2009) find a positive relation between short-term institutional ownership and future stock returns. Short-term institutional owners predict future stock returns and future earnings surprises, which they interpret as evidence that institutions that trade more actively are better informed than long-term institutional investors and exploit this informational advantage. Cremers and Pareek (2015) show that momentum returns are higher for firms held primarily by short-term investors, but the subsequent reversals are stronger for these firms as well, thus contradicting the efficiency benefits of short-term investors. Similarly, Cremers et al. (2018) find that short-term institutional ownership is associated with a temporary increase in firm valuation, resulting from investment cuts that lead to positive earnings surprises. However, this effect reflects only temporary distortions; it is reversed when short-term investors sell their shares.

Borochin and Yang (2017) show that institutional investors with concentrated positions and a long investment horizon reduce future firm misvaluation, while institutional investors with smaller holdings and a short investment horizon increase it. Firms with long-term institutional investors exhibit superior long-run performance. Similarly, Harford et al. (2018) find that firms with high long-term investor ownership benefit from higher excess stock returns, which they attribute to enhanced corporate governance. These arguments are attenuated by Giannetti and Yu (2017), who find that the negative long-run effects of myopic short-term institutional investors are not present in all economic environments. Instead, short-term institutions increase valuation and performance for firms that experience permanent negative shocks, suggesting that they are more successful in adapting to a new environment.

Hypotheses

Cross-country differences in the financial and legal framework of a firm's country of domicile may affect its attractiveness to investors. Most important, the development of a country's financial sector (Wurgler, 2000) or its financial institutions (Levine, 2002) facilitate financing and improve capital

allocation efficiency. High accounting standards promote efficient contracting, facilitate information verification, and improve investment decisions (Hay, Shleifer, & Vishny, 1996).

La Porta, López-de-Silanes, Shleifer, and Vishny (1998) maintain that countries with a common law tradition are more investor-friendly and enforce laws more effectively than countries with a civil law origin, especially those with a French civil law origin. More recent work also documents that the gain of a strong legal structure greatly depends on the enforcement of the legal rules in place (Bhattacharya & Daouk, 2009; Humphery-Jenner, 2013).

While equity investors in general suffer under a weak financial framework, weak shareholder rights, and weak law enforcement, we expect long-term investors to be more concerned about the institutional environment. Only long-term investors have to bear the full costs weak financial and legal environments entail by deteriorating shareholder value in the long run. Short-term investors, in contrast, can behave opportunistically and may even benefit from temporary misvaluations in weak institutional environments. We therefore expect that long-term institutional investors put greater emphasis on an investor-friendly environment than short-term institutions.

H1: *Long-term institutions prefer to invest in firms domiciled in countries with a more investor-friendly institutional environment, while short-term institutions are less concerned about the quality of the financial and legal environment.*

The literature is not conclusive and reports mixed results on the effect of long- and short-term institutional investors on corporate governance and firm outcomes. One reason for the conflicting results could be that different institutional investors exert governance through different channels. The traditional governance channel is to actively engage with firm management through monitoring, shareholder proposals, or discussions. We assume that engagement is the primary channel for long-term institutional investors. These investors are natural monitors since they typically establish a long-term relationship with the managers of their portfolio firms. As they are more interested in long-term profits, they hold their

shares long enough to realize the benefits of engagement, such as having more time to learn about the firm and being able to intervene more efficiently (Burkart et al., 1997; Chen et al., 2007; Faure-Grimaud & Gromb, 2004; Gaspar et al., 2005). Survey evidence in McCahery et al. (2016) confirms that long-term investors intervene more intensively than short-term investors.

Alternatively, shareholders can govern by selling shares, and even the threat of exit can discipline management. Given that short-term investors trade more often, are more likely to sell, and are less willing to invest in extensive monitoring, we argue that they govern through the threat of exit more intensively than long-term investors.[10] The mere possibility of large shareholders exiting based on private information can reduce agency costs. It is unclear, however, whether voice or exit generally produces better firm outcomes.

As outlined in Yan and Zhang (2009), there are several reasons why institutions with different investment horizons are differently informed. On the one hand, if some institutional investors possess superior information and can regularly identify under- or overvalued stocks, they will trade more frequently to exploit their informational advantage (Grinblatt & Titman, 1989; Wermers, 2000). Institutional investors that have limited information, in contrast, will trade more cautiously. Under this argument, institutions that trade more actively (short-term institutions) are better informed than those that trade less actively (long-term institutions). On the other hand, long-term institutions may trade less frequently because they trade only on the basis of information, while short-term institutions trade on the basis of noise, perhaps due to overconfidence (Barber & Odean, 2000; Odean, 1998). In this case, long-term investors are better informed than their short-term peers.

[10] However, this conjecture does not rule out the possibility that both long- and short-term investors may use exit and voice as complements. McCahery et al. (2016) report that investors that use exit as a governance mechanism also have a higher intensity of voice.

Overall, the investment horizon of institutional investors is expected to affect how they create value for shareholders. While institutional investors have a positive impact overall (Homanen & Liang, 2018), previous evidence provides no clear prediction as to whether short- or long-term institutions should have a stronger effect on firm value.

H2a: *The positive association between institutional ownership and firm value is driven mainly by long-term institutions.*

H2b: *The positive association between institutional ownership and firm value is driven mainly by short-term institutions.*

As outlined above, empirical evidence suggests that investors who care more about liquidity, and thus arguably hold more liquid stocks, govern less through engagement (McCahery et al., 2016). Liquidity discourages voice—it either allows investors to cut and run or induces them to use the threat of exit as a governance mechanism. While long-term investors are expected to exert governance more through the channel of voice than exit, short-term investors are assumed to trade (sell) or exert governance through threat of exit rather than engage in monitoring. Albeit the exit threat is not directly observable, short-term investors may have a stronger positive effect on firm value when stock liquidity is high because this makes their threat of exit more credible and thus more effective (Admati & Pfleiderer, 2009; Edmans, 2009).

H3: *Short-term institutional shareholders have a stronger positive effect on firm value when stock liquidity is high.*

Exit theories predict that liquidity reduces intervention (Bhide, 1993; Coffee, 1991). However, prior research also suggests that higher stock liquidity may result in more intervention. In Faure-Grimaud and Gromb's (2004) model, a shareholder is more likely to engage in monitoring when liquidity is higher, because if the shareholder is forced to sell the stake prematurely (e.g., urged by a liquidity shock),

liquidity makes it easier to exit at a price that properly reflects the engagement activities.[11] Therefore, we attempt to separate the threat of exit from blockholder intervention based on Admati and Pfleiderer's (2009) model. A main result of their model is that the effectiveness of the threat of exit as a disciplining device can be quite different depending on the nature of the agency problem. Blockholder exit threats are more effective at preventing the "bad action" type of agency problem of value-decreasing investments by management to derive perquisites; the threat of exit by a blockholder is very effective—disciplines managers, reduces agency costs—and in no case makes the agency problem worse. Admati and Pfleiderer (2009) argue that this situation is likely in cash-rich firms prone to "free cash flow" agency problems.

In contrast, their model predicts that the exit threat of a large shareholder is less effective in controlling the "good action" type of agency problem such as motivating managers to take a value-enhancing but privately costly action (e.g., a risk project that might fail and lead to a job loss for managers). In this case, it is possible that the potential exit by an informed large shareholder does not reduce agency costs, and may even exacerbate the agency problem relative to a situation where the large shareholder is not present. This prediction is inconsistent with the intervention theories of blockholder governance; there is no ex ante reason to assume such asymmetries in the effectiveness of intervention at curbing the "good action" versus the "bad action" type of agency problem.

While the two types of agency problems (one with the "bad action" and one with the "good action" from the shareholders' perspective) may seem to be mirror images of each other, Admati and Pfleiderer (2009) show that they can lead to dramatically different results. The effectiveness of exit threats lies not so much in promoting value-increasing investments by the manager as in deterring value-decreasing investments. Conversely, exerting governance through voice should be equally effective in both cases. We thus argue that governance via exit is distinct from governance via voice when addressing "bad

[11] Maug (1998) and Kahn and Winton (1988) show that liquidity facilitates block formation in the first place, which in turn also incentivizes intervention.

action" type agency problems. Short-term institutions, which govern through the threat of exit, should thus have a stronger positive effect in cash-rich firms that are more prone to the "bad action" type of agency problem of management undertaking unprofitable investments for personal perquisites.

H4: *Short-term institutional shareholders have a stronger positive effect on firm value in cash-rich firms.*

As an additional moderating factor in the relation between investor horizon and firm value, we analyze the effect of the institution's country of origin. Prior research suggest that foreign investors represent one way in which corporate governance becomes internationally mobile (Aguilera, Desender, López-Puertas Lamy, & Lee, 2017; Cumming et al., 2017). Confirming this notion, Ferreira and Matos (2008), Aggarwal et al. (2011), and Bena et al. (2017) document that the positive effect of institutional investors on corporate governance and firm value is strongest for foreign institutions. Moreover, foreign ownership is linked to higher investment efficiency (Chen, El Ghoul, Guedhami, & Wang, 2017), and foreign institutional investors influence firms' auditor choices in a way that improves the information environment of firms (Kim, Pevzner, & Xin, 2019). Luong, Moshirian, Nguyen, and Tian (2017) find that foreign institutions increase innovation by improving firms' governance mechanisms, while Lel (2018) associates foreign institutional ownership with reduced earnings management activities.

Building on this literature, we argue that foreign and domestic institutions exert governance differently, and thus the presence of each of them has different implications for corporate policies and firm performance. On the one hand, previous studies find that domestic institutions benefit from an informational advantage (Chan, Covrig, & Ng, 2005; Kang & Stulz, 1997; Leuz, Lins, & Warnock, 2009; Liu, Chung, Sul, & Wang, 2018), which can, if translated into more effective monitoring, lead to better firm performance. On the other hand, if foreign institutions are aware of potential informational disadvantages, they consciously choose foreign investee firms. Grinblatt and Keloharju (2000) argue that foreign investors are more independent of firms' management and possibly have superior investment

experience and expertise. Ferreira, Matos, Pereira, and Pires (2017) find that, although domestic institutional investors often have better information, foreign institutions perform equally well. Choi, Fedenia, Skiba, and Sokolyk (2017) document that institutional investors possess an information advantage in their home markets; however, similar advantages can emerge in foreign markets in some instances. To the extent that foreign investors are indeed more independent, we expect them to convey a more credible exit threat, and thus the valuation effect of short-horizon institutions should be most pronounced for foreign short-term investors.

H5: *The relation between investor horizon and firm valuation is stronger for foreign institutions.*

DATA AND METHODOLOGY

We obtain data on institutional ownership as well as financial statement data from FactSet. Stock data are from Compustat. Data on GDP, financial market size, and market-level turnover come from the World Bank. Moreover, we obtain data on the inclusion of a firm in the MSCI All Country World Index from MSCI. Data on countries' institutional frameworks come from Levine (2002), La Porta et al. (1998), and Djankov, Hart, McLiesh, and Shleifer (2008).

Sample Construction and Variables

The starting point for constructing our sample is FactSet LionShares, which comprises two datasets. The 13F database contains ownership data for institutions active in the U.S., while the FactSet International Funds database contains ownership data for funds from a large number of other countries. One major difference between the 13F and International Funds databases is that 13F filings are at the institution level, whereas data in the International Funds database are recorded at the fund level. Therefore, before combining the databases, we aggregate holdings in the International Funds database at the institution level. We then restrict the 13F and International Funds databases to equity securities held

by institutional investors. Next, we only keep reports by institutions that report at least semi-annually.[12] To mitigate selection biases, we omit reports by institutions from Australia and New Zealand, where reporting is not mandatory. Voluntary reporting leads to downwards-biased values of institutional ownership for firms from these countries.

To calculate the investment horizon of institutional investors, we follow Gaspar et al. (2005). First, for each institutional investor, we calculate a churn rate (labelled $CR_{k,t}$) that is equal to the fraction of portfolio holdings bought or sold over a half-year period:

$$CR_{k,t} = \frac{\sum_{i=1}^{N_{k,t}} \left| S_{k,i,t} P_{i,t} - S_{k,i,t-1} P_{i,t-1} - S_{k,i,t-1} \Delta P_{i,t} \right|}{\sum_{i=1}^{N_{k,t}} \frac{S_{k,i,t} P_{i,t} + S_{k,i,t-1} P_{i,t-1}}{2}}, \quad (1)$$

where $S_{k,i,t}$ is the number of shares of firm *i* in the portfolio of investor *k* in half-year *t*, $P_{i,t}$ is the stock price of firm *i* at time *t*, and $N_{k,t}$ is the number of positions in the portfolio of investor *k* at time *t*.

Second, for each investor we compute the average churn rate over the past two half-years, denoted as $AVG\_CR_{k,t}$, which yields an annual horizon measure at the investor level. Third, we calculate the firm-level churn rate as the weighted average of the churn rates of all of the firm's institutional investors:

[12] Prior studies that use FactSet data for investor horizon applications focus mostly on the U.S. market. Because the SEC requires large institutional investors that do business in the U.S. to report their portfolio holdings each quarter, measures of investor horizon in these studies are usually based on quarterly data. Reporting requirements for institutions differ substantially across countries in the International Funds database. While institutions in some countries report on a monthly basis, institutions in other countries report only once a year. Since we would lose the majority of observations if we only kept data from institutions that report at least quarterly, we use a longer time span for our portfolio turnover measure. At the same time, we should not use so long a time span that we are not able to capture portfolio movements within a given period. We therefore base our investor horizon measure on six-month periods. We lose less than 5% of our observations using this measurement period.

$$WACR_{j,t} = \sum_{k=1}^{M_{j,t}} W_{k,j,t} AVG\_CR_{k,t}, \quad (2)$$

where $AVG\_CR_{k,t}$ is investor *k*'s average churn rate over the past two half-years, and $W_{k,j,t}$ is investor *k*'s equity share in firm *j* at time *t*.

The firm-level weighted average churn rate is our first main variable of interest. In additional analyses, we use measures of investor horizon that account for the absolute level of long- versus short-term investors in a firm. In particular, we define long-term institutional ownership, $LTIO$, as the fraction of a firm's market capitalization that is held by long-term institutions. Short-term institutional ownership, $STIO$, is the fraction of a firm's market capitalization that is held by short-term institutions. We classify institutional investors as long-term (short-term) institutions if their average churn rate is in the bottom (top) tercile of all institutional investors.

Prior literature uses alternative measures of investor horizon. For example, Alvarez et al. (2018) calculate the investor horizon of each position of each investor separately. They define investors with holdings in the firm for more than two years as long-term investors, while investors with holdings for only one year are considered short-term investors. While this approach accounts for the possibility that an institution is invested long-term in one firm and short-term in another, is does not consider the full length of the holding period. Moreover, categorizing investors into long-term versus short-term at the institution level captures their typical investment horizon, but obscures their investment decisions with respect to a specific firm, which might be affected by the firm itself, and thus raises causality concerns. We thus choose to use investor-level horizon measures in our analysis.

Our final sample consists of firms for which we have both ownership and financial statement data. We drop U.S. firms since they would dominate the sample and render differences between other countries largely unnoticeable. We also drop firms in which the institutional ownership ratio is less than 5%, since it is unlikely that institutional owners will have much influence over those firms, and we omit observations associated with substantial M&A activities (sales growth of more than 100%), as such

activities are likely to have abnormal effects on both investor horizon and the market-to-book ratio. Finally, we omit countries for which we have very few observations (those that constitute less than 0.5% of our sample).

[Insert Table 1 here]

Mean values of institutional ownership, WACR, long-term institutional ownership, and short-term institutional ownership for all available sample countries are presented in Table 1. While the average institutional ownership ratio is 17.7%, this value varies noticeably across countries. The average WACR is 0.406, implying that the average investor trades 40.6% of the portfolio holdings in a six-month period; this value also varies strongly across countries. When using LTIO and STIO to capture differences in investment horizon, the number of long-term investors in our sample by design equals the number of short-term investors. However, at the firm level, the average LTIO is higher than the average STIO because long-term institutions tend to be larger than short-term institutions, and thus they have larger average holdings in their investee firms.

Table 2 presents descriptive statistics for our main variables based on the full sample in Panel A, across firms dominated by long-term investors in Panel B, and across firms dominated by short-term investors in Panel C. In Panel A, the mean market-to-book ratio of assets is 1.85, but the value varies substantially across firms. Comparing Panels B and C, we find that the market-to-book ratio is higher for firms with more short-term investors (with a mean of 2.02 versus 1.81 for firms with more long-term investors). The relative presence of long- and short-term investors is reflected in the investor horizon measures, with WACR averaging 0.35 in firms dominated by short-term investors and 0.60 in firms dominated by long-term investors. Firms with short versus long investor horizons also differ with respect to firm characteristics. In particular, firms dominated by short-term investors are, on average, smaller and younger, their stocks are more liquid, and they exhibit higher stock returns compared to firms dominated by long-term investors.

[Insert Table 2 here]

Research Design

In a first step, we examine why investor horizon differs so much across firms and, in particular, across countries. We model investor horizon as follows:

$$WACR_{c,i,t} = \alpha_t + \gamma_1 F_c + \gamma_2 GDP_{c,t} + \sum_j \beta_j x_{j,i,t} + \varepsilon_{i,t}, \quad (3)$$

where $WACR_{c,i,t}$ is the weighted average churn rate of firm *i* domiciled in country *c* in year *t*, F_c is a proxy for the institutional framework of country *c*, $GDP_{c,t}$ is the natural logarithm of the GDP per capita of country *c* in year *t*, and $x_{j,i,t}$ is a vector of *j* firm-level control variables that include market capitalization, firm age, dividend yield, lagged market-to-book, stock price, stock turnover, stock return volatility, a dummy variable indicating whether the firm's shares are included in the MSCI All Country World Index, annual stock return, and lagged annual stock return; detailed variable definitions are provided in the Appendix. α_t are year fixed effects. The choice of firm-level variables is motivated by prior literature (Yan & Zhang, 2009).

In a second step, to test the effect of institutional investor horizon on firm valuation, our baseline regression model is:

$$MTB_{i,t} = \alpha_i + \alpha_t + \gamma_1 WACR_{i,t} + \gamma_2 IO_{i,t} + \sum_k \beta_k z_{k,i,t} + \varepsilon_{i,t}, \quad (4)$$

where $MTB_{i,t}$ is the market-to-book ratio of firm *i*' assets in year *t*, and $WACR_{i,t}$ is the weighted average churn rate of firm *i* in year *t*. As control variables, we use firm *i*'s level of institutional ownership ($IO_{i,t}$) and a set of accounting variables ($z_{j,i,t}$) including firm size, firm age, tangibility, leverage, capital intensity, and, when omitting firm fixed effects, a U.S. cross-listing dummy.

As additional proxies for investor horizon, we also use the levels of long-term and short-term institutional ownership (LTIO and STIO):

$$MTB_{i,t} = \alpha_i + \alpha_t + \gamma_1 LTIO_{i,t} + \gamma_2 STIO_{i,t} + \sum_k \beta_k z_{k,i,t} + \varepsilon_{i,t}, \quad (5)$$

where $LTIO_{i,t}$ ($STIO_{i,t}$) is the level of long-term (short-term) institutional ownership in firm *i* in year *t*. α_i and α_t are firm and year fixed effects, respectively. We estimate alternative specifications of equations (4) and (5) using country and industry fixed effects instead of firm fixed effects. Except for WACR, which is restricted between zero and two, and IO, LTIO, and STIO, which take values between zero and one, we winsorize firm-level variables at the 1% and 99% levels.

DETERMINANTS OF INVESTOR HORIZON

We start our empirical analysis by searching for factors that drive the heterogeneity in investor horizon across firms and countries. In Table 3, testing the model in equation (3), we regress WACR on the GDP of the country in which the firm is domiciled and a set of firm-level variables. To disentangle the relative importance of firm-level variables and country characteristics for investor horizon, we estimate two specifications: in column (1) we estimate the model without country fixed effects, and in column (2) we use the same firm variables but add country fixed effects. This analysis explores whether firm characteristics alone determine investor horizon, or whether country characteristics add significant explanatory power. Comparing the two models, the R^2 increases from 24.3% using firm-level variables and GDP as explanatory variables to 36.4% when adding country fixed effects. The *F*-statistic on the joint test of the country dummies is 61.71, confirming that country characteristics add significant explanatory power to the variation in investor horizon.

[Insert Table 3 here]

To examine how different aspects of a country's institutional framework affect investor horizon in more detail, we add proxies for a country's financial system, legal system, and enforcement to the model in column (1) of Table 3. Table 4 show the results. The WACR tends to be lower in countries with high accounting standards (column (2)), i.e., it is more important for long-term than for short-term institutional

investors that firms in a given country provide high quality financial statements. Firms in countries with high bankruptcy costs attract relatively more short-term institutions (column (3)). Since shareholders bear the expected costs of bankruptcy, most institutions presumably prefer not to be invested for long periods in these countries. Moreover, firms in countries with liquid financial markets attract more short-term institutions (column (4)), suggesting that short-term institutions invest primarily in environments in which it is relatively easy to sell their shares.

To analyze the effect of a country's legal environment on investor horizon, we use legal tradition dummy variables that take the value of zero for firms domiciled in countries with a civil law tradition and one for firms in countries with a French legal origin (column (5)), German legal origin (column (6)), or Scandinavian legal origin (column (7)). The estimates indicate that firms in countries with a French legal origin have significantly more institutional investors with a short investment horizon, while firms in countries with a Scandinavian legal origin have significantly more institutional investors with a long investment horizon, both compared to firms from civil law countries. As expected, long-term investors have higher ownership shares in firms from countries with strong shareholder rights (column (8)) and weak creditor rights (column (9)).

[Insert Table 4 here]

Next, we examine how a country's legal enforcement affects the investment horizon of institutions. A country's rule of law plays an important role in explaining the variation in investor horizon. In countries with strong legal enforcement, firms tend to have more long-term institutional investors (column (10)). La Porta et al. (1998) suggest that a weak rule of law aggravates the difficulties investors face in a weak legal environment. Our finding supports recent studies showing that the laws on the books is worthless unless enforcement is strong (Humphery-Jenner, 2013; Bhattacharya & Daouk, 2009).

Overall, the results support Hypothesis 1. Long-term institutions invest in countries that provide more investor-friendly environments, while short-term investors are less concerned about a country's financial and legal environments or the level of legal enforcement.

THE EFFECT OF INVESTOR HORIZON ON FIRM VALUATION

Valuation Regressions

Table 5 shows results for the association between investor horizon and firm valuation. We regress a firm's market-to-book ratio on its WACR as well as our two alternative proxies of investor horizon, the long- and short-term institutional ownership ratios (equation (5)). When using WACR, which captures the average horizon of all institutions but does not reflect the absolute level of ownership of long-term and short-term investors, as the explanatory variable, we control for the institutional ownership ratios. Moreover, we add a firm's size, age, asset tangibility, leverage, and capital intensity, as well as a cross-listing dummy that indicates whether the firm's shares are cross-listed on a U.S. stock exchange. We control for year, country, and industry fixed effects in columns (1), (3), (4), and (5), and year and firm fixed effects in columns (2), (6), (7), and (8).

The results in columns (1) and (2) show that the average churn rate of a firm's investors significantly affects the firm's market-to-book ratio. The estimates support Hypothesis 2b, which holds that the positive valuation effect of institutional ownership is driven by short-term investors. The effect of institutional ownership on firm value is also significantly positive, confirming the notion that institutional ownership is a "universal" corporate governance mechanism (McConnell & Servaes, 1990; Ferreira & Matos, 2008; Homanen & Liang, 2018).

We use LTIO and STIO as alternative measures of investor horizon to alleviate concerns that, as an average value, WACR does not account for the relative share of equity owned by short-term and long-term investors. When using STIO as an explanatory variable in columns (4) and (7), we again find a significantly positive association between short-term institutions and the market-to-book ratio. This result

continues to hold when we control for the effect of LTIO. The relation between long-term institutions and firm value, however, is less clear. The coefficient is positive in all model specifications, but significantly different from zero only in column (8).[13]

[Insert Table 5 here]

Overall, the results in Table 5 suggest that institutional investors' churn ratio is positively related to the market-to-book ratio and, in line with Hypothesis 2b, that this effect is driven mainly by short-term institutions. Moreover, we find that the coefficient estimates are stable with respect to the inclusion of different fixed effects. Since the specification using firm fixed effects has the highest explanatory power in terms of the variation in the market-to-book ratio, in the rest of our analyses we limit attention to models using firm and year fixed effects.

Robustness Checks

A natural concern is that the relation between investor horizon and market-to-book documented in Table 5 could also be explained by different preferences of long-term and short-term investors. That is, reverse causality could be at work, with short-term investors choosing to invest in growth firms that have higher market-to-book ratios, while long-term investors invest in value firms that have lower market-to-book ratios. We address this concern using two approaches. First, in Table 6, we estimate equations (3) and (4) as a system of simultaneous equations using three-stage least squares (3SLS) estimation. Second, in Table 7, we conduct a placebo test.

[13] One potential explanation for the weak evidence on LTIO is that for long-term investors to practice governance through voice, an environment supporting shareholder rights is needed. However, such an environment is relatively weak in our sample countries. Moreover, the effectiveness of LTIO outside the U.S. may not be obvious in countries where closely held firms predominate.

Table 6 reports results for simultaneous regressions of WACR and the market-to-book ratio as dependent variables. Importantly, the positive effect of short-term institutional investors on market-to-book persists. One potential problem that arises in using 3SLS is that the significance levels from the estimation in columns (1) and (2) may be distorted due to heteroskedastic standard errors. We re-estimate the 3SLS model using bootstrapped standard errors. The estimates in columns (3) and (4) show that the *p*-values are little affected; the only exception is institutional ownership, for which the coefficient becomes insignificant.

[Insert Table 6 here]

We recognize that the coefficient on WACR in Table 6 is considerably higher than in Table 5, which raises concerns about the validity of our results. However, a larger coefficient is typical in 3SLS estimations, and in multi-stage estimations in general. This notable increase in the coefficient is consistent, for instance, with Levitt (1996) and, in an institutional investor context, Ferreira and Matos (2008). We therefore believe that, although we do not have perfect identification, this test alleviates concerns that our results are driven by reverse causality.

In addition, we estimate a placebo test as an alternative approach to address reverse causality concerns. We replace the actual values of WACR with randomly drawn values of WACR from the sample distribution within each firm over our sample period. The randomly assigned WACR values have the same distribution as the original values—only the temporal sequence is changed. Intuitively, the aim of this test is to determine whether our results are based on pure correlations between investor horizon and the market-to-book ratio, or whether market-to-book reacts to contemporary values of WACR. In our simulations, we repeat the procedure of randomly redistributing the WACR values and estimating the regression model 100 times. Column (1) of Table 7 reports the average coefficients.

Most importantly, the coefficient on WACR, however, is essentially zero, which supports the view that the association between market-to-book and investor horizon cannot be attributed to a general preference of either short-term or long-term investors for specific types of firms with particular levels of

market-to-book. In column (2) we repeat the simulation analysis using our alternative investor horizon measures, LTIO and STIO, which we jointly draw and reassign randomly within the distribution of each firm. Overall, the results confirm our conclusions.

[Insert Table 7 here]

Another concern could be that the valuation effects are not universal across the two groups of long-term and short-term institutional investors, but our results may be driven by a specific subgroup of institutional investors. Specifically, hedge funds, which are known to be among the most activist investors and most likely have a short-term investment horizon, may have a strong effect on firm valuation (Kahan & Rock, 2007; Brav et al., 2008; Greenwood & Schor, 2011; Bessler, Drobetz, & Holler, 2015). Therefore, we repeat our analyses excluding firm-year observations in which at least one hedge fund is involved as shareholder. The results, shown in columns (1) and (2) of Table 8, are very similar to our main results, suggesting that our results are not driven by activist hedge funds.

Additional concerns may arise with respect to our dependent variable, the market-to-book ratio of assets, as a measure of firm value. We repeat our analysis using the return on assets as an alternative proxy for firm value. The results are shown in columns (3) and (4) of Table 8. The estimated coefficients confirm our conclusions from Table 5. The return on assets is significantly higher for firms with a higher WACR (column (3)), and the STIO coefficient is significantly larger than the LTIO coefficient (column (4)).

[Insert Table 8 here]

The Mediating Effect of Liquidity

Our analyses consistently suggest that a higher share of short-term institutions leads to higher firm value. As discussed above, in the case of short-term investors, we expect that they discipline portfolio firms' managers largely through the threat of exit. The evidence in Table 8 that the association between short-term institutional ownership and firm valuation does not rest on hedge fund activism already

indicates that voice as a governance channel may not explain our results. The exit threat is not observable, but if short-term institutional investors increase firm value by disciplining management through the threat of exit, we expect to see a more pronounced value-enhancing effect when stock liquidity is high.

To test our hypothesis, we split the sample into groups of firms with low and high (stock) market liquidity and run the regressions for each group separately. In columns (1) to (4) of Table 9, we use country-level liquidity, which is computed as the ratio of the value of total shares traded on the country's stock market to the average market capitalization. The groups are built annually based on the country-level median market turnover ratio each year. The WACR coefficient is significantly higher for firms from countries with a high market turnover (column (1)) than for firms from countries with low market turnover (column (2)), as indicated by the Chow test *p*-value. This supports our prediction that the positive effect of short-term institutions on valuation is stronger in countries with a liquid stock market. This result is robust when we use LTIO and STIO as the measure of investor horizon, as shown in columns (3) and (4).

The advantage of using country-level liquidity is that it can be considered largely exogenous. However, it may be a noisy measure because the liquidity of different stocks can vary substantially within a country. Therefore, we also analyze the effect of firm-level liquidity on the relation between investor horizon and valuation. Columns (5) to (8) repeat the analysis based on the Amihud (2002) illiquidity measure to capture firm-level stock liquidity: each year, we split the sample into two groups based on the median illiquidity measure. The significantly higher coefficient for firms with low stock illiquidity (column (6)) compared to the coefficient for firms with high stock illiquidity (column (5)) confirms that the results hold at the firm level. The coefficients in columns (7) and (8), where LTIO and STIO are used, are also in line with this conclusion.

Taken together, the results in Table 9 suggest that the positive valuation effect of short-term institutions is stronger when liquidity is high.[14] Our results therefore support Hypothesis 3, which holds that short-term institutional shareholders have a stronger positive effect on firm value when stock liquidity is high and thus the threat of exit is more credible.

[Insert Table 9 here]

The Role of Agency Problems

It is disputable whether higher liquidity is only associated with a more credible exit threat, or whether it may also promote intervention as well (Faure-Grimaud & Gromb, 2004). We therefore use an additional test that helps us disentangle the two channels. Admati and Pfleiderer (2009) argue that exit threats are more effective than governance through voice at preventing managers from wasting money in value-decreasing projects, which is a particular concern in cash-rich firms. Therefore, as predicted in Hypothesis 4, if it is the threat of exit rather than intervention that explains the positive effect of short-term institutions on valuation we observe, the relation should be stronger for firms with high cash holdings or high free cash flows.

In Table 10, we split our sample on an annual basis into two groups based on the median value of cash holdings (columns (1) to (4)) and free cash flow (columns (5) to (8)), both scaled by total assets. The results confirm our conclusions drawn from the liquidity analysis. The positive valuation effect of short-term institutions is significantly stronger for firms with high levels of cash holdings (columns (1) and (2)). When using the ratios of long-term and short-term institutional ownership as horizon measures in columns (3) and (4), the STIO coefficients again indicate that short-term institutions have a stronger

[14] We also run (unreported) regressions using the interactions of investor horizon and liquidity instead of sample splits. The coefficient estimates support our results for most of the specifications.

effect on firm valuation in cash-rich firms. The results are very similar when using free cash flow instead of cash holdings to separate firms into groups of firms based on how prone they are to agency problems.[15]

[Insert Table 10 here]

Taken together, the results shown in Table 10 provide additional evidence that the positive effect short-term institutional investors have on firm value is indeed attributable to the threat of exit used by these institutions as a governance mechanism. The results are in line with those related to stock liquidity in Table 10 and confirm our prediction in Hypothesis 4.

The Role of the Institutional Investor's Country of Origin

Given the evidence that foreign institutions transmit corporate governance practices to their international investees (Aguilera et al., 2017; Cumming et al., 2017), we next analyze whether the positive valuation effect of short-term institutions differs across domestic and foreign institutions. We argue that foreign short-term institutions are more independent, and hence they are associated with a more credible threat of exit. Table 11 shows the results.

We split the WACR into two components, one representing the WACR of the firm's domestic institutional investors, and one representing the WACR of the firm's foreign institutional investors. The positive effect of short-term investors on firm value is significantly stronger for foreign short-term institutions (column (1)). In columns (2) to (4), we use the ratios of long- and short-term institutions as investor horizon measures, distinguishing between domestic and foreign institutions. The estimates again indicate that foreign short-term institutions increase firm valuations more strongly than long-term institutions. Overall, the results confirm Hypothesis 5 that the association between investor horizon and firm valuation is stronger for foreign institutions. These findings suggest that foreign short-term institutions are more independent and are associated with a more credible threat of exit.

[15] Our results continue to hold when we use interaction tests instead of sample splits.

[Insert Table 11 here]

CONCLUSION

This study examines the effects of heterogeneity across institutional investors' investment horizon on firm value in an international context. Institutional investors with a long-term investment horizon and those with a short-term investment horizon presumably use different mechanisms to discipline managers. While long-term institutional investors are more likely to engage in relationship investing and exercise voice in influencing managers directly, short-term investors are more willing to sell their shares and thus are more likely to exert influence indirectly through exit or the threat of exit. Based on these arguments, the question arises as to how effective the different types of institutions are in aligning their portfolio managers' interests with their own—more successful corporate governance mechanisms should result in higher firm values.

Most previous research on institutional investors focuses on the level of institutional ownership, without accounting for heterogeneity across institutional investors, and it focuses on the U.S. market. We document that the investment horizon of firms' institutional investors depends on country-level characteristics such as the financial and legal environment. Most importantly, we find that institutional investors' investment horizon has a significant effect on firm value. Firms with a higher ratio of short-horizon institutional investors have a higher market-to-book ratio. This result seems to indicate that short-term investors are more effective in aligning managers' interests with their own.

Additional tests show that the positive valuation effect of short-term institutions is particularly strong in countries with high market liquidity and in firms with high stock liquidity. These findings suggest that short-term investors increase firm value by disciplining managers through the threat of exit, which is arguably more credible when liquidity is high. As additional evidence for governance through the threat of exit, we document that short-term institutions have a stronger effect on firm value in cash-rich firms, which tend to be more prone to the "bad action" type agency problem of value-destroying investment

decisions by managers. We further identify that the positive effect of short-term institutions on firm valuation is particularly strong for foreign short-term institutions, suggesting that they are more independent and thus associated with a more credible threat of exit.

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FIGURE

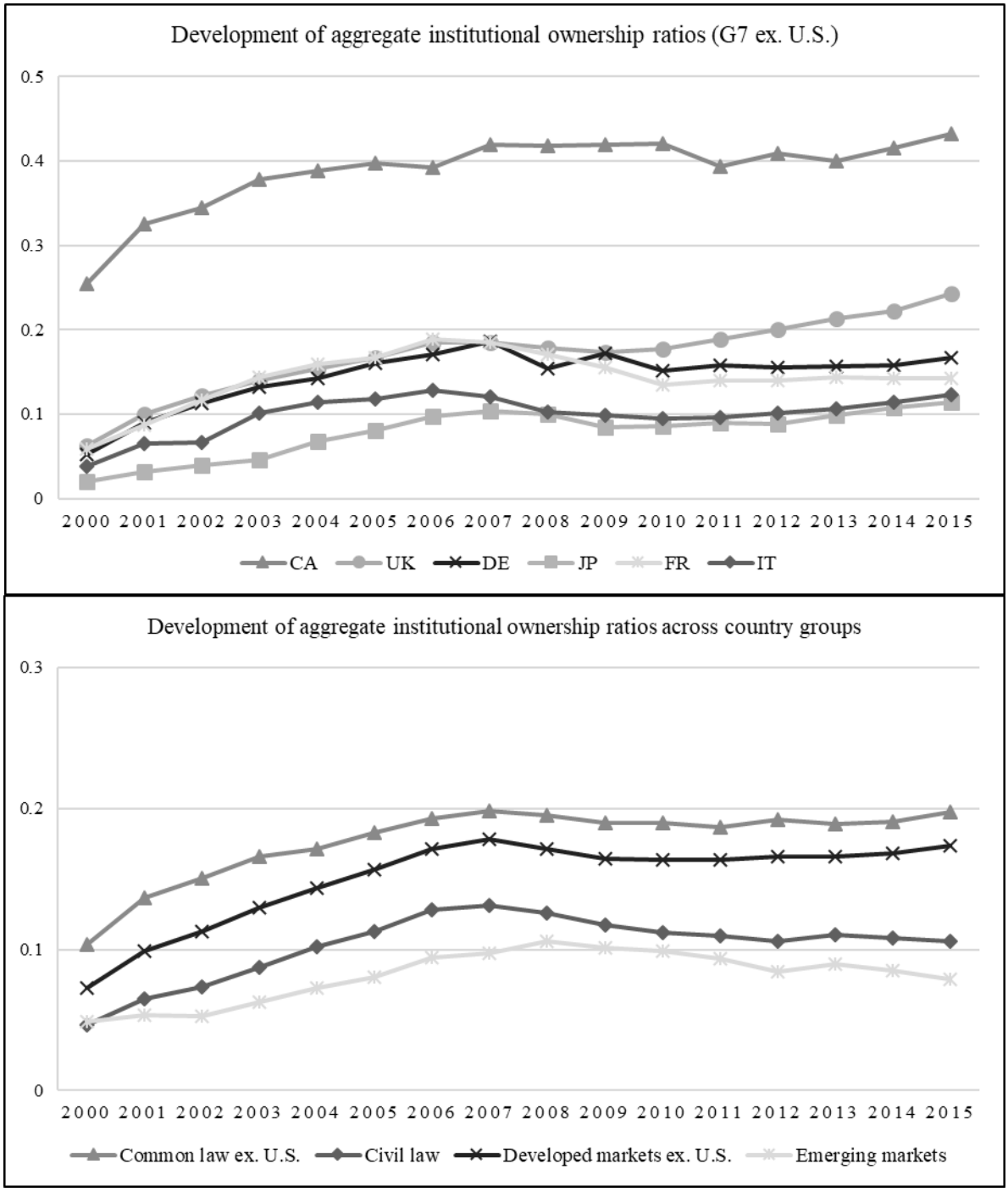

Figure 1.

Development of institutional ownership ratios. This figure shows the development of aggregate (value-weighted) country-level institutional ownership ratios. The upper panel presents the ratio of institutional ownership in the G7 countries (excluding the U.S.). The bottom panel shows the development of aggregate institutional ownership ratios for common law countries (excluding the U.S.) versus civil law countries, and developed markets (excluding the U.S.) versus emerging markets.

TABLES

Table 1
Mean values of horizon measures by country

This table reports mean values of the level of institutional ownership (IO), the weighted average churn rate (WACR), long-term institutional ownership (LTIO), and short-term institutional ownership (STIO) by country. Variable definitions are provided in the Appendix. The panel consists of 82,814 observations for 14,220 firms during the period 2001 to 2016. Sample firms come from 34 countries (excluding the U.S.).

Country	Observations	% of sample	IO	WACR	LTIO	STIO
Australia	2,224	2.7	0.122	0.328	0.050	0.008
Austria	505	0.6	0.142	0.401	0.055	0.017
Belgium	757	0.9	0.147	0.377	0.062	0.013
Brazil	1,155	1.4	0.165	0.372	0.058	0.017
Canada	6,468	7.8	0.292	0.377	0.132	0.029
China	4,927	5.9	0.180	0.631	0.035	0.062
Denmark	861	1.0	0.198	0.377	0.055	0.018
Finland	1,107	1.3	0.218	0.383	0.059	0.015
France	3,574	4.3	0.152	0.426	0.051	0.019
Germany	3,576	4.3	0.174	0.405	0.067	0.022
Greece	437	0.5	0.181	0.409	0.074	0.028
Hong Kong	2,851	3.4	0.130	0.418	0.051	0.021
India	4,113	5.0	0.129	0.384	0.052	0.011
Indonesia	646	0.8	0.103	0.363	0.045	0.010
Ireland	538	0.6	0.318	0.385	0.150	0.038
Israel	816	1.0	0.226	0.459	0.071	0.059
Italy	1,352	1.6	0.129	0.441	0.042	0.022
Japan	15,861	19.2	0.115	0.382	0.054	0.016
Korea	2,462	3.0	0.120	0.368	0.055	0.014
Malaysia	1,082	1.3	0.104	0.419	0.039	0.018
Mexico	503	0.6	0.156	0.341	0.065	0.016
Netherlands	1,099	1.3	0.250	0.371	0.105	0.023
Norway	1,187	1.4	0.195	0.369	0.084	0.017
Pakistan	476	0.6	0.101	0.363	0.049	0.021
Poland	2,027	2.4	0.233	0.490	0.043	0.025
Singapore	1,212	1.5	0.158	0.394	0.070	0.021
South Africa	1,520	1.8	0.137	0.364	0.063	0.011
Spain	859	1.0	0.142	0.386	0.052	0.014
Sweden	2,366	2.9	0.260	0.358	0.111	0.017
Switzerland	1,781	2.2	0.206	0.346	0.103	0.016
Taiwan	2,580	3.1	0.118	0.429	0.048	0.027
Thailand	489	0.6	0.079	0.433	0.027	0.014
Turkey	627	0.8	0.102	0.370	0.042	0.009
United Kingdom	10,776	13.0	0.261	0.405	0.084	0.030
Total	82,814	7.8	0.177	0.406	0.067	0.023

Table 2
Descriptive statistics

This table reports the mean, minimum, 25th percentile, median, 75th percentile, maximum, and standard deviation for the listed variables. SIZE and AGE are measured in natural logarithms. The other variables, except for the U.S. cross-listing dummy (XLIST), are ratios. Variable definitions are provided in the Appendix. Panel A shows statistics for the full sample, which comprises 82,814 observations for 14,220 firms. Panel B presents statistics for the 63,076 observations for which the level of long-term institutional ownership is higher than the level of short-term institutional ownership in a given year. Panel C presents statistics for the 18,088 observations for which the level of short-term institutional ownership is higher than the level of long-term institutional ownership in a given year. The panel covers the years 2001 to 2016 and firms from 34 countries (excluding the U.S.).

Panel A: Full sample

	Mean	Min	p25	Median	p75	Max	StdDev
MTB	1.85	0.49	0.98	1.26	1.96	12.72	1.78
IO	0.18	0.05	0.08	0.13	0.22	1.00	0.13
WACR	0.41	0.02	0.31	0.38	0.46	1.86	0.15
LTIO	0.07	0.00	0.02	0.05	0.09	0.82	0.07
STIO	0.02	0.00	0.00	0.01	0.03	0.86	0.04
SIZE	7.30	0.01	0.19	0.69	2.70	212.52	26.69
AGE	45.55	1.00	16.00	32.00	64.00	262.00	40.70
TANGIBILITY	0.27	0.00	0.07	0.22	0.41	1.00	0.24
LEVERAGE	0.13	0.00	0.00	0.08	0.21	0.60	0.14
CAPINT	0.05	0.00	0.02	0.04	0.07	0.30	0.06
XLIST	0.18	0.00	0.00	0.00	0.00	1.00	0.39
MKTCAP	5.10	0.01	0.15	0.52	2.02	135.02	17.61
DIVYIELD	0.02	0.00	0.00	0.01	0.03	0.17	0.03
PRICE	38.11	0.05	1.84	6.23	18.82	1,401.60	161.42
STURNOVER	0.94	0.01	0.27	0.58	1.14	6.60	1.12
VOLATILITY	0.03	0.01	0.02	0.02	0.03	0.08	0.01
MSCI	0.21	0.00	0.00	0.00	0.00	1.00	0.41
RETURN	0.15	-0.82	-0.19	0.07	0.38	2.45	0.56

Panel B: Firms dominated by long-term institutions

	Mean	Min	p25	Median	p75	Max	StdDev
MTB	1.81	0.49	0.97	1.24	1.89	12.72	1.76
IO	0.18	0.05	0.09	0.14	0.23	1.00	0.14
WACR	0.35	0.02	0.29	0.35	0.41	0.85	0.08
LTIO	0.08	0.00	0.04	0.06	0.11	0.82	0.07
STIO	0.01	0.00	0.00	0.01	0.02	0.33	0.02
SIZE	8.94	0.01	0.27	0.93	3.74	212.52	29.64
AGE	48.89	1.00	17.00	36.00	69.00	262.00	42.03
TANGIBILITY	0.28	0.00	0.07	0.23	0.41	1.00	0.24
LEVERAGE	0.13	0.00	0.01	0.09	0.22	0.60	0.14
CAPINT	0.05	0.00	0.02	0.04	0.07	0.30	0.05
XLIST	0.21	0.00	0.00	0.00	0.00	1.00	0.40
MKTCAP	6.23	0.01	0.19	0.65	2.62	135.02	19.67
DIVYIELD	0.02	0.00	0.00	0.02	0.03	0.17	0.03
PRICE	38.39	0.05	2.16	7.35	21.17	1,401.60	154.95
STURNOVER	0.85	0.01	0.27	0.56	1.07	6.60	0.95
VOLATILITY	0.03	0.01	0.02	0.02	0.03	0.08	0.01
MSCI	0.25	0.00	0.00	0.00	1.00	1.00	0.44
RETURN	0.13	-0.82	-0.19	0.06	0.35	2.45	0.52

Panel C: Firms dominated by short-term institutions

	Mean	Min	p25	Median	p75	Max	StdDev
MTB	2.02	0.49	1.03	1.38	2.20	12.72	1.88
IO	0.16	0.05	0.08	0.12	0.19	1.00	0.12
WACR	0.60	0.28	0.48	0.56	0.67	1.86	0.17
LTIO	0.02	0.00	0.00	0.01	0.02	0.32	0.02
STIO	0.06	0.00	0.02	0.04	0.07	0.86	0.06
SIZE	2.26	0.01	0.11	0.31	0.98	212.52	12.64
AGE	35.03	1.00	13.00	22.00	47.00	257.00	33.76
TANGIBILITY	0.26	0.00	0.07	0.21	0.39	1.00	0.22
LEVERAGE	0.11	0.00	0.00	0.05	0.17	0.60	0.13
CAPINT	0.06	0.00	0.02	0.04	0.08	0.30	0.06
XLIST	0.12	0.00	0.00	0.00	0.00	1.00	0.33
MKTCAP	1.64	0.01	0.10	0.30	0.97	135.02	7.27
DIVYIELD	0.02	0.00	0.00	0.01	0.03	0.17	0.03
PRICE	39.10	0.05	1.40	4.11	12.34	1,401.60	185.88
STURNOVER	1.29	0.01	0.31	0.67	1.56	6.60	1.55
VOLATILITY	0.03	0.01	0.02	0.03	0.03	0.08	0.01
MSCI	0.09	0.00	0.00	0.00	0.00	1.00	0.29
RETURN	0.25	-0.82	-0.18	0.13	0.53	2.45	0.65

Table 3
Investor horizon and country effects

This table reports coefficients obtained from regressing the weighted average churn rate on the natural logarithm of the country's GDP per capita and firm-level variables. MKTCAP, AGE, lagged market-to-book ratio of assets (lMTB), stock price (PRICE), 12-month turnover of the firm's shares (STURNOVER), and 12-month stock return volatility (VOLATILITY) are measured in natural logarithms. MSCI is a binary variable that indicates whether the firm's shares are listed in the MSCI All Country World Index. RETURN is the annual stock return, and lRETURN the lagged annual return. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm and year levels. *p*-values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)
Dependent variable	WACR	WACR
GDP	-0.020***	0.137***
	(0.000)	(0.008)
MKTCAP	-0.007***	-0.012***
	(0.000)	(0.000)
AGE	-0.012***	-0.003*
	(0.000)	(0.051)
DIVYIELD	-0.282***	-0.270***
	(0.000)	(0.000)
lMTB	0.023***	0.024***
	(0.000)	(0.000)
PRICE	-0.000	0.004***
	(0.977)	(0.001)
STURNOVER	0.018***	0.014***
	(0.000)	(0.000)
VOLATILITY	0.016	0.018*
	(0.273)	(0.088)
MSCI	-0.040***	-0.022***
	(0.000)	(0.000)
RETURN	0.032***	0.032***
	(0.003)	(0.000)
lRETURN	0.004	0.004
	(0.408)	(0.207)
Observations	74,000	74,000
Adjusted R^2	0.243	0.364
Country FE	No	Yes
Year FE	Yes	Yes

Table 4
Determinants of investor horizon

This table reports coefficients obtained from regressing the weighted average churn rate on country governance variables (considered one at a time in each of the columns) and firm-level variables. Financial structure is a binary variable that takes the value of zero for firms incorporated in countries with a bank-based financial system, and one for firms incorporated in countries with a market-based financial system. French legal origin, German legal origin, and Scandinavian legal origin are binary variables that take the value of one for firms that are incorporated in countries with the respective legal tradition, and zero for firms from countries with a civil law tradition. MTURNOVER is the ratio of the value of total shares traded on the country's stock market to the average market capitalization; MTURNOVER varies over years and is standardized. The other country governance variables are standardized based on static index values. GDP is the natural logarithm of the country's GDP per capita. MKTCAP, AGE, the lagged market-to-book ratio of assets (lMTB), stock price (PRICE), 12-month turnover of the firm's shares (STURNOVER), and 12-month stock return volatility (VOLATILITY) are measured in natural logarithms. MSCI is a binary variable that indicates whether the firm's shares are listed in the MSCI All Country World Index. RETURN is the annual stock return, and lRETURN the lagged annual return. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm and year levels. *p*-values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Financial system				Legal system					Enforcement		
Dependent variable	WACR	WACR	WACR	WACR	WACR	WACR	WACR	WACR	WACR	WACR	WACR	WACR
Financial structure	-0.010											
	(0.166)											
Accounting standard		-0.011**										
		(0.040)										
Bankruptcy costs			0.038***									
			(0.003)									
MTURNOVER				0.039***								
				(0.000)								
French legal origin					0.021***							
					(0.000)							
German legal origin						0.008						
						(0.549)						
Scandinavian legal origin							-0.017***					
							(0.007)					
Shareholder rights								-0.033***				
								(0.000)				
Creditor rights									0.006***			
									(0.001)			
Rule of law										-0.012**		
										(0.017)		
Judicial efficiency											0.002	
											(0.541)	
Corruption												0.012
												(0.285)

GDP	-0.002	-0.001	-0.025***	-0.018***	-0.001	-0.004	-0.004	-0.016***	-0.002	0.003	-0.005	-0.027***
	(0.482)	(0.693)	(0.000)	(0.000)	(0.849)	(0.331)	(0.370)	(0.000)	(0.590)	(0.395)	(0.227)	(0.003)
MKTCAP	-0.010***	-0.010***	-0.010***	-0.008***	-0.012***	-0.010***	-0.010***	-0.009***	-0.010***	-0.010***	-0.010***	-0.007***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AGE	-0.008***	-0.007***	-0.007***	-0.011***	-0.007***	-0.007***	-0.006***	-0.008***	-0.007***	-0.007***	-0.007***	-0.011***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DIVYIELD	-0.174***	-0.192***	-0.328***	-0.246***	-0.196***	-0.214***	-0.217***	-0.303***	-0.220***	-0.215***	-0.214***	-0.288***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
lMTB	0.016***	0.015***	0.023***	0.027***	0.011***	0.018***	0.012***	0.024***	0.012***	0.013***	0.013***	0.022***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PRICE	-0.001	-0.002*	0.004***	-0.002**	-0.002	-0.003	-0.006***	-0.003*	0.001	0.000	0.000	0.000
	(0.204)	(0.083)	(0.000)	(0.020)	(0.271)	(0.108)	(0.002)	(0.057)	(0.171)	(0.915)	(0.893)	(0.899)
STURNOVER	0.006**	0.006*	0.019***	0.010***	0.009***	0.006**	0.010***	0.019***	0.006**	0.006**	0.006**	0.019***
	(0.020)	(0.053)	(0.000)	(0.000)	(0.000)	(0.017)	(0.000)	(0.000)	(0.027)	(0.023)	(0.014)	(0.000)
VOLATILITY	0.008	0.007	0.016	0.011	0.001	0.008	-0.001	0.004	0.011*	0.009	0.009	0.016
	(0.197)	(0.273)	(0.247)	(0.259)	(0.797)	(0.206)	(0.782)	(0.739)	(0.064)	(0.135)	(0.136)	(0.277)
MSCI	-0.009**	-0.008**	-0.041***	-0.032***	-0.008**	-0.009**	-0.006	-0.034***	-0.010***	-0.010***	-0.010***	-0.039***
	(0.016)	(0.030)	(0.000)	(0.000)	(0.042)	(0.042)	(0.104)	(0.000)	(0.009)	(0.004)	(0.009)	(0.000)
RETURN	0.027***	0.026***	0.031***	0.031***	0.029***	0.027***	0.028***	0.033***	0.023***	0.024***	0.024***	0.032***
	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.003)
lRETURN	0.004	0.003	0.001	0.005	0.010***	0.004	0.010***	0.004	0.004	0.004	0.004	0.004
	(0.181)	(0.380)	(0.767)	(0.276)	(0.001)	(0.254)	(0.005)	(0.323)	(0.277)	(0.277)	(0.246)	(0.396)
Observations	65,225	67,001	69,696	67,697	40,202	53,235	34,868	74,000	68,467	68,467	68,467	74,000
Adjusted R^2	0.295	0.296	0.291	0.290	0.234	0.314	0.240	0.291	0.289	0.288	0.287	0.244
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 5
Investor horizon and firm valuation

This table reports results from regressing the market-to-book ratio of assets on investor horizon measures and firm-level control variables. In columns (1) and (2), we use the weighted average churn rate as the investor horizon measure. In columns (3) to (8), we use long-term and short-term institutional ownership ratios as the investor horizon measure. SIZE and AGE are measured in natural logarithms. XLIST is a binary variable indicating whether a firm is listed on a major U.S. stock exchange. The other variables are ratios. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm and year levels. *p*-values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. *p*-value (LTIO=STIO) denotes statistical significance of the difference between the coefficients of LTIO and STIO.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	MTB	MTB	MTB	MTB	MTB	MTB	MTB	MTB
WACR	0.923***	0.621***						
	(0.007)	(0.000)						
LTIO			0.242		0.162	0.243		0.344**
			(0.220)		(0.423)	(0.106)		(0.031)
STIO				1.864***	1.839***		1.878***	1.923***
				(0.004)	(0.005)		(0.000)	(0.000)
IO	0.415***	0.752***						
	(0.002)	(0.000)						
SIZE	-0.075***	-0.264***	-0.086***	-0.082***	-0.083***	-0.257***	-0.252***	-0.257***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AGE	-0.065***	-0.045	-0.070***	-0.068***	-0.068***	-0.036	-0.034	-0.033
	(0.002)	(0.559)	(0.000)	(0.001)	(0.001)	(0.642)	(0.656)	(0.664)
TANGIBILITY	-0.637***	-0.506***	-0.665***	-0.654***	-0.654***	-0.534***	-0.520***	-0.520***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
LEVERAGE	-1.008***	-0.887***	-0.972***	-0.986***	-0.986***	-0.917***	-0.916***	-0.911***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CAPINT	3.271***	1.890***	3.341***	3.312***	3.309***	1.944***	1.928***	1.913***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
XLIST	1.307***		1.314***	1.303***	1.301***			
	(0.000)		(0.000)	(0.000)	(0.000)			
Observations	80,896	80,122	80,896	80,896	80,896	80,122	80,122	80,122
Adjusted R^2	0.193	0.697	0.188	0.189	0.189	0.695	0.696	0.696
Country FE	Yes	No	Yes	Yes	Yes	No	No	No
Industry FE	Yes	No	Yes	Yes	Yes	No	No	No
Firm FE	No	Yes	No	No	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p-value (LTIO=STIO)					0.023			0.001

Table 6
Three-stage least squares estimation

This table reports results from a 3-stage least squares estimation of a system of two equations. Each pair of columns presents results for one estimation. In the first equation (columns (1) and (3)), the weighted average churn rate is regressed on the market-to-book ratio of assets, the natural logarithm of the country's GDP per capita ratio, and firm-level control variables. In the second equation (columns (2) and (4)), the market-to-book ratio of assets is regressed on the weighted average churn rate and firm-level controls. We account for firm effects by demeaning all variables and for time fixed effects. In columns (3) and (4), we use bootstrapped standard errors. GDP is the natural logarithm of the country's GDP per capita. SIZE, AGE, the firm's stock price (PRICE), 12-month turnover of the firm's shares (STURNOVER), and 12-month stock return volatility (VOLATILITY) are measured in natural logarithms. The other firm-level control variables are ratios. RETURN is the annual stock return, and lRETURN the lagged annual return. Variable definitions are provided in the Appendix. *p*-values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	Basic model		Bootstrap	
Dependent variable	WACR	MTB	WACR	MTB
WACR		15.711***		15.711***
		(0.000)		(0.000)
MTB	-0.049***		-0.049***	
	(0.000)		(0.000)	
GDP	0.028***		0.028***	
	(0.000)		(0.000)	
SIZE	-0.054***	0.154***	-0.054***	0.154***
	(0.000)	(0.000)	(0.000)	(0.000)
AGE	-0.019***	0.670***	-0.019***	0.670***
	(0.000)	(0.000)	(0.000)	(0.000)
DIVYIELD	-0.345***		-0.345***	
	(0.000)		(0.000)	
PRICE	0.040***		0.040***	
	(0.000)		(0.000)	
STURNOVER	0.006***		0.006***	
	(0.000)		(0.000)	
VOLATILITY	0.014***		0.014***	
	(0.000)		(0.000)	
RETURN	0.036***		0.036***	
	(0.000)		(0.000)	
lRETURN	0.018***		0.018***	
	(0.000)		(0.000)	
IO		0.310***		0.310
		(0.000)		(0.112)
TANGIBILITY		-0.279***		-0.279***
		(0.000)		(0.004)
LEVERAGE		-0.962***		-0.962***
		(0.000)		(0.000)
CAPINT		2.149***		2.149***
		(0.000)		(0.000)
Observations	74,015	74,015	74,015	74,015
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Table 7
Placebo tests

This table reports average coefficients from placebo tests. In column (1), the market-to-book ratio of assets is regressed on random samples of the weighted average churn rate ($\widehat{WACR}$) drawn from the actual sample distribution of the WACR for each firm and firm-level control variables. In column (2), the market-to-book ratio of assets is regressed on random samples of long-term institutional ownership ($\widehat{LTIO}$) and short-term institutional ownership ($\widehat{STIO}$), which are jointly drawn from the actual sample distribution of the LTIO and STIO values for each firm, and firm-level control variables. The estimates in columns (3) and (4) are based on the same approach, but each of the investor horizon measures is split into two variables, based on the institutional investor's country of incorporation (domestic vs. foreign). Variable definitions are provided in the Appendix. Standard errors are clustered at the firm and year levels. *p*-values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
Dependent variable	MTB	MTB	MTB	MTB
$\widehat{WACR}$	0.003			
	(0.935)			
$\widehat{LTIO}$		0.006		
		(0.944)		
$\widehat{STIO}$		0.004		
		(0.976)		
$\widehat{WACR\_DOM}$			0.002	
			(0.915)	
$\widehat{WACR\_FOR}$			0.006	
			(0.854)	
$\widehat{LTIO\_DOM}$				0.006
				(0.956)
$\widehat{LTIO\_FOR}$				0.005
				(0.969)
$\widehat{STIO\_DOM}$				-0.001
				(0.994)
$\widehat{STIO\_FOR}$				0.015
				(0.956)
IO	0.738***		0.738***	
	(0.000)		(0.000)	
SIZE	-0.268***	-0.253***	-0.268***	-0.253***
	(0.000)	(0.000)	(0.000)	(0.000)
AGE	-0.032	-0.036	-0.032	-0.036
	(0.681)	(0.637)	(0.681)	(0.637)
TANGIBILITY	-0.519***	-0.534***	-0.519***	-0.534***
	(0.000)	(0.000)	(0.000)	(0.000)
LEVERAGE	-0.889***	-0.920***	-0.889***	-0.920***
	(0.000)	(0.000)	(0.000)	(0.000)
CAPINT	1.878***	1.954***	1.878***	1.953***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	80,122	80,122	80,122	80,122
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Table 8
Robustness tests

This table reports results from robustness tests. In columns (1) and (2), we repeat the analyses from Table 5, but exclude firm-year observations with hedge fund ownership from the sample. In columns (3) and (4), we replace MTB as the dependent variable with ROA (return on assets). SIZE and AGE are measured in natural logarithms. The other variables are ratios. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm and year levels. *p*-values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. *p*-value (LTIO=STIO) denotes statistical significance of the difference between the coefficients of LTIO and STIO.

	(1)	(2)	(3)	(4)
	Subsample excluding firms with hedge fund ownership		Alternative dependent variable	
Dependent variable	MTB	MTB	ROA	ROA
WACR	0.605***		2.287***	
	(0.001)		(0.001)	
LTIO		0.358*		4.712***
		(0.053)		(0.001)
STIO		1.852***		14.265***
		(0.000)		(0.000)
IO	0.714***		9.293***	
	(0.000)		(0.000)	
SIZE	-0.224***	-0.218***	1.259***	1.376***
	(0.001)	(0.001)	(0.000)	(0.000)
AGE	-0.051	-0.039	-0.131	-0.114
	(0.520)	(0.614)	(0.852)	(0.871)
TANGIBILITY	-0.474***	-0.490***	-6.283***	-6.420***
	(0.001)	(0.001)	(0.000)	(0.000)
LEVERAGE	-0.719***	-0.738***	-14.247***	-14.553***
	(0.000)	(0.000)	(0.000)	(0.000)
CAPINT	1.733***	1.754***	12.822***	13.342***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	63,365	63,365	80,086	80,086
Adjusted R^2	0.696	0.695	0.584	0.582
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
p-value (LTIO=STIO)		0.003		0.000

Table 9
Investor horizon and valuation: The role of liquidity

This table reports results from regressing the market-to-book ratio of assets on investor horizon measures and firm-level control variables. We split the sample based on median values of liquidity variables. In columns (1) to (4), we use country-level market liquidity (MTURNOVER; the ratio of the value of total shares traded on the country's stock market to the average market capitalization). In columns (5) to (8), we use the firm-level Amihud illiquidity measure. SIZE and AGE are measured in natural logarithms. The other firm-level variables are ratios. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm and year levels. *p*-values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. The Chow test *p*-value indicates whether the coefficient estimates of the stated variable are statistically different between the two subsamples.

	(1) Low market liquidity	(2) High market liquidity	(3) Low market liquidity	(4) High market liquidity	(5) High stock illiquidity	(6) Low stock illiquidity	(7) High stock illiquidity	(8) Low stock illiquidity
Dependent variable	MTB	MTB	MTB	MTB	MTB	MTB	MTB	MTB
WACR	0.003	0.847***			0.143*	1.272***		
	(0.982)	(0.000)			(0.054)	(0.000)		
LTIO			0.477	0.219			0.416***	-0.079
			(0.175)	(0.201)			(0.007)	(0.799)
STIO			1.204**	2.217***			0.947***	2.294***
			(0.011)	(0.000)			(0.001)	(0.001)
IO	0.733***	0.784***			0.839***	0.272		
	(0.005)	(0.000)			(0.000)	(0.219)		
SIZE	-0.326***	-0.279***	-0.312***	-0.265***	-0.272***	-0.432***	-0.251***	-0.411***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
AGE	-0.005	-0.100	-0.003	-0.080	-0.177*	0.058	-0.175*	0.078
	(0.975)	(0.293)	(0.985)	(0.402)	(0.074)	(0.613)	(0.077)	(0.499)
TANGIBILITY	-0.505**	-0.423***	-0.524**	-0.428***	-0.479***	-0.264	-0.502***	-0.268
	(0.022)	(0.006)	(0.018)	(0.006)	(0.002)	(0.281)	(0.001)	(0.281)
LEVERAGE	-1.168***	-0.772***	-1.179***	-0.809***	-0.377***	-1.385***	-0.401***	-1.405***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CAPINT	2.389***	1.698***	2.428***	1.704***	1.213***	1.594***	1.268***	1.510***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Observations	19,932	46,851	19,932	46,851	32,043	33,622	32,043	33,622
Adjusted R^2	0.706	0.718	0.706	0.716	0.688	0.749	0.687	0.748
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chow test *p*-value	WACR: 0.000		LTIO: 0.556 STIO: 0.079		WACR: 0.001		LTIO: 0.175 STIO: 0.049	

Table 10
Investor horizon and valuation: The role of agency problems

This table reports results from regressing the market-to-book ratio of assets on investor horizon measures and firm-level control variables. We split the sample based on median values of firms' cash ratios in columns (1) to (4). In columns (5) to (8), we split the sample based on median values of firms' free cash flows. SIZE and AGE are measured in natural logarithms. The other firm-level variables are ratios. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm and year levels. *p*-values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. The Chow test *p*-value indicates whether the coefficient estimates of the stated variable are statistically different between the two subsamples.

	(1) Low cash	(2) High cash	(4) Low cash	(5) High cash	(1) Low FCF	(2) High FCF	(4) Low FCF	(5) High FCF
Dependent variable	MTB	MTB	MTB	MTB	MTB	MTB	MTB	MTB
WACR	0.304***	0.942***			0.451***	0.818***		
	(0.005)	(0.000)			(0.002)	(0.000)		
LTIO			0.126	0.461			0.058	0.532**
			(0.372)	(0.100)			(0.719)	(0.039)
STIO			1.081***	2.428***			1.120***	2.352***
			(0.000)	(0.000)			(0.004)	(0.000)
IO	0.350***	1.156***			0.447***	0.864***		
	(0.006)	(0.000)			(0.008)	(0.000)		
SIZE	-0.167***	-0.289***	-0.165***	-0.268***	-0.253***	-0.295***	-0.246***	-0.288***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.000)	(0.003)	(0.000)	(0.003)
AGE	0.068	-0.092	0.074	-0.079	0.019	-0.142	0.032	-0.131
	(0.301)	(0.532)	(0.255)	(0.592)	(0.815)	(0.272)	(0.697)	(0.313)
TANGIBILITY	-0.078	-0.815***	-0.085	-0.824***	-0.450***	-0.746**	-0.457***	-0.773**
	(0.443)	(0.010)	(0.402)	(0.010)	(0.001)	(0.043)	(0.001)	(0.037)
LEVERAGE	-0.639***	-1.284***	-0.650***	-1.324***	-0.346***	-1.227***	-0.365***	-1.250***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.004)	(0.000)
CAPINT	1.724***	1.900***	1.733***	1.949***	1.903***	5.535***	1.927***	5.576***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	39,104	38,550	39,104	38,550	37,623	38,278	37,623	38,278
Adjusted R^2	0.722	0.693	0.722	0.691	0.659	0.727	0.658	0.726
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chow test *p*-value	WACR: 0.001		LTIO: 0.274 STIO: 0.009		WACR: 0.009		LTIO: 0.158 STIO: 0.007	

Table 11
The effect of domestic and foreign investors' investment horizons on valuation

This table reports results from regressing the market-to-book ratio on measures of the investor horizon of domestic and foreign institutional investors and firm-level control variables. WACR_DOM (WACR_FOR) is the weighted average churn rate of a firm's domestic (foreign) institutional investors. LTIO_DOM (LTIO_FOR) is the ratio of domestic (foreign) long-term institutional ownership. STIO_DOM (STIO_FOR) is the ratio of domestic (foreign) short-term institutional ownership. SIZE and AGE are measured in natural logarithms. XLIST is a binary variable indicating whether a firm is listed on a major U.S. stock exchange. The other variables are ratios. Variable definitions are provided in the Appendix. Standard errors are clustered at the firm and year levels. *p*-values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. *p*-value (*var1=var2*) denotes statistical significance of the difference between the coefficients of the two variables stated in parentheses.

	(1)	(2)	(3)	(4)
Dependent variable	MTB	MTB	MTB	MTB
WACR_DOM	0.243***			
	(0.001)			
WACR_FOR	0.516***			
	(0.000)			
LTIO_DOM		-0.153		-0.029
		(0.347)		(0.866)
LTIO_FOR		0.700**		0.701***
		(0.011)		(0.010)
STIO_DOM			1.374***	1.384**
			(0.009)	(0.010)
STIO_FOR			2.848***	2.833***
			(0.000)	(0.000)
IO	0.730***			
	(0.000)			
SIZE	-0.284***	-0.260***	-0.252***	-0.259***
	(0.000)	(0.000)	(0.000)	(0.000)
AGE	-0.053	-0.033	-0.030	-0.027
	(0.496)	(0.672)	(0.692)	(0.725)
TANGIBILITY	-0.501***	-0.533***	-0.521***	-0.520***
	(0.001)	(0.000)	(0.001)	(0.001)
LEVERAGE	-0.863***	-0.915***	-0.912***	-0.906***
	(0.000)	(0.000)	(0.000)	(0.000)
CAPINT	1.881***	1.944***	1.921***	1.909***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	80,122	80,122	80,122	80,122
Adjusted R^2	0.697	0.695	0.696	0.696
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
p-value (WACR_DOM=WACR_FOR)	0.002			
p-value (LTIO_DOM=LTIO_FOR)		0.009		0.022
p-value (STIO_DOM=STIO_FOR)			0.060	0.065

APPENDIX

Table A1
Variable definitions and sources

Variable	Description	Source
MTB	Ratio of the market value of assets to the book value of assets, where the market value of assets is the market value of equity minus the book value of equity plus the book value of assets.	Authors' calculations based on FactSet data
IO	Institutional ownership.	As above
WACR	Value-weighted average of a firm's institutional investors' churn rates (based on Gaspar, Massa, & Matos, 2005).	As above
LTIO	Institutional ownership of a firm's long-term investors (based on Gaspar et al., 2005).	As above
STIO	Institutional ownership of a firm's short-term investors (based on Gaspar et al., 2005).	As above
WACR_DOM	Value-weighted average of a firm's domestic institutional investors' churn rates.	As above
WACR_FOR	Value-weighted average of a firm's foreign institutional investors' churn rates.	As above
LTIO_DOM	Institutional ownership of a firm's domestic long-term investors.	As above
LTIO_FOR	Institutional ownership of a firm's foreign long-term investors.	As above
STIO_DOM	Institutional ownership of a firm's domestic short-term investors.	As above
STIO_FOR	Institutional ownership of a firm's foreign short-term investors.	As above
$\widetilde{\text{WACR}}$	Random samples of the weighted average churn rate drawn from the actual sample distribution of the WACR for each firm.	As above
$\widetilde{\text{LTIO}}$	Random samples of the ratio of long-term institutional ownership drawn from the actual sample distribution of LTIO for each firm.	As above
$\widetilde{\text{STIO}}$	Random samples of the ratio of short-term institutional ownership drawn from the actual sample distribution of STIO for each firm.	As above
$\widetilde{\text{WACR\_DOM}}$	Random samples of the weighted average churn rate of a firm's domestic institutional investors drawn from the actual sample distribution of the WACR_DOM for each firm.	As above
$\widetilde{\text{WACR\_FOR}}$	Random samples of the weighted average churn rate of a firm's foreign institutional investors drawn from the actual sample distribution of the WACR_DOM for each firm.	As above
$\widetilde{\text{LTIO\_DOM}}$	Random samples of the ratio of domestic long-term institutional ownership drawn from the actual sample distribution of LTIO_DOM for each firm.	As above
$\widetilde{\text{LTIO\_FOR}}$	Random samples of the ratio of foreign long-term institutional ownership drawn from the actual sample distribution of LTIO_FOR for each firm.	As above
$\widetilde{\text{STIO\_DOM}}$	Random samples of the ratio of domestic short-term institutional ownership drawn from the actual sample distribution of STIO_DOM for each firm.	As above
$\widetilde{\text{STIO\_FOR}}$	Random samples of the ratio of foreign short-term institutional ownership drawn from the actual sample distribution of STIO_FOR for each firm.	As above
SIZE	Firm size, measured as the logarithm of total assets in $US millions.	As above
AGE	Firm age, measured as the natural logarithm of the number of years since the firm was established.	As above
TANGIBILITY	Asset tangibility, measured as the ratio of property, plant, and	As above

	equipment to total assets.	
LEVERAGE	Leverage, measured as the ratio of long-term debt to total assets.	As above
CAPINT	Capital intensity, measured as the ratio of capital expenditures to total assets.	As above
MKTCAP	Natural logarithm of the firm's market capitalization.	As above
DIVYIELD	Total dividends paid divided by the firm's market capitalization.	As above
PRICE	Natural logarithm of the firm's stock price.	Authors' calculations based on Compustat data
XLIST	Dummy variable equal to 1 if the firm is cross-listed on a major U.S. stock exchange and 0 otherwise.	As above
STURNOVER	Natural logarithm of the turnover of the firm's shares over the past 12 months.	As above
VOLATILITY	Natural logarithm of the stock return volatility during the fiscal year.	As above
MSCI	Dummy variable equal to 1 if the firm is listed in the MSCI ACWI in the respective year and 0 otherwise.	MSCI[1]
RETURN	Stock return during the fiscal year.	Authors' calculations based on FactSet data
lMTB	Natural logarithm of the lagged MTB ratio.	As above
lRETURN	RETURN lagged by one year.	As above
GDP	Natural logarithm of a country's GDP per capita.	World Bank
Financial structure	Dummy variable equal to 0 if the financial system structure is bank-based, and 1 if it is market-based.	Levine (2002)
Accounting standard	Corporate transparency as indicated by the quality of accounting standards. The index is created by examining and rating companies' annual reports on their inclusion or omission of 90 items. Standardized value.	La Porta, López-de-Silanes, Shleifer, & Vishny (1998)
Bankruptcy costs	The costs to complete insolvency proceedings, expressed as a percentage of the bankruptcy estate at the time of entry to bankruptcy. Standardized value.	Djankov, Hart, McLiesh, & Shleifer (2008)
MTURNOVER	Ratio of the value of the total shares traded on the country's stock market to average real market capitalization (standardized).	World Bank
French legal origin	Dummy variable equal to 1 if the legal tradition is French common law, and 0 if it is civil law.	La Porta et al. (1998)
German legal origin	Dummy variable equal to 1 if the legal tradition is German common law, and 0 if it is civil law.	As above
Scandinavian legal origin	Dummy variable equal to 1 if the legal tradition is Scandinavian common law, and 0 if it is civil law.	As above
Shareholder rights	Shareholder rights index, ranging from 0 (weak shareholder rights) to 5 (strong shareholder rights). Standardized value.	As above
Creditor rights	Creditor rights index, ranging from 0 (weak creditor rights) to 4 (strong creditor rights). Standardized value.	As above
Rule of law	Assessment of the law and order tradition in the country produced by the country-risk rating agency International Country Risk (ICR). Ranges from 0 to 6, with lower scores for less tradition of law and order. Standardized value.	As above
Judicial efficiency	Assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" produced by the country-risk rating agency Business	As above

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	International Corporation. Ranges from 0 to 10, with lower scores indicating lower efficiency levels. Standardized value.	
Corruption	Ranges from 0 to 10, with a high value indicating high corruption. High ratings indicate "bribes connected with import and export licenses, exchange controls, tax assessment, policy protection, or loans". Standardized value.	Based on La Porta et al. (1998)
ROA	Return on assets, measured as the ratio of net income to total assets.	Authors' calculations based on FactSet data
Stock illiquidity	Amihud illiquidity: (ABS(RET))/VOLD (averaged over the year), where RET is the daily stock return and VOLD is daily trading volume.	Authors' calculations based on Compustat data
Cash	Cash holdings, measured as the ratio of cash to total assets.	Authors' calculations based on FactSet data
FCF	Free cash flow, measured as operating income before depreciation minus capex, scaled by total assets.	As above