The Real Effects of Foreign Bias

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Abstract

This paper studies the effects of foreign investors with industry bias on firm value. Using firm-level data across 70 non-U.S. countries between 2000 and 2017, I show that foreign biased ownership has a positive and long-term effect on firm value, while foreign unbiased ownership has an insignificant or negative effect. I further identify two economic mechanisms through which the industry expertise of foreign biased investors may increase firm value: foreign biased investors are better monitors, and they bring greater knowledge spillovers. Finally, I find that foreign biased investors conduct real improvements on firm operations, instead of managing financial statements. Overall, the results suggest that investor's foreign bias is valuable for real economy.

JEL classification: G32, G34, G11

Keywords: foreign investors, foreign bias, firm value, corporate governance, knowledge spillover

1 Introduction

Foreign ownership has been shown to improve firm value (Ferreira and Matos [2008]), promote better corporate governance (Aggarwal et al. [2011]) and bring greater innovation output (Bena et al. [2017], Luong et al. [2017]). However, the literature largely treats all foreign investors as homogeneous. In reality, there are many dimensions of heterogeneity across foreign investors, among which the degree of their investment bias is one of the most important. This heterogeneity matters because foreign investors may differ in their information set[1], which affects their intervention decisions and effectiveness on the invested firm.

In this paper, I study how foreign investors with industry bias affect firm value, compared with unbiased investors. Schumacher [2018] documents that when investing abroad, the foreign investors overweight industries that are comparatively large in their domestic stock markets, using industry-level global market portfolios as benchmark. They choose to specialise in these industries on which they have initial information advantage (Nieuwerburgh and Veldkamp [2009]). The author labels this investment pattern as "foreign industry bias".

However, Schumacher [2018] is silent on whether and how the investor's foreign bias could affect the invested firm. Based on the specialised learning explanation, I hypothesize that foreign investors with industry bias are more effective in improving firm value than unbiased foreign investors, due to their information advantage in the related industry.[2]

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[1]See Portes and Rey [2005], Lane and Milesi-Ferretti [2008], Andrade and Chhaochharia [2010], Karolyi et al. [2020] and Choi et al. [2017] for information asymmetry as the explanation of foreign bias.

[2]The international finance literature has documented other forms of foreign bias. Foreign investors prefer to invest heavily in the countries which are mostly geographically close (Grinblatt and Keloharju [2001]; Portes and Rey [2005]), mostly economically close (Lane and Milesi-Ferretti [2008]; Andrade and Chhaochharia [2010]; Karolyi et al. [2020]) and mostly culturally close (Grinblatt and Keloharju [2001]; Beugelsdijk and Frijns [2010]; Aggarwal et al. [2012]) to them. Among all the forms of foreign bias, the

I label foreign investors with industry bias if the firm's industry is one of their home country's Top 3 industries in terms of market capitalisation, following Schumacher [2018]. Foreign biased ownership (FIO_BS) is defined as the sum of shares owned by foreign investors with industry bias divided by the firm's total number of shares outstanding; and foreign unbiased ownership (FIO_NBS) is defined as total foreign ownership (FIO) minus foreign biased ownership (FIO_BS).[3]

To illustrate foreign biased investor's industry level information advantage, consider a Canadian firm: Cameco, the world's largest publicly traded uranium company (2-digit SIC code: 10, metal mining). An investor from Australia is identified as foreign biased investor for Cameco, since metal mining is one of the Top 3 industries in Australia. Another investor from Japan is identified as foreign unbiased investors since metal mining is not one of the Top 3 industries in Japan. The main goal of the paper is to study whether the Australian investor create more firm value for Cameco than the Japaneses investor.

I test the hypothesis using firm level data from 70 non-U.S. countries between 2000 and 2017. The univariate results suggest that the average Tobin's Q of the firms in the highest foreign biased ownership tertile is 0.134 (8% of the sample average of Tobin's Q) higher than the average of Tobin's Q in the lowest tertile, while the average Tobin's Q of the firms in the highest foreign unbiased ownership tertile is 0.226 (13% of the sample average of Tobin's Q) lower than the average of Tobin's Q in the lowest tertile. The multivariate regressions show that Tobin's Q increases by 0.175 when biased ownership changes from the lowest to the highest tertile, while the change in Tobin's Q is insignificant, both statistically and economically, when unbiased ownership changes from the lowest to the highest tertile.

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foreign industry bias is especially worth investigating, because it reflects the industry level expertise of biased investors, while the knowledge brought by other forms is widespread and difficult to measure.

[3]See section 2.1.1 for more detailed definition.

An important concern is that the results exist because institutional ownership (foreign biased ownership, foreign unbiased ownership and domestic ownership) is endogenously determined. Foreign biased investors may choose to invest in the firms with higher Tobin's Q. It is also possible that omitted time-varying firm level variables are correlated with firm value, even after controlling for firm fixed effects in the model specifications. To address the simultaneity bias and omitted variable problem, I employ an instrumental variables identification strategy to isolate the exogenous variation in institutional ownership.

Since there are three endogenous variables, the two-stage least squares tests require at least 3 valid instrumental variables. First, I use stock inclusion in FTSE All-World index as instrument for foreign (biased and unbiased) ownership, since index inclusion has been successfully and widely used in the related literature, such as Aggarwal et al. [2011] and Bena et al. [2017]. In addition, I use country level strength of auditing and reporting standards, and country-industry level foreign equity ownership restriction as instruments for both foreign and domestic ownership.

First, the three instrumental variables are exogenous determined and should not be directly linked to firm's Tobin's Q, which is referred to as the the exclusion condition. For the relevant conditions, institutional investors are more likely to invest in the firms which are included in the market index and serve these indexes as benchmarks (Cremers et al. [2016]). Ferreira and Matos [2008] show that all institutions, both foreign and domestic, reveal a preference for better disclosure standards. Foreign ownership restrictions imposed by local government create exogenous upper bound limit for the foreign institutional holdings. In the first step of two-stage least squares test, these instrumental variables are jointly significant in explaining foreign biased ownership, foreign unbiased ownership and domestic ownership.

The regression results using identification strategy suggests a positive and causal effect of foreign biased ownership on firm value, while the effect of unbiased ownership is either insignificant or negative. The increase in foreign biased ownership, generated by a 1-standard-deviation increase in each instrumental variable, leads to an increase of 0.130 in Tobin's Q (0.134 by univariate test and 0.175 by OLS regression). Furthermore, I redo the same empirical exercise by adding firm level lagged Tobin's Q as a control to mitigate the concern that investors select higher firm value or other related firm characteristics in the previous period. The result of the causal effect of foreign biased ownership on firm value remains.

I next examine the two possible economic mechanisms through which the industry expertise of foreign biased investors may increase firm value: monitoring channel and knowledge spillover. First, monitoring by foreign biased investors should be more effective than unbiased investors. Specialised learning enables foreign biased investors to acquire industry-specific knowledge and relevant information to better monitor the firm, such as management practice, industry trends, competition and risk (Wang et al. [2015]; Bradley et al. [2017]; Faleye et al. [2018]). Furthermore, their home portfolio is likely to cover the companies in their largest home industries, which provides them with monitoring experience in the related industries. Kang et al. [2018] show that investors with activism experience in the firm's industry are effective monitors. Taken together, I expect that foreign biased investors can improve firm value by providing better oversight of management's decisions.

To test whether industry expertise is valuable for monitoring channel, I classify both foreign biased and unbiased investors based on their institution type (gray or independent institutions) and investment horizon (long-term or short-term institutions). Independent (or long-term) investors are more likely to actively intervene in the firm management than gray (or short-term) investors (Chen et al. [2007]). Consistent with the conjecture, the two-stage least squares tests show that the positive effect of foreign

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independent (or long-term) investors on firm value is largely driven by foreign biased independent (or long-term) investors, instead of their unbiased peers. The results suggest that foreign biased investors are more effective monitors than unbiased investors.

Second, industry expertise can help to facilitate knowledge spillovers. Luong et al. [2017] argue that foreign institutional ownership in general facilitate knowledge spillover by acting as a facilitator in cross-border mergers and acquisitions (Ferreira et al. [2010]) or "as a bridge for a network of managers, investors and other stakeholders to exchange knowledge, ideas and opportunities". Since knowledge spillover often occurs in a common industry (Marshall–Arrow–Romer and Porter knowledge spillover), foreign industry biased investors are in a better position than unbiased investors to bring more valuable resources. Especially, these industries are the largest ones in the investor's home country and are likely to be equipped with industry leaders, more industrial communications, and more efficient vertical network, i.e. supply chain and sale channels. It suggests that foreign biased investors can bring more incoming knowledge spillover from other companies in the same industry, which is shown to increase firm R&D investment and productivity than outgoing spillover (Cassiman and Veugelers [2002]; Chen et al. [2013]). Hence, I expect that foreign investors with industry bias can increase the firm's access to more valuable resources by bridging between the invested firm and their home industry.

To test whether industry expertise of foreign biased investors is valuable for knowledge spillover channel, I classify both foreign biased and unbiased investors based on the knowledge level of their country of origin ("high-knowledge" or "low-knowledge" countries). The knowledge spillovers from "high-knowledge" countries play a more important role than knowledge spillovers from "low-knowledge" countries (Luong et al. [2017]). Consistent with the conjecture, the two-stage least squares tests show that the positive effect of foreign investors from "high-knowledge" countries on firm value is largely driven by foreign biased investors from "high-knowledge" countries, instead of their unbiased peers. The results suggest that foreign biased investors bring greater

knowledge spillover than unbiased investors.

Finally, I examine whether foreign biased investors bring real improvement in firm operations or improve firm value by managing financial statement. I test different corporate actions and performance measures. On one hand, through both monitoring and knowledge spillover mechanisms, industry expertise should help the invested firm to engage more efficiently in R&D. Knowledge spillover channel also suggests that foreign biased investors could facilitate M&A. Consistent with these hypothesis, I find that foreign biased investors help to increase R&D investment and M&A activities. These investments are value-enhancing: firm with foreign biased investors receive more patents. Moreover, the results also suggest that foreign biased investors increase firm's productivity and total sales. On the other hand, the results show that foreign biased investors have trivial effects on dividend payout ratio and stock repurchases. Taken together, the tests suggest that foreign biased investors conduct real improvements on firm operations, instead of managing financial statements.

This study makes several contributions to the literature. First, this paper highlights the importance of foreign ownership heterogeneity. While much research treats foreign ownership as homogeneous, only few works distinguish different traits of foreign investors. For example, the country-of-origin of the foreign investors matters. Aggarwal et al. [2011] show that only the ownership form common law countries promotes better governance to the invested firms. Luong et al. [2017] find that the positive effect of foreign institutional ownership on firm's patent counts and citations is mostly driven by institutions from high-innovation foreign countries. Moreover, Ng et al. [2016] distinguish foreign investors by the size of their ownership stake and show that FDI (foreign direct investment) ownership is negatively, while FPI (foreign portfolio investment) ownership is positively, associated with stock liquidity.[4] This paper adds another dimension

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[4]Ng et al. [2016] define FDI ownership if the investor owns at least 5% of a firm's outstanding shares and FPI ownership if the investors owns less than 5%.

to this literature by showing that the degree of foreign investors' investment bias matters for the effectiveness of their interventions in the invested firm.

Second, to my knowledge, this paper is the first to test the corporate side of foreign bias. While the literature has documented different forms and explained several reasons of foreign bias, I add to the foreign bias literature by suggesting that foreign biased investors are optimal for the real economy because the industry expertise acquired through specialized learning enable them to effectively intervene in the firm's operations.

Third, this study provides new evidence to the emerging literature that investigates how the industry expertise of different economic agents play a role in corporate and financial markets. The literature has shown that industry expertise contributes to the work of CEO (Custódio and Metzger [2013]), directors (Wang et al. [2015]; Faleye et al. [2018]), blockholders (Kang et al. [2018]), venture capitalists (Bottazzi et al. [2008]; Gompers et al. [2008]), M&A advisor (Wang et al. [2020]) and analysts (Bradley et al. [2017]). For example, Faleye et al. [2018] show that directors with industry expertise can help firm's managers to make better decisions on R&D investment because they increases managers' access to key industry players and relevant information. Kang et al. [2018] argue that institutions with multiple blockholdings in the same industry are effective monitors because commonality of firms' businesses in the same industry enables institutions to "accumulate industry-specific knowledge and relevant information to monitoring firm". This paper is the first to study the industry expertise of foreign investors and shows that industry expertise is also valuable for foreign investors when monitoring firm's management and bridging knowledge transfer between their home industries and the invested firm.

Finally, this work has practical implications for the local government fostering foreign investment. Since the industry expertise of foreign investors can bring real improvement to the invested firm, the government should implement policies which favor investors

with related industry knowledge. The industry structure of the investor's home country could serve as useful indicator when identifying valuable investors.

The reminder of the paper is organised as follows. Section 2 presents the institutional ownership data and other variables. Section 3 shows the main results of baseline regressions, In Section 4, I address the identification issue by using two-stage least squares tests with instrumental variables. In Section 5, I validate two economic mechanisms through which foreign biased investors improve firm value. Section 6 studies the real effects of foreign biased investors on corporate actions and operation performance. The last section concludes.

2   Data and variables

I construct the key and control variables mainly from two databases: institutional ownership from FactSet/Lionshares database and firm level control variables from DataStream/WorldScope. Because FactSet/Lionshares ownership data are available from 1999, the sample periods starts from 2000. The initial sample consists of all the non-U.S. firms in DataStream/WorldScope database excluding financial sector (SIC codes 6000-6999) from 2000 to 2017. I merge the sample of firms with year average institutional holdings data from FactSet/Lionshares, using identifiers ISIN, SEDOL and CUSIP.

2.1   Institutional ownership

I use FactSet/LionShares ownership database to construct yearly firm-level institutional ownership. This database collects the mandatory quarterly holding reports of institutional investors required by regulatory agencies and has been widely used in international finance literature (Ferreira and Matos [2008]; Aggarwal et al. [2011]; Bena et al. [2017]; Luong et al. [2017]; Ng et al. [2016]; Kacperczyk et al. [2020]).

FactSet/LionShares also provides the information on the fund and firm domicile, and the type of institution. Following Schumacher [2018], I identify the domestic and foreign investors based on the country of residence of the fund's management company. The institutions are labeled as foreign investors if they are domiciled in a country different from where the stock is listed and as domestic investors, otherwise. As in the literature, the ownership (%) is calculated as the number of shares held by the institutional investors divided by the firm's total number of shares outstanding.

The type of institution is used to identify independent and grey institutions. Mutual funds and investment advisers are classified as independent investors while bank trusts, insurance companies, pensions funds and endowments as grey institutions (Brickley et al. [1988]; Chen et al. [2007]; Ferreira and Matos [2008]). Brickley et al. [1988] and Chen et al. [2007] argue that the independent institutions tend to monitor the firm management because they do not seek business relationships with the invested firms, while grey institutions are less willing to challenge the management decisions since they might need to protect the existing or potential business relationships with the invested firms.

The total sample of institutional ownership consists of 12,064 distinct institutions from 93 countries holding 44,125 firms from 130 non-U.S. countries, from 2000 to 2017. Let IO_TOTAL denote the total institutional ownership of firm, DIO denote the total domestic institutional ownership, FIO denote the total foreign institutional ownership ($IO\_TOTAL=DIO+FIO$).

2.1.1 Foreign investors with industry bias

I label foreign investors with industry bias if the firm's industry is one of their home country's Top 3 industries in terms of market capitalisation, following Schumacher [2018]. I decompose the foreign ownership into two parts: biased ownership (FIO_BS) and

unbiased ownership (FIO_NBS). Foreign biased ownership is defined as the number of shares held by foreign investors with industry bias divided by the total number of shares outstanding. Foreign unbiased ownership is defined as total foreign ownership minus foreign biased ownership ($FIO - FIO\_BS$).

Let f denote firm, j denote institution and t denote time. The industry size in a country is the sum of the market value of all the firms in the industry (2-digit SIC) of the country in the DataStream/Worldscope. I identify the Top 3 industries in a country by sorting the industry size of all the industries in the country. Let $I(h_{j,t}, 3)$ denote the set of the top 3 industries in country h (home country of fund j) based on market size at time t, and $i(f)$ denote the industry (2-digit SIC) of firm f. An institution j from country h is a biased foreign investor for a firm f in country c, based on the industry structure of the institution's home country:

$$\mathbb{1}_{BS_{f,j,t}} = \begin{cases} 1 & i(f) \in I(h_{j,t}, 3) \\ 0 & otherwise \end{cases} \tag{1}$$

The foreign biased (unbiased) ownership can be written as following:

$$FIO\_BS_{f,j,t} = \sum_{j} \mathbb{1}_{BS_{f,j,t}} * FIO_{f,j,t} \tag{2}$$

$$FIO\_NBS_{f,j,t} = \sum_{j} (1 - \mathbb{1}_{BS_{f,j,t}}) * FIO_{f,j,t} \tag{3}$$

I calculate the size of the industries in a country by pulling out the full universe of firms in Worldscope. For each industry in a country, the industry size is the sum of the market value of all the firms in Worldscope. I then rank the industries in a country, from the largest to the smallest, according to their size. If the firm's industry is one of the Top 3 industries in the institution's home country, the institution is labelled as foreign biased investor for this invested firm.

2.2   Other variables

The initial sample consists of all the non-U.S. firms in DataStream/WorldScope database excluding financial sector (SIC codes 6000-6999) from 2000 to 2017 (50,814 firms from 108 countries). I merge Factset and DataStream/Worldscope by ISIN, SEDOL and CUSIP (48,531 matched firms). Following the procedures of Ferreira and Matos [2008], The institutional ownership is set to be 0 if the firms cannot be matched in FactSet.

The firm level control variables, including logarithm of total asset (SIZE), sales growth (SGROWTH), leverage (LEV), cash (CASH), capital expenditure (CAPEX), ROA, R&D, property, plant and equipment (PPE), foreign sales (FXSALE), insider ownership (CLOSE), ADR indicator (ADR) and industry classification (Premier SIC code), are also downloaded from DataStream/WorldScope. The number of analysts following the firm (ANALYST) is taken from I/B/E/S. Firm level patent counts data is downloaded from Global Corporate Patent Dataset.[5] I merge the firm sample with I/B/E/S and Global Corporate Patent Dataset using identifiers GVKEY, ISIN, SEDOL and CUSIP. After filtering out firm-year observations with missing values, the final sample consists of 12,953 unique firms from 70 countries for a total of 82,646 firm-year observations.

Table 1 presents the summery statistics for regrouping the two databases. On average, the total ownership held by the institutional investors is 8.6%, 4.0% for domestic institutions and 4.6% for foreign institutions. Decomposing foreign ownership (equation 1), the industry biased investors count for 0.9% ownership of the firms, roughly 20% of the total foreign ownership.

Figure 1 shows the sample average foreign biased ownership by country while Figure 2 shows the time series of sample average of foreign biased and unbiased ownership. Figure 3 and Table 2 shows the sample average of foreign biased (unbiased) ownership by

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[5]See Bena et al. [2017] for details.

industry. The percentage of biased ownership on total foreign ownership is the highest in Service sector and the lowest in Agriculture, Forestry and Fishing sector. Foreign biased ownership is higher in developed countries (common law countries) than in emerging countries (civil law countries).

3 Main Results

In this section, I present the main results of baseline regressions and long-term effect of foreign biased ownership on firm value. I then use instrumental variables (IV) identification strategy to establish causality.

3.1 Baseline regressions: univariate and multivariate tests

To examine the relation between foreign biased (unbiased) investors and firm value, I first look at the relation between the firm value and foreign biased (unbiased) ownership in a univariate setting. Foreign biased ownership (FIO_BS) and foreign unbased ownership (FIO_NBS) are defined as in section 2.1.1. I group firms by tertiles of foreign biased ownership (FIO_BS) and foreign unbiased ownership (FIO_NBS). Table 3 reports the average of Tobin's Q in the following year by FIO_BS and FIO_NBS tertiles. T1, T2 and T3 denote the lowest, the medium, and the highest tertiles, respectively. The last row of the table shows the difference in Tobin's Q between the highest and lowest tertiles, T3-T1.

Table 3 shows that the following year average Tobin's Q of the firms in the highest FIO_BS tertile is 0.134 (8% of the total sample average of Tobin's Q) higher than the average of Tobin's Q in the lowest tertile while the following year average Tobin's Q of the firms in the highest FIO_NBS tertile is 0.226 (13% of the total sample average of Tobin's Q) lower than the average of Tobin's Q in the lowest tertile. Thus, the univariate

tests suggest a positive association between firm value and foreign biased ownership, and a negative association between firm value and foreign unbiased ownership.

I then investigate the relation between the firm value and foreign biased ownership in a multivariate setting. I run panel regressions as below:

$$TobinQ_{f,t} = \alpha + \beta_{11}FIO\_BS_{f,t-1} + \beta_{12}FIO\_NBS_{f,t-1}$$
$$+\beta_2 DIO_{f,t-1} + Controls_{f,t-1} + \gamma_f + \lambda_t + \epsilon_{f,t} \tag{4}$$

Where f denotes the firm, t denotes the time period. The dependent variable is firm value, measured by Tobin's Q. FIO denotes the foreign institutional ownership, FIO_BS denotes the foreign biased investors' ownership, FIO_NBS denotes the unbiased foreign investors' ownership, and DIO denotes the domestic institutional ownership. By definition, $FIO\_BS + FIO\_NBS = FIO$. $Controls_{f,t-1}$ are lagged firm level information, including logarithm of total asset (SIZE), sales growth (SGROWTH), leverage (LEV), cash (CASH), capital expenditure (CAPEX), ROA, R&D, property, plant and equipment (PPE), foreign sales (FXSALE), number of analysts following the firm (ANALYST), insider ownership (CLOSE) and ADR indicator (ADR). I include the firm fixed effects γ_f to control for time-invariant firm characteristics and the time fixed effects λ_t to control for changes in firm value affecting all firms simultaneously. In all regression, to compute the t-statistic of the coefficients, I use robust standard errors clustered at the firm level. By doing so, I assume that observations are independent across firms, but not within firms.

The results of multivariate tests are reported in Table 4. The dependent variable is firm value measured by Tobin's Q, computed as the total assets plus the market value of equity minus the book value of equity, divided by total assets (Ferreira and Matos [2008]; Aggarwal et al. [2011]). Column (1), (3) and (5) show the regressions results using only year fixed effects, while Column (2), (4) and (6) show the regressions results using firm and year fixed effects.

In Column (1) and (2), the variables of interest are dummy variables indicating the tertiles of FIO_BS and FIO_NBS. T2 and T3 are dummy variables that equals one if the value of the variable of FIO_BS (FIO_NBS) belongs to the median and highest tertile, respectively. Comparing the results in Column (1) and (2), R squares of the regressions adding firm fixed effect (0.688 in Column (1)) are nearly 3 times of R square using only year fixed effects (0.227 in Column (2)). In fact, By using firm fixed effects, the regressions examine the relation of within firm changed in Tobin's Q and in foreign biased ownership. In other words, firm fixed effects control for the effects of the omitted time-invariant firm level characteristics which are both related to institutional ownership variables and Tobin's Q. Thus, I focus on the results interpretation of the results in Column (2) with firm fixed effects.

Consistent with the univariate test, the results in Column (2) indicate that in the following year, Tobin's Q increases by 0.175 (roughly 10% of the sample average Tobin's Q) when FIO_BS changes from the lowest to the highest tertile. Next year Tobin's Q increase by 0.075 when FIO_BS changes from the lowest to the median tertile. The two coefficients are both statistically significant at 1% level, suggesting a monotonic and positive association between firm value and foreign biased ownership. Furthermore, the change in Tobin's Q is insignificant shifting from the lowest to the highest tertile of FIO_NBS. Tobin's Q increases only by 0.029 in the following year when FIO_NBS changes from the lowest to the median tertile. The results suggest a non-monotonic and less positive association between firm value and foreign unbiased ownership.

Column (3) and (4) use the ordinal variables indicating the tertiles of FIO_BS and FIO_NBS. The ordinal variable equals to 1, 2 and 3 if the value of the variable of FIO_BS (FIO_NBS) belongs to the lowest, median and highest tertile, respectively. As discussed above, I focus on the results with firm fixed effects in Column (4). Consistent with the results in Column (2), the coefficient of FIO_BS is positive and significant at 1% level. Switching from the present tertile to one tertile higher in FIO_BS is asso-

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ciated with 0.086 increase in Tobin's Q. The coefficient before FIO_NBS is insignificant.

In Column (5) and (6), FIO_BS and FIO_NBS are the original variables, percentage of holdings of foreign biased investors and unbiased investors to the firm's total capitalization. In order to make the coefficients comparable, I divide dependent variable (Tobin's Q), FIO_BS and FIO_NBS by its standard deviation. As discussed above, I focus on the results with firm fixed effects in Column (6). The results indicate that 1-standard deviation increase in FIO_BS leads to an increase of 0.041 standard deviation in Tobin's Q in the following year, which is roughly 1.5 times of the coefficients of FIO_NBS.

Regarding other firm-level control variables, the coefficient estimates on domestic ownership are significant and positive at 1% level using only time fixed effects, but insignificant after controlling for firm fixed effects. It suggests that the effect of domestic ownership on firm value is largely driven by time-invariant unobserved firm level variables. Firm with smaller market capitalisation, higher sales growth rate and holding more cash are associated with higher firm value.

The positive relation between foreign biased ownership and firm value can also be interpreted as the buying pressure brought by the foreign (biased) investors pushes up the stock price, especially when the market is not very liquid. To rule out the possibility of overvaluation, I test the regression (equation 2) for longer term, up to five years ahead and the results are in Table 5. Firm and year fixed effects are applied to all the regressions in Table 5. The dependent variable in Column (1) to (3), Column (4) to (6), Column (7) to (9) and Column (10) to (12) is firm level Tobin's Q up ahead two years, three years, four years and five years, respectively.

Column (1), (4), (7) and (10) show the results using the dummy variables T2 and T3, which indicating the tertiles of FIO_BS and FIO_NBS. The results in Column (1)

and (4) indicate that the positive and monotonic relation between foreign biased ownership and firm value remain significant at 1% level up to 3 years ahead. The coefficient estimates on FIO_NBS are significant at 5% level up to 2 years ahead, insignificant after 3 years ahead. In Column (2), (5), (8) and (11), the variables of interest are ordinal variables indicating the tertiles of FIO_BS and FIO_NBS. Consistent with the results using dummy variables, Column (2) and (5) demonstrate that the association between foreign biased ownership and firm value is positive and significant at 1% level up to 3 years ahead. The coefficient estimates on FIO_NBS using ordinal variables are always insignificant. In Column (3), (6), (9) and (12), FIO_BS and FIO_NBS are the original variables, percentage of holdings of foreign biased investors and unbiased investors to the firm's total capitalization. Using the original variables, the results reveal that the association between foreign biased ownership and firm value is positive and significant at 1% level up to 2 years ahead, positive and significant at 10% level up to 3 years ahead and become insignificant afterwards. The coefficient estimates on FIO_NBS are significant at 5% level up to 2 years ahead, insignificant for 3 years ahead, and become significant and negative after 4 years ahead. To conclude, the long-term results suggest that buying pressure brought by foreign biased investors at short-term should not be a concern.

Overall, the baseline regression results indicate that the coefficient estimates on FIO_BS are positive and significant at 1% level across all specifications, suggesting a monotonic positive association between foreign biased ownership and firm value. This relation remains positive and significant up to 3 years ahead. For the coefficients of FIO_NBS, the results are mixed and suggest that there is no clear evidence for the relation between foreign unbiased ownership and firm value. The results from univariate, multivariate and long-term effect tests are consistent with the hypothesis that foreign biased investors are more effective to improve firm value than unbiased foreign investors.

4 Identification: Instrumental variables

The evidence so far suggests a positive relation between foreign biased ownership and firm value. However, an important concern is that the results exist because institutional ownership (foreign biased ownership, foreign unbiased ownership and domestic ownership) is endogenously determined. Foreign biased investors may choose to invest in the firms with higher Tobin's Q. It is also possible that unobservable time-varying firm level variables are correlated with firm value, even after controlling for firm fixed effects in the model specifications. In addition, ownership variables are subject to measurement errors, if they are used as proxies for investors' monitoring ability or knowledge level. To address the simultaneity bias, omitted variable problem, and measurement error, I employ instrumental variables identification strategy to isolate the exogenous variation in institutional ownership.

Since there are three endogenous variables, the two-stage least squares tests require at least 3 valid instrumental variables to ensure that predicted values in the first step are not collinear with the non-problematic regressors. A qualified instrument should satisfy both relevant and exclusion conditions. Relevant condition means that the instrument is able to explain institutional ownership, after controlling for all other variables in the original regression, which can be tested for the weak IV problem. Exclusion condition means that the instrumental variables should only impact the firm value through institutional ownership. However, exclusion condition is untestable, which needs to be motivated by economic arguments.

I first use the stock inclusion in FTSE All-World index as instrumental variable for foreign ownership (both foreign biased and unbiased ownership). FTSE All-world index, a market-capitalisation weighted index, is found in 1986 and covers 90-95% of the global investable market capitalisation. Foreign institutional investors are more likely to invest in the firms which are included in the market index (Ferreira and Matos [2008]) and to serve these indexes as benchmarks (Cremers et al. [2016]). Therefore, foreign ownership

should increase with the inclusion in FTSE index, which is referred as to relevant condition. For the exclusion condition, inclusion of FTSE All-World index should not directly affect firm valuation, except through ownership changes. I define the instrument as a dummy variable ($FTSE$) that equals 1 is the firm is included in FTSE All-World index in year t, and 0 otherwise.

Second, I use country level strength of auditing and reporting standards as instrumental variable for both foreign and domestic ownership. Ferreira and Matos [2008] show that all institutions, both foreign and domestic, reveal a preference for better disclosure standards. Aggarwal et al. [2005] argue that US funds invest more in emerging markets with stronger accounting standards. High disclosure quality reduces information asymmetry, which allows the investors to efficiently allocate their capital, monitor the invested firms and protect their investment. Moreover, country level auditing quality is unlikely to be directly linked to the firm level valuation, except through investors ownership changes. I define the second instrument ($AUDIT$) as the ranking of countries according to the Strength of auditing and accounting standards provided by Global Competitiveness Report.

At the end, I use industry foreign equity restriction imposed by local government as instrumental variable for both foreign and domestic ownership.[6] These restrictions create exogenous upper bound limit for the foreign institutional holdings. Domestic ownership may increase with the foreign equity restrictions, since the restrictions for foreigners leave more supply for domestic investors. For foreign investors, on one hand, the openness of stock market contributes to better information environment (Bailey and Jagtiani [1994]; Bae et al. [2006]). The foreign investors may avoid restricted industries because of opaque information environment, suggesting a negative relation between foreign eq-

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[6]The foreign equity restriction data is downloaded from OECD Regulatory Restrictiveness Index. For example, Canadian government impose that foreign investors cannot own more than 25% of total ownership in air transportation industry.

uity restriction and foreign ownership. On the other hand, investing in the industries with foreign equity restrictions could bring greater diversification benefits because those industries are less integrated in the global market. It suggests a positive association of foreign equity restrictions on the foreign ownership since the investors generally look for diversification benefits. Overall, the foreign equity restriction is economically related with foreign ownership. However, the statistical significance is not clear because of the two opposite effects and F-test could be useful to examine the weak instrument problem.

For the exclusion condition, one may argue that the market liberalisations usually take place when the related industry experiences high growth opportunities, which could attract foreign investors. The positive changes in foreign ownership triggered by reducing investment barriers are not exogenous, which violates the exclusion condition. However, the first-stage results indicates a positive and significant relation between foreign biased investor and equity ownership restrictions. Thus, the connection between market liberalization and growth opportunities should not be a concern in this context. I define the last instrument as a dummy variable RES_Equity that equals 1 if the foreign equity restriction of the firm's industry is positive in year t, and 0 otherwise.

Table 6 and Table 7 report the results of IV estimation.[7] In Table 6, FIO_BS, FIO_NBS, and DIO are ordinal variables, from 1 to 3, indicating the lowest to the highest tertile of foreign biased ownership, unbiased ownership and domestic ownership, respectively. In Table 7, FIO_BS, FIO_NBS, DIO are the original percentage variable of foreign biased ownership, unbiased ownership and domestic ownership, scaled by variable's standard deviation (dependent variable is also scaled by its standard deviation). The firm level control variables are included in the first-stage tests. The second-stage tests are reported in Column (3) and (7) of each table. Sanderson-Windmeijer F-statistics for weak IV tests are reported at the bottom of each table.

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[7]I exclude using FIO_BS, FIO_NBS, and DIO as dummy variables in IV estimation since it requires at least 5 instrumental variables.

For the first-stage test results in both tables, the coefficient estimates of $FSTE$ are positive and significant at 1% level for explaining FIO_BS and FIO_NBS, which is consistent with the prediction. The coefficient estimates of $AUDIT$ are positive and significant at 1% level for explaining FIO_NBS, but display mixed results for explaining FIO_BS and DIO. One possible explanation is that both foreign biased investors and domestic investors are more informed than foreign unbiased investors. Therefore, their investment decisions are less affected by the country level auditing quality. The coefficient estimates of RES_Equity are positive and significant at 1% level for explaining DIO, which is consistent with the prediction. The mixed results of estimates on RES_Equity (in Column (4) of Table 6 and Table 7) for explaining FIO_BS suggest the two opposite effects of foreign equity restrictions on foreign biased ownership, as discussed before. Overall, the instruments seem to be highly correlated with the endogenous variables. Sanderson-Windmeijer F-statistics are able to reject the null of weak instruments at 1% level.

For the second-stage results in both Table 6 and Table 7, the estimates on FIO_BS are positive and significant at 1% level while the estimates on FIO_NBS are mostly negative and significant at 1% level. The coefficient in Column (3) of Table 6 suggests that the increase in predicted FIO_BS generated by 1-standard-deviation increase in each of the instrument is associated with an increase in Tobin's Q of 0.158[8]. The 95% confidence interval of the overall effect is [0.071, 0.237], which overlaps with the 95% confidence interval of OLS regression results [0.042, 0.077] in Column (4) of Table 4. The coefficient in Column (3) of Table 7 suggests that the increase in predicted FIO_BS generated by 1-standard-deviation increase in each of the instrument is also associated with an increase in Tobin's Q of 0.091 standard deviation[9]. The 95% confidence interval

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[8]Using the first-stage test results in Colum (1) of Table 6, 1-stardard deviation increases in $FTSE$ and $AUDIT$ lead to an increase in FIO_BS of 0.092*0.347 -0.000*28.067=0.032. The estimated change in Tobin's Q is 0.032*4.930=0.158.

[9]Using the first-stage test results in Column (1) of Table 7, 1-stardard deviation increases in $FTSE$

of the overall effect is [0.038, 0.137], which overlaps with the 95% confidence interval of OLS regression results [0.025, 0.057] in Column (6) of Table 4. Overall, the IV estimates are not significantly different from OLS regression results.

Although the 95% interval of OLS and IV estimates overlaps with each other, the economic magnitude of the effects from IV estimates seems to be greater than the effects estimated by OLS regressions. In fact, while the correlation of the omitted variables and firm value is unclear, the simultaneity bias implies that the OLS estimator should overestimate the effects of FIO_BS on Tobin's Q. One possible explanation is the "local average treatment effect" (LATE). The IV estimation estimates the effects of the treatment for those who respond to the exogenous shocks (Jiang [2017]). As a result, IV estimates could produce an effect larger than the true population. Another possible explanation is that measurement error in independent variable generally brings attenuation bias.[10] Furthermore, the effects of FIO_NBS are negative and significant at 1% level by IV estimations while positive and insignificant by OLS estimations. Multivariate estimate captures the effect of each independent variable after partialing out the effects of other variables. Therefore, after partialing out the negative IV estimate of FIO_NBS, the IV estimate of FIO_BS could be larger than OLS estimate.

4.1 Lagged Tobin's Q

To mitigate the concern that the foreign biased investors choose to invest in the firms with higher valuation and related characteristics in the past period, I repeat the same empirical exercise by adding the lagged Tobin's Q in the regression. Table 8 reports the results of OLS regression and IV estimation. After controlling for lagged Tobin's Q, both OLS and IV coefficient estimates become smaller than the baseline specifications, but

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and $AUDIT$ lead to an increase in FIO_BS of 0.158*0.347 -0.001*28.067=0.027. The estimated change in Tobin's Q is 0.027*3.359=0.091.

[10]In the test where I treat foreign biased ownership as the only endogenous variable, the coefficient of IV estimate of FIO is larger than OLS estimate.

still positive and significant at 1% level. It suggests there seems to be simultaneity bias. However, the positive effect of foreign biased ownership on firm value remains even after controlling for lagged Tobin's Q. The estimates of FIO_NBS are either insignificant (OLS regression) or negative and significant at 10% level (IV estimation).

In summary, consistent with my hypothesis, the identification tests using IVs suggest that the positive effect of foreign biased ownership on firm value appears to be causal. However, it is important to mention that since none of the three instrumental variables are perfectly exogenous to firm value and IV estimation has its own limitation, I cannot completely rule out the endogeneity problem and should be cautious when interpreting the results.

5   Economic mechanism

In this session, I test two possible economic mechanisms through which foreign investors with industry bias affect firm value: monitoring channel and knowledge spillover. I show that the foreign biased investors are better monitors, and they bring greater knowledge spillovers.

5.1   Monitoring channel

Foreign institutional ownership in general has been shown to promote good corporate governance practices around the world (Aggarwal et al. [2011]) and enhance firm innovation through monitoring (Bena et al. [2017] and Luong et al. [2017]). In this subsection, I make the conjuncture that industry expertise enables foreign biased investors to be better monitors, compared with unbiased investors.

First, through specialised learning, foreign biased investors acquire industry-specific

information, such as management practice, industry trends, competition and risk in the related industry. (Wang et al. [2015]; Bradley et al. [2017]; Faleye et al. [2018]; Kang et al. [2018]). I expect that the industry related knowledge could enable foreign biased investors to better understand the invested firm and evaluate the decisions taken by management, which contributes to effective monitoring. Consistent with this view, Wang et al. [2015] show that prior industry working experience helps directors reduce firm's earning management, lower CEO excess compensation and increase CEO turnover. The same reasoning has been applied to sell-side analysts (Bradley et al. [2017]) and M&A advisors (Wang et al. [2020]). These findings suggest that industry expertise achieved through specialised learning should help foreign investors to more effectively monitor the invested firms.

Second, since the firm's industry is one of the largest in the biased investors' home country, it is very likely that their portfolios have covered and monitored the local firms in the same industry. In other words, they have industry-specific monitoring experience. Because of commonality among the firms in the same industry, the past experience should enable foreign biased investors to better evaluate firm strategies and oversee the management. Kang et al. [2018] argue that institutions with multiple blockholdings in the same industry increase forced CEO turnover-performance sensitivity because institutions' prior activism experience help them reduce subsequent monitoring costs and gain monitoring effectiveness. This finding suggests that their past governance experience could help foreign biased investors to be effective monitors.

To test whether industry expertise is valuable for monitoring, I classify both foreign biased and unbiased investors into independent and grey investors (Brickley et al. [1988]; Chen et al. [2007]; Ferreira and Matos [2008]), as well as long-term and short-term investors (Bushee [1998]; Chen et al. [2007]). The independent/grey institutions are identified based on the types of institutions: mutual funds and investment advisers as independent investors while bank trusts, insurance companies, pensions funds and

endowments as grey institutions. Brickley et al. [1988] and Chen et al. [2007] show that the independent institutions tend to monitor the firm management because they do not seek business relationships with the invested firms, while grey institutions are less willing to challenge the management decisions since they might need to protect the existing or potential business relationships with the invested firms.

A investor is labelled as long-term if the the investor holds the shares of the invested firm more than 1 year. A short-term investor is the investor who holds the shares of the invested firm less than 1 year. Chen et al. [2007] prove that long-term institutional investors and independent investors are more likely to monitor the firms. Bushee [1998] shows that long-term investors reduce the managerial myopia while short-term investors induce the managerial myopia. If industry expertise contributes to effective monitoring, the effect of biased monitoring (independent / long-term) investors on firm value should be greater than the effect of unbiased monitoring (independent / long-term) investors.

Table 9 shows the results of OLS and IV estimations by decomposing foreign ownership into independent (long-term) and grey (short-term) institutions. The dependent variable is next period firm value, measured by Tobin's Q. Column (1) and Column (4) present the results of OLS regressions and indicate that the coefficients of independent (long-term) foreign investors are positive and significant at 1% level while grey (short-term) institutions have an insignificant effect on firm value. Column (2) and (5) demonstrate that the coefficient estimates of biased monitoring (independent / long-term) investors (FIO_X_BS) are more significant, both economically and statistically, than the coefficient estimates of unbiased monitoring (independent / long-term) investors (FIO_X_NBS). Since our main interest is to compare different foreign investors, the three instruments ($FTSE$, $AUDIT$ and RES_Equity) are used to predict biased monitoring (independent / long-term) ownership (FIO_X_BS), unbiased monitoring (independent / long-term) ownership (FIO_X_NBS) and grey (short-term) ownership (FIO_NX). Column (3) and (6) show that IV estimates of biased monitoring

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(independent / long-term) investors (FIO_X_BS) are positive and significant at 1% level, while the estimates of unbiased monitoring (independent / long-term) ownership (FIO_X_NBS) are negative and significant at 5% level. Grey institutions seems to have a insignificant effect on firm value. These results provide evidence that monitoring is a valid channel through which foreign biased investors improve firm value and that foreign biased investors are better monitors than unbiased investors.

5.1.1 Interaction with stock liquidity and ownership concentration

In this subsection, I employ the existing theories which help to predict what determines the effectiveness of governance. On one hand, Kahn and Winton [1998] and Maug [1998] demonstrate that stock liquidity increase the shareholder's monitoring incentive since liquidity allows the investors to buy additional shares at a price that does not yet reflect their intervention. Moreover, Edmans [2009] show that liquidity enhance shareholder monitoring effectiveness through exit because liquidity allows them to trade more aggressively through their information. Motivated by these theories, I study the interaction term of stock liquidity and foreign biased ownership. If foreign biased investors improve firm value through monitoring, I should expect to see that this effect is more pronounced for the firm with higher stock liquidity. In other words, the coefficient estimates of the interaction term between stock liquidity and foreign biased ownership should be positive.

On the other hand, Noe [2002] and Edmans and Manso [2011] argue that the splitting a holding block among multiple shareholders create free-rider problem and reduce intervention incentives. In addition, more diluted ownership structure weakens the voice of monitoring shareholders, by reducing the investor's stake size. Admati et al. [1994] show that diversified investors with tiny positions in multiple firms have little incentive to monitor. Standing on these arguments, I study the interaction term of ownership concentration and foreign biased investors. If monitoring is a valid channel, the effect of foreign biased investors should be more pronounced for the firms with more concen-

trated ownership structure and the coefficient of the interaction term should be negative.

Table 10 shows the results of these interaction terms. In Column (1) to (4), to measure stock illiquidity, I use Amihud illiquidity ratio ($Amihud$) and percentage of zero return days on total trading days in one year ($Zret$) . Consistent with the hypotheses, in Column (4), the coefficient estimate on interaction term of $Zret$ and FIO_BS is negative and significant at 1% level. It suggests that the positive effect of foreign biased investors on firm value is more pronounced for the firms with higher stock liquidity. The result is consistent with the hypothesis that monitoring is a valid channel through which foreign biased investors affect firm value.

In Column (5) to (8) of Table 10, I use number of institutions holding the firm ($N\_institution$) and Herfindahl index (IO_HHI) as measures of ownership concentration. Consistent with the hypothesis, in Column (6) and (8), the coefficient estimate on interaction term between $N\_institution$ and FIO_BS is positive and significant at 1% level, and the coefficient estimate on interaction term between IO_HHI and FIO_BS is negative and significant at 1% level. These results indicate that the positive effect of foreign biased investors on firm value is more pronounced for the firms with more concentrated ownership structure, which is once again consistent with the hypothesis that monitoring is a plausible economic mechanism.

To conclude, the results in Table 9 and Table 10 provide evidence that foreign biased investors enhance firm value through monitoring. By decomposing monitoring ownership into biased and unbiased parts, the tests support the hypothesis that foreign biased investors are better monitor than unbiased investors to oversee the firm's management.

5.2 Knowledge spillover

Foreign institutional ownership in general has been shown to facilitate knowledge spillover by acting as a facilitator in cross-border mergers and acquisitions (Ferreira et al. [2010]) and as a bridge for a network of managers, investors and other stakeholders to exchange knowledge, ideas and opportunities (Luong et al. [2017]). In this subsection, I argue that foreign biased investors could bring greater knowledge spillovers, compared with unbiased investors, because of their home country industry structure and their industry expertise.

First, foreign biased investors are in a better position to bring more valuable resources to the invested firm. Knowledge spillover often occurs in a common industry (Marshall–Arrow–Romer and Porter knowledge spillover). By definition, the related industry is one of the largest industries in the biased investor's home country. Therefore, the biased investor's home country is likely to be equipped with key industry players, more industrial communications, such as industry conferences and exhibitions, and more efficient vertical networks, supply chain and sale channels. In turn, foreign biased investors can bring more incoming knowledge spillover from other companies in the same industry, which is shown to increase firm R&D investment and productivity than outgoing spillover (Cassiman and Veugelers [2002]; Chen et al. [2013]). Based on these arguments, it is reasonable to believe that foreign biased investors can increase the firm's access to more valuable resources by building the bridge between the invested firm and their home industry.

Second, it is also reasonable to assume that the industry expertise of foreign biased investors could make the knowledge transfer more efficient because they are able to accurately identify the industry specific information gap. Consistent with this argument, Faleye et al. [2018] show that directors with industry expertise can help firm's managers to make better decisions on R&D investment because they increases managers' access to key industry players and relevant information. Dass et al. [2014] point out that directors

from the firm's related upstream and downstream industries can help bridge the information gap and facilitate the firm's access to contacts in those industries. These findings suggest that industry expertise of foreign biased investors can improve the efficiency of knowledge spillover between the invested firm and their home industry.

To test whether home country industry structure and industry expertise of foreign investors leads to knowledge spillover channel, I classify both foreign biased and unbiased investors based on their country of origin: innovation level and industry size. First, I label an investor as "high-knowledge" for the invested firm, if the average R&D intensity across all firms in the industry (same as the firm's industry SIC code) of its home country is larger than the average R&D intensity across all firms in the firm's country-industry. Vice versa, I label an investor as "low-knowledge" for the invested firm, if its home country-industry average R&D spending across all firms is smaller than the the average R&D intensity in the firm's country-industry. If such industry is not a part of the investor's home country economy, I assign its average R&D intensity as 0. Second, I use the size (market value) of the industry as a proxy to measure the level of development of the industry in that country. I label a investor as "high-knowledge" for the invested firm, if the size of the industry (same as the firm's industry SIC code) in the investor's home country is larger than the size of the firm's country-industry. Vice versa, I label a investor as "low-knowledge" for the invested firm, if the size of the investor's home industry is smaller than the size of the firm's country-industry. If there is no such industry in the investor's home country, I assign its industry size as 0. If foreign biased investors promote greater knowledge spillovers to the invested firm, I should expect to see that the positive effect of foreign biased "high-knowledge" ownership on firm value is greater than the effect of foreign unbiased "high-knowledge" ownership.

Finally, I classify both foreign biased and unbiased investors based on economic development and law system of the institution's home country, since country's knowledge level may correlated with its economic development and institutional environment. The

ownership is labelled as "high-knowledge" if the investor's home country is a developed country (common law country). The ownership is labelled as "low-knowledge" if the investor's home country is a emerging country (civil law country).[11] If foreign biased investors promote greater knowledge spillovers to the invested firm, I should expect to see that the effect of foreign biased investors from developed (common law) countries on firm value is more positive than the effect of foreign unbiased investors from developed (common law) countries.

Table 11 reports the results of OLS and IV estimations by decomposing foreign ownership into higher R&D intensity (larger industry size) and lower R&D intensity (smaller industry size) ownership. Column (1) and (4) present the results of OLS regressions and indicate that foreign "high-knowledge" (higher R&D intensity / larger industry size) ownership affect the invested firm value to a larger extent than ownership from "low-knowledge" (lower R&D intensity / smaller industry size) countries. Column (2) and (5) demonstrate that the coefficient estimates of biased "high-knowledge" (higher R&D intensity / larger industry size) ownership (FIO_X_BS) are more significant, both economically and statistically, than the coefficients of unbiased "high-knowledge" ownership (FIO_X_NBS). Since our main interest to compare FIO_X_BS and FIO_X_NBS, I use FTSE index membership ($FTSE$) and the firm's country auditing quality ($AUDIT$) as instruments for the two variables of interest. Column (3) and (6) show that IV estimates of biased "high-knowledge" (higher R&D intensity / larger industry size) ownership (FIO_X_BS) are positive and significant at 5% level, while IV estimates of unbiased "high-knowledge" (higher R&D intensity / larger industry size) ownership (FIO_X_NBS) are negative and significant at 5% level. The results suggest that the positive effect of foreign "high-knowledge" ownership (FIO_X) on firm value is largely driven by the foreign biased "high-knowledge" ownership (FIO_X_BS), instead of unbiased "high-knowledge" ownership (FIO_X_NBS).

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[11]The information on the countries' legal system is downloaded from Central Intelligence Agency.

Table 12 reports the results of decomposing foreign ownership into investors from developed (common law) countries and emerging (civil law) countries. Consistent with the results in Table 11, the IV estimates in Column (3) and (6) indicate that foreign biased investors from developed (common law) countries (FIO_X_BS) improve firm value, while the effects of unbiased investors from developed (common law) countries countries (FIO_X_NBS) on firm value are either negligible or negative. This result once again provides evidence that foreign biased "high-knowledge" investors lead to a greater increase in firm value than unbiased "high-knowledge" investors.

To conclude, the empirical results in Table 11 and 12 show that foreign biased investors from countries with valuable resources (more industry specific knowledge, developed and common law countries) contributes more to firm value than their unbiased peers. Hence, these evidences suggest that knowledge spillover is a plausible mechanism and that foreign biased investors bring greater knowledge spillover from their home country to the invested firms, compared with unbiased investors.

6   Real effects

Till now, I have presented evidence in support of hypothesis that foreign investors with industry bias have a positive and causal effect on firm value. In this section, I test the concrete impacts of foreign biased ownership on different corporate actions and performance measures. I show that foreign biased investors conduct real improvements in firm operations. Instead of "splitting the pie" in favor of shareholders, they "grow the pie" by improving firm innovation, productivity and sales.

I first test the corporate investments on innovation. As discussed in the above section, through monitoring, industry expertise enable foreign biased investors to better evaluate the investment projects. Through knowledge spillover, foreign biased investors

could act as bridge and connect the invested firms to other resources within the same industry. Both economic mechanisms suggest that foreign biased investors could increase firm innovation output, by increasing the investment either in research and development or in mergers and acquisitions.

Table 13 show the results of research and development investment, merges and acquisitions cost, and innovation output (patent counts). Column (1) and (2) show the impact of foreign biased investors on firm R&D investment. The two-stage least square test in Column (2) indicates that one standard deviation increase in predicted foreign biased ownership leads to an increase of 0.6% in R&D investment, as a fraction of total asset (sample mean of 3%). Column (3) and (4) present the effect of foreign biased ownership on firm M&A spending. Using IV estimate in Column (4), one standard deviation increase in predicted foreign biased ownership leads to a increase of 19% in M&A spending. Finally, I test in Column (5) and (6) how foreign biased investors affect innovation output, measured by firm level patent counts. From IV estimate in Column (6), I find that one standard deviation increase in predicted foreign biased ownership leads to a 36.6% percent increase in patent counts. Overall, the results suggest that the foreign biased investors foster R&D investment and M&A activities and that the investments are valuable since the patent counts increase.

I then test two firm level performance measures: total factor productivity (TFP)[12] and total sales. Table 14 presents the results. Both OLS and IV estimates provide evidence that foreign biased ownership increases firm productivity and sales while foreign unbiased ownership has a mixed effect, either negligible or negative, on productivity and sales. The results suggest that foreign biased investors conduct real improvement

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[12]See Schoar [2002] for example. I compute total factor productivity as the residual of the firm level regression $y_{f,i,t} = \alpha_i + \beta_i l_{f,i,t} + \gamma_i k_{f,i,t} + \delta_i m_{f,i,t} + \epsilon_{f,i,t}$, where $y_{f,i,t}$ is the logarithm of total sales of firm f in industry i at year t, $l_{f,i,t}$ is the logarithm of total number of workers, $k_{f,i,t}$ is the logarithm of total assets, $m_{f,i,t}$ is the logarithm of cost for material and other inputs, and $\epsilon_{f,i,t}$ is the residuals, measuring total factor productivity.

in firm's operations.

Finally, I test the impacts of foreign biased investors on payout policy. Through monitoring, foreign biased investors could mitigate agency cost and pressure the management to increase repurchases and dividend. However, I find no evidence that foreign biased investors urge managers to buyback more stocks or pay more dividend.

Taken together, I find evidence that foreign biased investors bring real improvement on firm innovation and operation performance, instead of "managing financial statement".

7   Conclusion

In this paper, I show the positive effects of foreign investors with industry bias on firm value, using firm-level data from across 70 non-U.S. countries between 2000 and 2017. I identify the effects by exploiting the exogenous changes in foreign biased ownership, foreign unbiased ownership and domestic ownership driven by the inclusion of a stock in FTSE All World Index, country level auditing quality and country-industry level foreign equity restrictions. I find that foreign biased ownership has a positive, long-term and causal effect on firm value, while foreign unbiased ownership has either a mixed effect, either insignificant or negative. I validate two economic mechanisms through which foreign biased investors may increase firm value: monitoring channel and knowledge spillover channel. I further show that foreign biased investors increase the firm investment in R&D and M&A and that the investment is valuable since they improve innovation output, productivity and sales.

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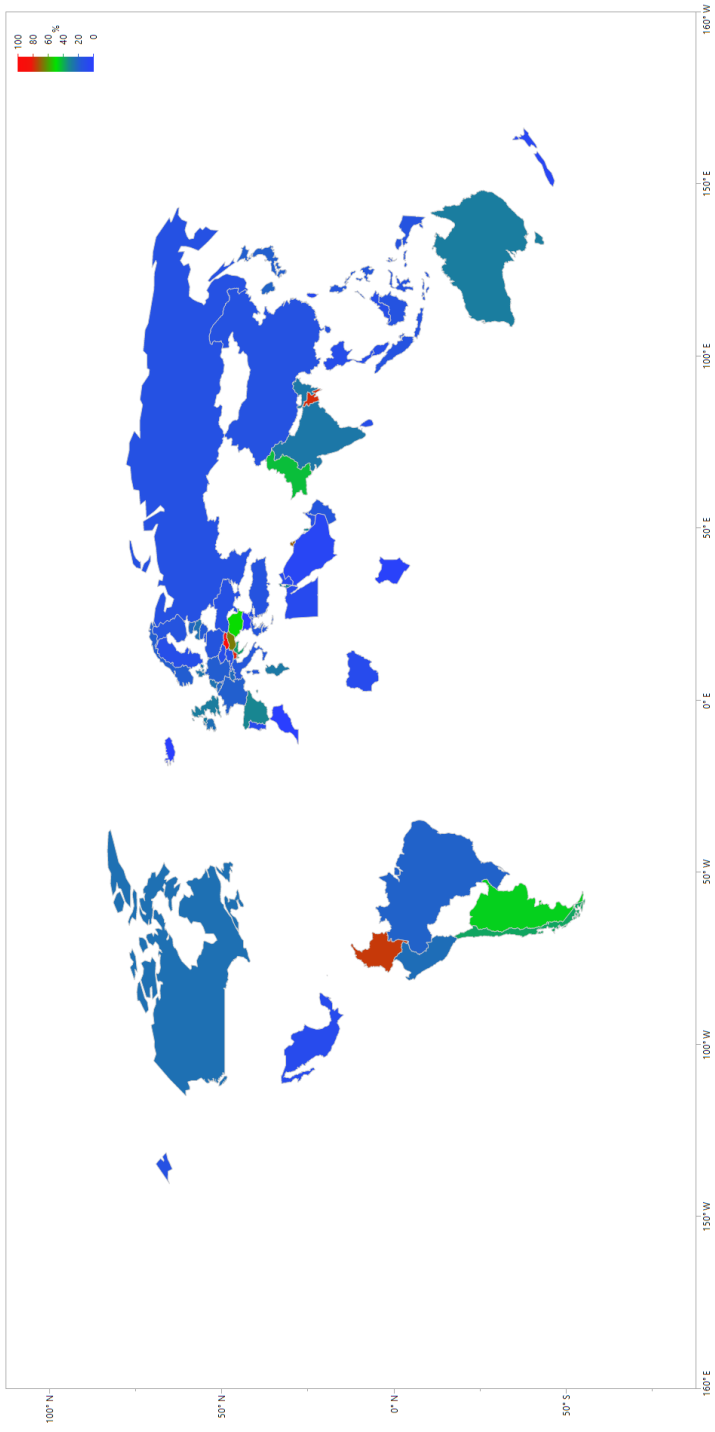
Figure 1: Foreign biased ownership: world map
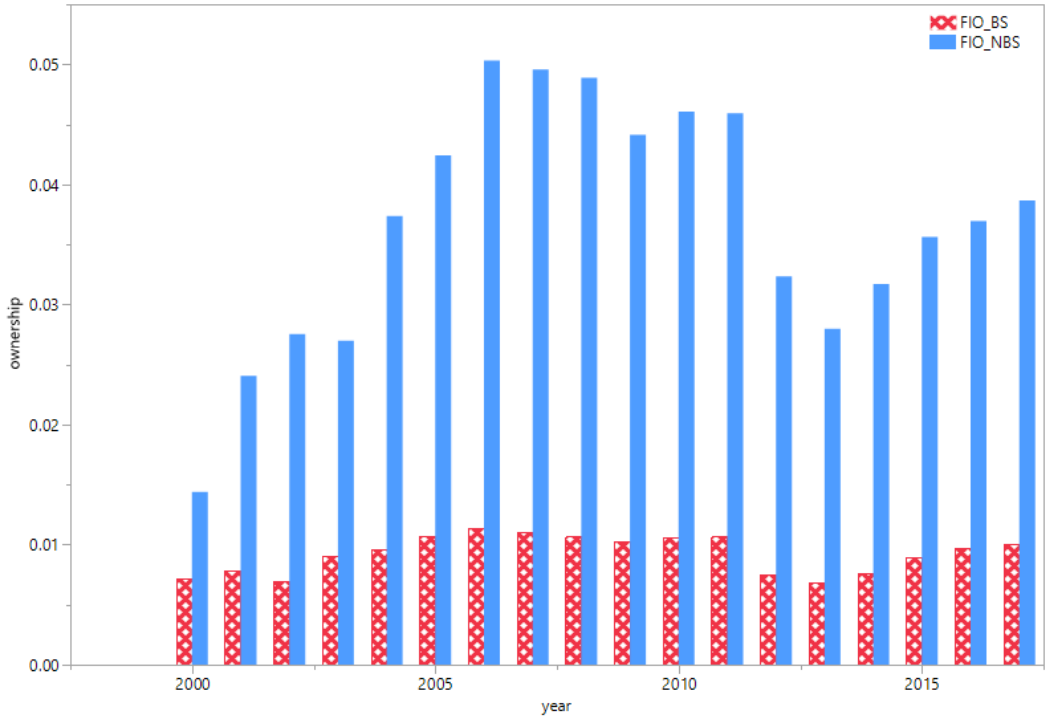
Figure 2: Foreign biased ownership by year
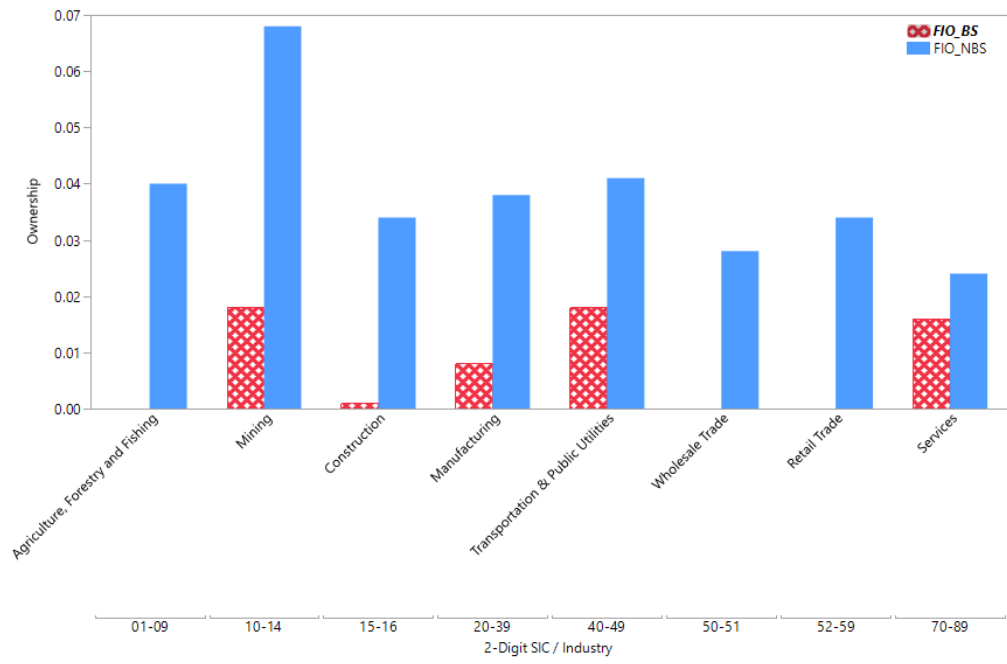
Figure 3: Foreign biased ownership by sector

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Table 1: Summary statistics

This table shows mean, standard deviation, number of observation, minimum, 25 percentile, median, 75 percentile, and maximum for each variable. Varaible definition are provided in Table A.1 in the Appendix. Variables are winsorized at the top and bottom 0.5%.

	Mean	SD	N	MIN	P25	P50	P75	MAX
Panel A: Institutional ownership variable								
FIO	0.046	0.077	82646	0.000	0.000	0.011	0.059	0.992
FIO_BS	0.009	0.034	82646	0.000	0.000	0.000	0.002	0.942
FIO_NBS	0.037	0.067	82646	0.000	0.000	0.007	0.043	0.963
DIO	0.040	0.074	82646	0.000	0.000	0.012	0.047	0.797
FIO_INDP_BS	0.009	0.034	82646	0.000	0.000	0.000	0.001	0.928
FIO_INDP_NBS	0.033	0.063	82646	0.000	0.000	0.005	0.037	0.963
FIO_GREY	0.004	0.009	82646	0.000	0.000	0.000	0.004	0.385
FIO_LT_BS	0.009	0.034	82646	0.000	0.000	0.000	0.002	0.850
FIO_LT_NBS	0.036	0.066	82646	0.000	0.000	0.007	0.042	0.960
FIO_ST	0.001	0.004	82646	0.000	0.000	0.000	0.000	0.523
FIO_HI_BS	0.009	0.034	82646	0.000	0.000	0.000	0.002	0.942
FIO_HI_NBS	0.036	0.067	82646	0.000	0.000	0.007	0.042	0.963
FIO_LI	0.000	0.003	82646	0.000	0.000	0.000	0.000	0.194
FIO_LS_BS	0.008	0.032	82646	0.000	0.000	0.000	0.000	0.942
FIO_LS_NBS	0.020	0.047	82646	0.000	0.000	0.000	0.019	0.963
FIO_SS	0.018	0.038	82646	0.000	0.000	0.002	0.020	0.811
Panel B: dependent variables								
Q	1.703	1.483	82646	0.383	0.948	1.235	1.829	13.292
Patent	8.789	103.364	82646	0.000	0.000	0.000	0.000	7548
TFP	-0.049	0.386	67787	-8.556	-0.195	-0.031	0.116	4.562
SALE	12.667	1.984	82555	0.693	11.506	12.665	13.926	16.588
Buyback	0.005	0.093	79797	0.000	0.000	0.000	0.000	24.359
DIV_payout	25.812	25.429	75030	0.000	0.000	21.290	40.340	100
Panel C: Firm-level control variables								
SIZE	12.909	1.803	82646	5.478	11.727	12.834	14.047	16.836
SGROWTH	0.103	0.353	82646	-0.836	-0.039	0.047	0.158	3.379
LEV	0.205	0.182	82646	0.000	0.043	0.176	0.324	1.224
CASH	0.183	0.161	82646	0.000	0.069	0.136	0.246	0.890
CAPEX	0.047	0.047	82646	0.000	0.016	0.033	0.063	0.398
ROA	0.053	0.152	82646	-1.613	0.036	0.069	0.106	0.359
R&D	0.030	0.060	82646	0.000	0.002	0.012	0.032	0.591
PPE	0.280	0.183	82646	0.000	0.135	0.260	0.402	0.937
FXSALE	0.327	0.340	82646	0.000	0.000	0.208	0.605	1.000
ANALYST	3.368	5.119	82646	0.000	0.000	1.222	4.250	53.083
CLOSE	0.424	0.234	82646	0.000	0.246	0.425	0.604	0.977
ADR	0.063	0.243	82646	0.000	0.000	0.000	0.000	1.000
Panel D: Instrumental variables								
FTSE	0.140	0.347	82646	0.000	0.000	0.000	0.000	1.000
AUDIT	116.451	28.070	82619	13	100	128	138	152
RES_Equity	0.135	0.342	82646	0.000	0.000	0.000	0.000	1.000

Table 2: Supsample average of Foreign biased (unbiased) ownership
This table shows mean, standard deviation and number of observation for foreign biased and unbiased ownership, classified by industry, developed vs. emerging and civil law vs. common law countries.

Industry / Country	N	FIO_BS		FIO_NBS		FIO_BS/FIO
		Mean	SD	Mean	SD	
Panel A: Industries						
Agriculture, Forestry and Fishing	645	0.000	0.000	0.040	0.066	0.09%
Mining	1963	0.018	0.046	0.068	0.112	20.95%
Construction	3421	0.001	0.008	0.034	0.055	3.78%
Manufacturing	58996	0.008	0.032	0.038	0.068	17.60%
Transportation, Communications, Etc.	3378	0.018	0.036	0.041	0.067	29.93%
Wholesale Trade	2216	0.000	0.002	0.028	0.047	1.12%
Retail Trade	1472	0.000	0.001	0.034	0.062	0.20%
Services	10551	0.016	0.051	0.024	0.055	40.11%
Panel B: Countries						
Developped countries	51015	0.012	0.041	0.046	0.074	21.26%
Emerging countries	31457	0.004	0.018	0.023	0.051	14.94%
Civil Law Countries	60123	0.008	0.029	0.038	0.065	17.88%
Common Law Countries	22456	0.012	0.046	0.035	0.072	25.04%

Table 3: Foreign biased ownership and firm value: Univariate tests
This table presents average next period Tobin's Q grouped by tertiles of biased foreign ownership (the firm industry is one of the TOP 3 industries in the institutional investor's country) and unbiased foreign ownership. The first (T1), second (T2), and third (T3) tertiles represent groups with the lowest, medium, and highest values of the corresponding variable, respectively. The sample period is from 2000 to 2017. The tertiles are sorted at each year. The last row reports the differences of sample mean between the highest and the lowest tertiles and their corresponding t-statistic. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

FIO_BS	All sample		FIO_NBS	All sample	
	Mean	STD		Mean	STD
T1 (Low)	1.686	1.516	T1 (Low)	1.840	1.667
T2	1.682	1.281	T2	1.512	1.290
T3 (High)	1.820	1.477	T3 (High)	1.614	1.211
	Diff	t-stats		Diff	t-stats
T3-T1 (High-Low)	0.134***	8.62	T3-T1 (High-Low)	-0.226***	-19.24

Table 4: Foreign biased ownership and firm value: Multivariate tests

This table shows the results of multivariate regressions using different measures of foreign biased and unbiased ownership. The dependent variable is firm's Tobin's Q. Column (1) and (2) use dummy variables indicating the tertiles of foreign biased ownership, unbiased ownership and domestic ownership. Column (3) and (4) use the ordinal variable from 1 to 3, lowest to highest tertiles of foreign biased ownership, unbiased ownership and domestic ownership. Column (5) and (6) use the foreign biased ownership, unbiased ownership and domestic ownership (percentage), scaled by variable's standard deviation (dependent variable also scaled by its standard deviation). All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

		(1)	(2)	(3)	(4)	(5)	(6)
		Q_{t+1}	Q_{t+1}	Q_{t+1}	Q_{t+1}	Q_{t+1}	Q_{t+1}
		Tertile dummy		Ordinal		Percentage	
FIO_BS	T2	0.016	0.075***	0.059***	0.086***	0.032***	0.041***
		(0.80)	(4.58)	(4.24)	(6.60)	(4.60)	(4.98)
	T3	0.152***	0.175***				
		(5.29)	(6.47)				
FIO_NBS	T2	-0.223***	0.029*	-0.098***	0.015	0.010	0.027***
		(-11.54)	(1.79)	(-7.35)	(1.24)	(1.32)	(3.51)
	T3	-0.165***	0.028				
		(-6.16)	(1.17)				
DIO	T2	0.188***	-0.011	0.153***	0.002	0.050***	0.011
		(10.29)	(-0.79)	(12.86)	(0.21)	(7.78)	(1.31)
	T3	0.303***	0.006				
		(12.61)	(0.27)				
SIZE		-0.197***	-0.519***	-0.198***	-0.519***	-0.137***	-0.351***
		(-22.34)	(-17.83)	(-23.11)	(-17.88)	(-25.67)	(-17.98)
SGROWTH		0.317***	0.151***	0.320***	0.151***	0.223***	0.101***
		(13.18)	(6.16)	(13.32)	(6.15)	(13.70)	(6.11)
LEV		0.320***	0.249**	0.331***	0.250**	0.225***	0.167**
		(4.65)	(2.40)	(4.82)	(2.40)	(4.93)	(2.38)
CASH		1.428***	0.977***	1.432***	0.977***	0.939***	0.656***
		(16.05)	(9.35)	(16.09)	(9.34)	(15.54)	(9.29)
CAPEX		3.120***	0.630***	3.138***	0.631***	2.180***	0.424***
		(16.38)	(3.95)	(16.44)	(3.96)	(16.88)	(3.94)
ROA		0.022	-0.006	0.022	-0.007	0.020	-0.004
		(0.15)	(-0.05)	(0.15)	(-0.05)	(0.20)	(-0.04)
R&D		4.038***	1.465***	4.011***	1.463***	2.770***	0.983***
		(11.38)	(3.33)	(11.31)	(3.33)	(11.62)	(3.32)
PPE		-0.592***	-0.197*	-0.595***	-0.197*	-0.435***	-0.134*
		(-10.57)	(-1.81)	(-10.59)	(-1.82)	(-11.45)	(-1.83)
FXSALE		-0.262***	-0.133***	-0.262***	-0.133***	-0.214***	-0.094***
		(-8.52)	(-3.17)	(-8.50)	(-3.17)	(-10.33)	(-3.31)
ANALYST		0.052***	0.012***	0.053***	0.012***	0.035***	0.008***
		(18.44)	(3.88)	(19.09)	(3.86)	(18.10)	(3.55)
CLOSE		0.199***	0.128**	0.193***	0.128**	0.147***	0.102***
		(4.21)	(2.53)	(4.07)	(2.54)	(4.74)	(2.98)
ADR		0.389***	0.000	0.411***	0.000	0.261***	0.000
		(8.87)	(.)	(9.29)	(.)	(8.90)	(.)
Year FE		Y	Y	Y	Y	Y	Y
Firm FE		N	Y	N	Y	N	Y
N		82646	82646	82646	81415	81415	81415
adj. R-sq		0.227	0.688	0.221	0.688	0.221	0.688

Table 5: Foreign biased ownership and firm value: long-term effect

This table reports the results of multivariate regressions for longer period, up to 5 years ahead. Column (1), (4), (7) and (10) use the dummy variables indicating the tertiles of foreign biased and unbiased ownership. Column (2), (5), (8) and (11) use the ordinal variable from 1 to 3, lowest to highest tertiles of foreign biased and unbiased ownership. Column (3), (6), (9) and (12) use the foreign biased and unbiased ownership (percentage), scaled by variable's standard deviation (dependent variable also scaled by its standard deviation). Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Q_t+2			Q_t+3			Q_t+4			Q_t+5		
FIO_BS	T2	0.035**	0.051***	0.023***	0.038**	0.038***	0.014*	0.003	0.009	0.006	0.007	0.000	-0.002
		(2.11)	(3.70)	(2.87)	(2.16)	(2.77)	(1.86)	(0.17)	(0.61)	(0.82)	(0.35)	(0.01)	(-0.23)
	T3	0.108***			0.075***			0.019			-0.001		
		(3.77)			(2.68)			(0.67)			(-0.05)		
FIO_NBS	T2	0.030*	0.007	0.014**	0.022	0.004	0.001	-0.020	-0.020	-0.017*	-0.033*	-0.031**	-0.030***
		(1.84)	(0.55)	(2.00)	(1.30)	(0.31)	(0.14)	(-1.05)	(-1.32)	(-1.93)	(-1.71)	(-1.99)	(-3.13)
	T3	0.012			0.008			-0.038			-0.059*		
		(0.50)			(0.28)			(-1.26)			(-1.89)		
DIO	T2	-0.072***	-0.034***	0.011	-0.051***	-0.018	0.008	-0.017	-0.002	-0.004	-0.023	-0.003	-0.002
		(-4.85)	(-2.94)	(1.23)	(-3.26)	(-1.47)	(0.88)	(-1.01)	(-0.18)	(-0.41)	(-1.27)	(-0.18)	(-0.19)
	T3	-0.065***			-0.032			-0.002			-0.000		
		(-2.75)			(-1.28)			(-0.07)			(-0.01)		
Controls		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm FE		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N		68329	68329	68329	56664	56664	56664	46431	46431	46431	37240	37240	37240
adj. R-sq		0.696	0.696	0.696	0.706	0.706	0.706	0.713	0.713	0.713	0.724	0.724	0.724

Table 6: 2SLS with instrumental variables: Ordinal variables

This table represents the 2SLS regressions of firm value (Tobin's Q) on foreign biased and unbiased ownership, using FTSE index membership, firm country's auditing quality and firm industry's foreign equity restriction as instrumental variables. The FIO_BS, FIO_NBS, DIO are ordinal variables, from 1 to 3, lowest to highest tertiles of biased ownership, unbiased ownership and domestic ownership. All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	First stage		2SLS	First stage			2SLS
	FIO_BS	FIO_NBS	Q_{t+1}	FIO_BS	FIO_NBS	DIO	Q_{t+1}
$FTSE$	0.092***	0.058***		0.090***	0.053***	-0.050***	
	(4.79)	(2.91)		(4.62)	(2.61)	(-2.67)	
$AUDIT$	-0.000	0.001***		-0.000	0.001***	-0.001**	
	(-0.76)	(4.95)		(-0.68)	(4.85)	(-2.01)	
RES_Equity				0.069***	0.039	0.121***	
				(2.60)	(1.35)	(3.88)	
FIO_BS			4.930***				5.502***
			(3.63)				(4.00)
FIO_NBS			-3.952***				-2.579**
			(-3.75)				(-2.10)
DIO	0.047***	0.094***	0.146				2.678*
	(9.67)	(17.18)	(1.40)				(1.92)
SIZE	0.103***	0.115***	-0.567***	0.106***	0.123***	0.086***	-1.017***
	(12.52)	(12.83)	(-3.50)	(12.93)	(13.59)	(9.61)	(-4.47)
SGROWTH	-0.012*	-0.012	0.163***	-0.010	-0.007	0.053***	0.043
	(-1.80)	(-1.64)	(3.20)	(-1.45)	(-0.96)	(6.34)	(0.47)
LEV	-0.159***	-0.257***	-0.028	-0.175***	-0.290***	-0.354***	1.367*
	(-5.81)	(-8.68)	(-0.08)	(-6.42)	(-9.68)	(-10.52)	(1.91)
CASH	0.076**	0.217***	1.476***	0.082***	0.230***	0.152***	0.716
	(2.43)	(5.95)	(4.62)	(2.59)	(6.26)	(4.33)	(1.60)
CAPEX	0.258***	0.304***	0.637	0.296***	0.375***	0.755***	-1.950
	(4.23)	(4.52)	(1.11)	(4.84)	(5.53)	(10.12)	(-1.47)
ROA	-0.003	-0.055**	-0.186	-0.001	-0.051**	0.043	-0.222
	(-0.13)	(-2.19)	(-0.93)	(-0.04)	(-1.98)	(1.49)	(-1.08)
R&D	-0.085	0.310***	3.059***	-0.082	0.318***	0.101	2.397***
	(-0.87)	(3.15)	(3.96)	(-0.84)	(3.18)	(0.91)	(2.70)
PPE	0.032	0.092**	0.013	0.024	0.078*	-0.148***	0.264
	(0.80)	(2.07)	(0.04)	(0.60)	(1.73)	(-3.30)	(0.76)
FXSALE	-0.002	0.099***	0.288*	-0.000	0.102***	0.032*	0.069
	(-0.11)	(5.10)	(1.82)	(-0.01)	(5.22)	(1.71)	(0.35)
ANALYST	0.013***	0.015***	0.005	0.014***	0.017***	0.022***	-0.083*
	(10.91)	(12.15)	(0.25)	(11.72)	(13.28)	(15.38)	(-1.90)
CLOSE	-0.091***	-0.257***	-0.474	-0.115***	-0.301***	-0.463***	1.166
	(-4.02)	(-10.69)	(-1.60)	(-5.04)	(-12.24)	(-18.56)	(1.37)
ADR	0.000	0.000		0.000	0.000	0.000	
	(.)	(.)		(.)	(.)	(.)	
SW F-stats	22.983	26.457		22.121	18.186	15.110	
p-value	*(0.00)*	*(0.00)*		*(0.00)*	*(0.00)*	*(0.00)*	
Year FE	Y	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y
N	81383	81383	81383	81383	81383	81383	81383
adj. R-sq	0.724	0.765		0.723	0.762	0.703	

Table 7: 2SLS with instrumental variables: Percentage

This table represents the 2SLS regressions of firm value (Tobin's Q) on foreign biased and unbiased ownership, using FTSE index membership, firm country's auditing quality and firm industry's foreign equity restriction as instrumental variables. The FIO_BS, FIO_NBS, DIO are foreign biased ownership, unbiased ownership and domestic ownership (percentage), scaled by variable'standard deviation (dependent variable also scaled by its standard deviation). All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	First stage		2SLS	First stage			2SLS
	FIO_BS	FIO_NBS	Q_{t+1}	FIO_BS	FIO_NBS	DIO	Q_{t+1}
FTSE	0.158***	0.207***		0.159***	0.210***	-0.124***	
	(4.51)	(5.66)		(4.47)	(5.80)	(-4.50)	
AUDIT	-0.001**	0.001***		-0.001**	0.001***	0.001***	
	(-2.00)	(3.92)		(-2.08)	(3.82)	(3.36)	
RES_Equity				-0.020	-0.025	0.095***	
				(-0.84)	(-0.88)	(3.94)	
FIO_BS			3.359***				8.898**
			(3.47)				(2.17)
FIO_NBS			-1.808***				-2.854
			(-2.68)				(-1.62)
DIO	-0.007	-0.020	0.001				5.339*
	(-0.55)	(-1.47)	(0.01)				(1.85)
SIZE	0.096***	0.124***	-0.446***	0.095***	0.122***	0.101***	-1.387**
	(7.30)	(9.34)	(-4.40)	(7.36)	(9.10)	(7.31)	(-2.26)
SGROWTH	-0.001	0.014	0.128***	-0.001	0.014	-0.003	0.164
	(-0.06)	(1.58)	(2.61)	(-0.05)	(1.59)	(-0.28)	(1.19)
LEV	-0.088**	-0.251***	-0.017	-0.086**	-0.246***	-0.222***	1.387
	(-2.17)	(-5.93)	(-0.07)	(-2.13)	(-5.86)	(-5.41)	(1.39)
CASH	0.066	0.286***	0.967***	0.067	0.288***	-0.055	1.179
	(1.21)	(6.36)	(3.54)	(1.23)	(6.41)	(-1.02)	(1.60)
CAPEX	0.249**	0.313***	0.207	0.245**	0.303***	0.437***	-3.157
	(2.01)	(4.02)	(0.42)	(1.98)	(3.90)	(5.79)	(-1.41)
ROA	-0.037	-0.030	0.080	-0.037	-0.032	0.110***	-0.331
	(-1.06)	(-1.03)	(0.51)	(-1.08)	(-1.10)	(2.83)	(-0.74)
R&D	-0.093	0.221	1.670**	-0.092	0.224	-0.083	2.840
	(-0.48)	(1.55)	(2.16)	(-0.47)	(1.57)	(-0.44)	(1.27)
PPE	0.056	0.106*	-0.128	0.058	0.110*	-0.200***	0.728
	(0.95)	(1.86)	(-0.53)	(0.99)	(1.95)	(-3.75)	(0.92)
FXSALE	0.030	0.119***	0.039	0.030	0.119***	0.025	-0.134
	(1.18)	(4.88)	(0.30)	(1.17)	(4.86)	(1.01)	(-0.38)
ANALYST	0.011***	0.032***	0.027	0.011***	0.032***	0.020***	-0.108
	(4.19)	(13.67)	(1.27)	(4.28)	(13.93)	(11.68)	(-1.11)
CLOSE	-0.181***	-0.516***	-0.257	-0.178***	-0.507***	-0.424***	2.450
	(-5.20)	(-13.07)	(-0.78)	(-5.11)	(-13.21)	(-12.85)	(1.40)
ADR	0.000	0.000		0.000	0.000	0.000	
	(.)	(.)		(.)	(.)	(.)	
SW F-stats	14.686	16.353		5.300	6.779	6.391	
p-value	*(0.00)*	*(0.00)*		*(0.02)*	*(0.01)*	*(0.01)*	
Year FE	Y	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y
N	81383	81383	81383	81383	81383	81383	81383
adj. R-sq	0.751	0.788		0.751	0.787	0.786	

Table 8: Adding the lagged Tobin's Q

This table represents the OLS and 2SLS regressions of firm value (Tobin's Q) on foreign biased and unbiased ownership, adding the lagged Tobin's Q. The instrumental variables are FTSE index membership, firm country's auditing quality and firm industry's foreign equity restriction. The *FIO_BS*, *FIO_NBS*, *DIO* are ordinal variables, from 1 to 3, lowest to highest tertiles of ownership, unbiased ownership and domestic ownership. All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
	OLS	First stage			2SLS
	Q_{t+1}	FIO_BS	FIO_NBS	DIO	Q_{t+1}
FTSE		0.066***	0.019	-0.049**	
		(3.37)	(0.90)	(-2.43)	
AUDIT		-0.000	0.001***	0.000	
		(-0.88)	(4.02)	(0.73)	
RES_Equity		0.066**	0.043	0.110***	
		(2.04)	(1.25)	(3.06)	
FIO_BS	0.044***				3.897***
	(4.18)				(2.98)
FIO_NBS	0.002				-1.940*
	(0.23)				(-1.79)
DIO	-0.034***				2.390*
	(-3.45)				(1.72)
Q	0.417***	0.024***	0.013***	0.031***	0.268***
	(28.57)	(8.31)	(4.10)	(7.86)	(4.37)
SIZE	-0.273***	0.119***	0.124***	0.083***	-0.698***
	(-10.80)	(12.01)	(11.63)	(8.07)	(-3.13)
SGROWTH	0.026	-0.021***	-0.005	0.053***	-0.028
	(1.04)	(-2.61)	(-0.63)	(5.54)	(-0.31)
LEV	0.091	-0.182***	-0.279***	-0.353***	1.084*
	(0.99)	(-6.17)	(-8.46)	(-9.72)	(1.83)
CASH	0.477***	0.075**	0.205***	0.165***	0.189
	(5.23)	(2.13)	(4.88)	(4.26)	(0.56)
CAPEX	-0.189	0.242***	0.368***	0.700***	-2.059*
	(-1.28)	(3.50)	(4.65)	(8.42)	(-1.89)
ROA	-0.218*	0.004	-0.048*	0.031	-0.388**
	(-1.93)	(0.13)	(-1.71)	(0.98)	(-2.00)
R&D	0.192	-0.070	0.226**	0.089	0.665
	(0.50)	(-0.66)	(2.07)	(0.75)	(0.97)
PPE	0.131	0.028	0.082	-0.096*	0.416
	(1.40)	(0.62)	(1.60)	(-1.95)	(1.35)
FXSALE	-0.074**	0.004	0.108***	0.024	0.071
	(-2.11)	(0.23)	(4.99)	(1.20)	(0.46)
ANALYST	0.003	0.011***	0.014***	0.018***	-0.057*
	(1.45)	(8.52)	(10.33)	(11.85)	(-1.87)
CLOSE	0.074*	-0.113***	-0.298***	-0.472***	1.050
	(1.73)	(-4.53)	(-11.02)	(-16.88)	(1.54)
ADR	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)
SW F-stats		15.320	16.572	13.549	
p-value		*(0.00)*	*(0.00)*	*(0.00)*	
Year FE	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y
N	68329	68308	68308	68308	68308
adj. R-sq	0.755	0.751	0.777	0.724	

Table 9: Monitoring channel: Independent and long-term foreign biased investors
This table represents the results on how the foreign biased investors improve firm value through monitoring channel. Foreign ownership are classified into independent and grey foreign ownership or into long-term and short-term ownership. Independent (long-term) foreign ownership are decomposed into biased (FIO_X_BS) and unbiased (FIO_X_NBS) foreign ownership. The dependent variable is firm value measured by Tobin's Q (Q_{t+1}). FIO_X, FIO_X_BS, FIO_X_NBS and FIO_NX are ordinal variables, from 1 to 3, lowest to highest tertiles of independent (long-term) foreign ownership, independent (long-term) biased foreign ownership, independent (long-term) unbiased foreign ownership and grey (short-term) foreign ownership. The instrumental variables are FTSE index membership, firm country's auditing quality and firm industry's foreign equity restriction, for FIO_X_BS, FIO_X_NBS and FIO_NX. All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	X=Independent			X=Long-term		
	OLS	OLS	2SLS	OLS	OLS	2SLS
FIO_X	0.050***			0.037***		
	(4.11)			(2.97)		
FIO_X_BS		0.084***	8.846***		0.086***	8.929**
		(6.43)	(3.46)		(6.38)	(2.53)
FIO_X_NBS		0.023**	-3.458**		0.013	-4.679**
		(2.04)	(-2.04)		(1.07)	(-2.30)
FIO_NX	-0.006	-0.007	-1.392	0.034***	0.032***	-2.537
	(-0.52)	(-0.64)	(-1.26)	(5.80)	(5.47)	(-0.98)
DIO	0.004	0.003	-0.000	0.000	-0.001	0.350
	(0.31)	(0.22)	(-0.00)	(0.02)	(-0.09)	(0.99)
SIZE	-0.514***	-0.520***	-0.971***	-0.518***	-0.523***	-0.483
	(-17.68)	(-17.82)	(-3.90)	(-17.84)	(-18.00)	(-1.41)
SGROWTH	0.150***	0.151***	0.154**	0.148***	0.149***	0.364*
	(6.11)	(6.14)	(2.07)	(6.04)	(6.09)	(1.84)
LEV	0.247**	0.251**	0.485	0.255**	0.259**	-0.524
	(2.36)	(2.41)	(0.97)	(2.45)	(2.49)	(-0.57)
CASH	0.974***	0.975***	1.129**	0.969***	0.970***	2.052**
	(9.29)	(9.32)	(2.55)	(9.25)	(9.28)	(2.27)
CAPEX	0.635***	0.626***	-0.437	0.610***	0.603***	2.475
	(3.99)	(3.93)	(-0.46)	(3.83)	(3.78)	(1.01)
ROA	-0.004	-0.007	-0.183	-0.008	-0.010	-0.005
	(-0.03)	(-0.05)	(-0.68)	(-0.06)	(-0.08)	(-0.02)
R&D	1.450***	1.461***	3.540***	1.451***	1.462***	3.765***
	(3.29)	(3.32)	(3.19)	(3.30)	(3.34)	(2.80)
PPE	-0.197*	-0.197*	-0.091	-0.193*	-0.195*	-0.363
	(-1.81)	(-1.82)	(-0.23)	(-1.77)	(-1.79)	(-0.69)
FXSALE	-0.136***	-0.134***	0.318	-0.136***	-0.133***	0.418
	(-3.24)	(-3.20)	(1.33)	(-3.23)	(-3.17)	(1.43)
ANALYST	0.013***	0.012***	-0.020	0.012***	0.011***	0.037
	(4.02)	(3.87)	(-0.68)	(3.80)	(3.62)	(0.59)
CLOSE	0.130**	0.128**	-0.329	0.136***	0.136***	-1.031
	(2.57)	(2.54)	(-0.81)	(2.70)	(2.69)	(-1.16)
ADR	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)
Year FE	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y
N	81410	81410	81383	81410	81410	81383
adj. R-sq	0.688	0.688		0.688	0.689	

Table 10: Monitoring channel: Interaction with liquidity and ownership concentration

This table shows the results of regressions with interaction terms between foreign biased ownership and related variables: two liquidity measures (Amihud illiquidity measure: Column 1 and 2; number of zero return days divided by total trading days: Column 3 and 4) and two ownership concentration measures (number of institutions holding the firms: Column 5 and 6; HHI of institutional ownership: Column 7 and 8). The dependent variable is firm value measured by Tobin's Q. All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	X=Amihud		X=Zret		X=N_institution		X=IO_HHI	
FIO_BS	0.086***	0.062***	0.086***	0.126***	0.078***	0.102***	0.086***	0.080***
	(6.73)	(2.82)	(6.37)	(7.95)	(5.83)	(6.53)	(6.62)	(6.01)
X	-0.021***	-0.020***	-0.428***	-0.389***	0.001***	0.001***	-3.565***	-4.444***
	(-5.46)	(-4.70)	(-10.46)	(-9.26)	(3.37)	(5.23)	(-3.46)	(-3.71)
X*FIO_BS		-0.004		-0.262***		-0.043***		1.293*
		(-1.44)		(-4.56)		(-3.44)		(1.71)
FIO_NBS	0.019	0.019	0.012	0.011	0.009	0.006	0.018	0.018
	(1.54)	(1.56)	(0.97)	(0.89)	(0.78)	(0.49)	(1.46)	(1.49)
DIO	0.010	0.010	0.008	0.008	0.138	0.123	0.434**	0.462***
	(0.89)	(0.89)	(0.66)	(0.66)	(0.86)	(0.76)	(2.49)	(2.64)
SIZE	-0.511***	-0.510***	-0.518***	-0.518***	-0.528***	-0.532***	-0.521***	-0.521***
	(-16.24)	(-16.19)	(-15.98)	(-15.99)	(-18.20)	(-18.20)	(-17.93)	(-17.93)
SGROWTH	0.141***	0.141***	0.142***	0.140***	0.151***	0.151***	0.149***	0.149***
	(5.53)	(5.53)	(5.19)	(5.12)	(6.16)	(6.16)	(6.11)	(6.10)
LEV	0.191*	0.189*	0.222*	0.219*	0.251**	0.260**	0.254**	0.254**
	(1.69)	(1.67)	(1.91)	(1.89)	(2.41)	(2.50)	(2.44)	(2.44)
CASH	0.884***	0.884***	0.860***	0.859***	0.968***	0.965***	0.980***	0.981***
	(8.42)	(8.41)	(7.96)	(7.97)	(9.21)	(9.19)	(9.37)	(9.38)
CAPEX	0.447***	0.450***	0.359**	0.353**	0.610***	0.600***	0.616***	0.618***
	(2.73)	(2.75)	(2.11)	(2.08)	(3.82)	(3.77)	(3.88)	(3.89)
ROA	-0.065	-0.066	-0.072	-0.071	-0.009	-0.007	-0.008	-0.007
	(-0.51)	(-0.51)	(-0.55)	(-0.54)	(-0.07)	(-0.06)	(-0.06)	(-0.06)
R&D	1.426***	1.423***	1.444***	1.448***	1.449***	1.443***	1.459***	1.453***
	(2.99)	(2.98)	(2.91)	(2.92)	(3.30)	(3.30)	(3.32)	(3.31)
PPE	-0.159	-0.162	-0.109	-0.107	-0.208*	-0.205*	-0.193*	-0.193*
	(-1.40)	(-1.42)	(-0.95)	(-0.93)	(-1.90)	(-1.88)	(-1.78)	(-1.78)
FXSALE	-0.126***	-0.126***	-0.136***	-0.135***	-0.137***	-0.138***	-0.134***	-0.134***
	(-3.02)	(-3.02)	(-3.13)	(-3.11)	(-3.27)	(-3.31)	(-3.18)	(-3.20)
ANALYST	0.012***	0.012***	0.022***	0.022***	0.010***	0.010***	0.012***	0.012***
	(3.81)	(3.77)	(5.58)	(5.57)	(3.30)	(3.05)	(3.76)	(3.76)
CLOSE	0.173***	0.172***	0.178***	0.179***	0.146***	0.148***	0.135***	0.135***
	(3.45)	(3.44)	(3.48)	(3.50)	(2.90)	(2.92)	(2.69)	(2.69)
ADR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
N	75783	75783	69801	69801	81415	81415	81415	81415
adj. R-sq	0.698	0.698	0.700	0.701	0.689	0.689	0.688	0.688

Table 11: Knowledge spillover channel: foreign biased investors from high-knowledge countries
This table represents the results on how the foreign biased investors improve firm value through knowledge spillover channel. Foreign ownership are classified based on two measurements of knowledge level of their country of origin: industry level R&D intensity and market capitalisation. Foreign investors are identified from higher knowledge level countries if their home country industry level of R&D intensity (market value) is higher than the R&D intensity (market value) of the firm industry. High-knowledge foreign ownership are decomposed into biased (FIO_X_BS) and unbiased (FIO_X_NBS) foreign ownership. The dependent variable is firm value measured by Tobin's Q ($Q\_t + 1$). FIO_X, FIO_X_BS, FIO_X_NBS and FIO_NX are ordinal variables, from 1 to 3, lowest to highest tertiles of high-knowledge foreign ownership, high-knowledge biased foreign ownership, high-knowledge unbiased foreign ownership and low-knowledge foreign ownership. For 2SLS, the instrumental variables are FTSE index membership and firm country's auditing quality, for FIO_X_BS, and FIO_X_NBS. All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	X=R&D intensity			X=Industry MV		
	OLS	OLS	2SLS	OLS	OLS	2SLS
FIO_X	0.047***			0.041***		
	(4.74)			(3.42)		
FIO_X_BS		0.065***	8.625***		0.104***	5.021**
		(5.70)	(2.75)		(6.75)	(2.36)
FIO_X_NBS		0.031***	-5.309**		0.020	-1.980**
		(3.31)	(-2.06)		(1.51)	(-2.15)
FIO_NX	0.028**	0.027**	0.364	0.035***	0.032***	-0.049
	(2.36)	(2.27)	(1.38)	(2.97)	(2.72)	(-0.17)
DIO	0.001	0.000	0.168	0.002	0.000	-0.065
	(0.09)	(0.02)	(1.06)	(0.16)	(0.04)	(-0.90)
SIZE	-0.517***	-0.519***	-0.491***	-0.518***	-0.523***	-0.770***
	(-17.81)	(-17.88)	(-3.25)	(-17.83)	(-17.97)	(-3.62)
SGROWTH	0.150***	0.150***	0.124*	0.150***	0.151***	0.183***
	(6.13)	(6.13)	(1.80)	(6.13)	(6.16)	(4.08)
LEV	0.253**	0.259**	0.622*	0.252**	0.255**	0.262
	(2.42)	(2.48)	(1.73)	(2.42)	(2.45)	(0.75)
CASH	0.969***	0.969***	1.686***	0.971***	0.969***	0.976***
	(9.25)	(9.25)	(3.16)	(9.28)	(9.28)	(2.70)
CAPEX	0.619***	0.611***	0.517	0.630***	0.615***	-0.464
	(3.89)	(3.84)	(0.59)	(3.95)	(3.86)	(-0.79)
ROA	-0.003	-0.003	-0.154	-0.004	-0.003	0.054
	(-0.03)	(-0.02)	(-0.59)	(-0.03)	(-0.03)	(0.29)
R&D	1.456***	1.458***	1.036	1.444***	1.455***	2.500***
	(3.31)	(3.32)	(0.97)	(3.28)	(3.32)	(3.91)
PPE	-0.197*	-0.195*	0.007	-0.199*	-0.195*	0.139
	(-1.81)	(-1.80)	(0.02)	(-1.83)	(-1.80)	(0.52)
FXSALE	-0.139***	-0.138***	0.251	-0.139***	-0.134***	0.245*
	(-3.32)	(-3.30)	(0.96)	(-3.32)	(-3.20)	(1.92)
ANALYST	0.012***	0.011***	-0.031	0.012***	0.012***	0.008
	(3.83)	(3.64)	(-1.05)	(3.84)	(3.77)	(0.37)
CLOSE	0.134***	0.135***	-0.378	0.136***	0.135***	-0.067
	(2.66)	(2.67)	(-1.03)	(2.69)	(2.68)	(-0.25)
ADR	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)
Year FE	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y
N	81410	81410	81383	81410	81410	81383
adj. R-sq	0.688	0.688		0.688	0.688	

Table 12: Knowledge spillover channel: foreign biased investors from developed and common law countries
This table represents the OLS and 2SLS regressions of firm value (Tobin's Q) on foreign biased ownership from developed (Column 1 to 3) and common law (Column 4 to 5) countries. In Column (3) and (6), the instrumental variables are FTSE index membership and firm country's auditing quality, for FIO_X_BS and FIO_X_NBS. All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	X=Developped			X=Common Law		
	OLS	OLS	2SLS	OLS	OLS	2SLS
FIO_X	0.038***			0.058***		
	(3.01)			(4.79)		
FIO_X_BS		0.084***	4.961***		0.088***	6.625***
		(6.32)	(3.23)		(4.76)	(3.49)
FIO_X_NBS		0.007	-4.223***		0.019	-3.030
		(0.60)	(-3.96)		(1.63)	(-1.43)
FIO_NX	0.059***	0.059***	0.226**	0.016	0.019*	0.140
	(6.61)	(6.55)	(2.31)	(1.58)	(1.86)	(0.31)
DIO	-0.001	-0.001	0.136	0.002	0.003	0.075
	(-0.05)	(-0.12)	(1.46)	(0.15)	(0.22)	(0.48)
SIZE	-0.520***	-0.524***	-0.524***	-0.517***	-0.518***	-0.668***
	(-17.89)	(-18.02)	(-3.26)	(-17.81)	(-17.84)	(-3.08)
SGROWTH	0.149***	0.150***	0.150***	0.150***	0.150***	0.176***
	(6.08)	(6.12)	(2.79)	(6.12)	(6.13)	(3.46)
LEV	0.255**	0.257**	-0.090	0.254**	0.249**	0.021
	(2.44)	(2.47)	(-0.27)	(2.43)	(2.40)	(0.04)
CASH	0.972***	0.973***	1.498***	0.969***	0.974***	1.117**
	(9.29)	(9.32)	(4.72)	(9.25)	(9.31)	(2.13)
CAPEX	0.606***	0.596***	0.196	0.627***	0.628***	0.371
	(3.80)	(3.74)	(0.36)	(3.94)	(3.95)	(0.45)
ROA	-0.008	-0.011	-0.264	-0.003	-0.003	0.147
	(-0.07)	(-0.09)	(-1.27)	(-0.03)	(-0.03)	(0.64)
R&D	1.430***	1.444***	3.134***	1.450***	1.458***	2.835***
	(3.25)	(3.29)	(3.95)	(3.29)	(3.32)	(3.12)
PPE	-0.193*	-0.194*	-0.006	-0.198*	-0.197*	-0.086
	(-1.78)	(-1.79)	(-0.02)	(-1.82)	(-1.81)	(-0.24)
FXSALE	-0.134***	-0.131***	0.388**	-0.139***	-0.134***	0.341
	(-3.20)	(-3.11)	(2.26)	(-3.32)	(-3.19)	(1.41)
ANALYST	0.012***	0.011***	0.014	0.012***	0.013***	0.030
	(3.69)	(3.54)	(0.67)	(3.86)	(3.96)	(1.01)
CLOSE	0.134***	0.133***	-0.426	0.136***	0.129**	-0.381
	(2.65)	(2.63)	(-1.54)	(2.69)	(2.54)	(-0.88)
ADR	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)
Year FE	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y
N	81410	81410	81383	81410	81410	81383
adj. R-sq	0.688	0.689		0.688	0.688	

Table 13: Impact on firm actions: R&D investment/M&A/Patent counts

This table represents the results on how foreign biased investors bring real effects to firm's actions: R&D investment, M&A costs, and patent counts. The FIO_BS, FIO_NBS, DIO are ordinal variables, from 1 to 3, lowest to highest tertiles of ownership, unbiased ownership and domestic ownership. The control variables in column (1) and (2) are $SIZE$, LEV, $CLOSE$, $FXSALE$, $SALE$, $CAPITAL/LABOR$, Q, FCF, $CASH$, and PPE. The control variables in column (3) and (4) are $SIZE$, BM, ROA, $CASH$, LEV, $SGROWTH$, $CAPEX$, and RET. The control variables in column (5) and (6) are $R\&D$, $CLOSE$, $FXSALE$, $SALE$ and $CAPITAL/LABOR$. For 2SLS, the instrumental variables are FTSE index membership, firm country's auditing quality and firm industry's foreign equity restriction, for FIO_BS, FIO_NBS and DIO. All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	R&D/TA$_{t+1}$		M&A$_{t+1}$		Patent$_{t+1}$	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
FIO_BS	-0.001	0.029**	-0.023	3.874*	0.004	0.837**
	(-1.40)	(2.26)	(-0.53)	(1.76)	(0.68)	(2.10)
FIO_NBS	0.000	-0.009	-0.056	-4.754**	0.003	-0.245
	(0.84)	(-0.65)	(-1.37)	(-2.45)	(0.69)	(-0.64)
DIO	0.001	-0.005	0.073**	-5.726**	-0.003	-1.279***
	(1.52)	(-0.48)	(2.06)	(-2.07)	(-0.65)	(-2.65)
Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y
N	64624	64603	65835	64885	64885	65817
adj. R-sq	0.816		0.434		0.886	

Table 14: Performance improvement: Productivity/Sales

This table represents the results on how foreign biased investors improve firm productivity (total factor productivity) and sales (logarithm of total sales). The FIO_BS, FIO_NBS, DIO are ordinal variables, from 1 to 3, lowest to highest tertiles of ownership, unbiased ownership and domestic ownership. The control variables in column (1) and (2) are $SIZE$, $SGROWTH$, LEV, $CLOSE$, $FXSALE$, $CAPEX$, Q, ROA, $CASH$, $R\&D$, and PPE. The control variables in column (3) and (4) are $SIZE$, LEV, $CASH$, $CAPEX$, ROA, $R\&D$, $CLOSE$, and PPE. For 2SLS, the instrumental variables are FTSE index membership, firm country's auditing quality and firm industry's foreign equity restriction, for FIO_BS, FIO_NBS and DIO. All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	TFP_t+1		SALE_t+1	
	OLS	2SLS	OLS	2SLS
FIO_BS	0.007*	0.728**	0.012**	1.032***
	(1.94)	(2.50)	(2.44)	(2.73)
FIO_NBS	0.001	-0.665**	0.006	-1.020**
	(0.23)	(-2.24)	(1.18)	(-2.44)
DIO	-0.006*	-0.236	0.030***	0.319
	(-1.77)	(-0.80)	(7.76)	(0.83)
Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
N	61882	61871	81324	81324
adj. R-sq	0.578		0.971	

Appendices

Appendix A   Variable definitions

Variable	Definition
Institutional ownership variables	
FIO	Shares owned by foreign institutions divided by total shares outstanding
FIO_BS	Shares owned by foreign institutions with industry bias divided by total shares outstanding
FIO_NBS	Shares owned by foreign unbiased institutions divided by total shares outstanding
DIO	Shares owned by domestic institutions divided by total shares outstanding
FIO_INDP_BS	Shares owned by foreign biased independent institutions divided by total shares outstanding
FIO_INDP_NBS	Shares owned by foreign unbiased independent institutions divided by total shares outstanding
FIO_GREY	Shares owned by foreign grey institutions divided by total shares outstanding
FIO_LT_BS	Shares owned by foreign biased long-term institutions divided by total shares outstanding
FIO_LT_NBS	Shares owned by foreign unbiased long-term institutions divided by total shares outstanding
FIO_ST	Shares owned by foreign short-term institutions divided by total shares outstanding
FIO_HI_BS	Shares owned by foreign biased institutions from higer innovative countries divided by total shares outstanding
FIO_HI_NBS	Shares owned by foreign unbiased institutions from higer innovative countries divided by total shares outstanding
FIO_LI	Shares owned by foreign institutions from lower innovative countries divided by total shares outstanding
FIO_LS_BS	Shares owned by foreign biased institutions whose home country industry size is larger than the firm's country industry size divided by total shares outstanding
FIO_LS_NBS	Shares owned by foreign unbiased institutions whose home country industry size is larger than the firm's country industry size divided by total shares outstanding
FIO_SS	Shares owned by foreign institutions whose home country industry size is smaller than the firm's country industry size divided by total shares outstanding

Variable	Definition
Dependent variables	
Q	Assets (Worldscope item 02999) plus market value of equity (Worldscope item 08001) minus book value of equity (Worldscope item 03501) divided by total assets
Patent	Number of patents
TFP	Total factor productivity
SALE	Logorithem of sales (Worldscope item 01001)
Buyback	Buyback expense (Worldscope item 04751) divided by total equity (Worldscope item 08001)
DIV_payout	Dividend payout ration (Worldscope item 09504)
Control variables	
SIZE	Log of total assets (Worldscope item 02999)
SGROWTH	Two-year geometric average of growth in net sales in USD (Worldscope item 01001)
LEV	LEV Leverage: Total debt (Worldscope item 03255) / Total assets (Worldscope item 02999)
CASH	Cash and short-term investments (Worldscope item 02001) / Total assets (Worldscope item 02999)
CAPEX	Capital expenditures (Worldscope item 04601) / Total assets (Worldscope item 02999)
ROA	Ratio of net income before extraordinary items (Worldscope item 01551) / Total assets (Worldscope item 02999)
R&D	R&D (Worldscope item 01201) /Total assets (Worldscope item 02999)
PPE	Property, plant, and equipment (Worldscope item 02501) / Total assets (Worldscope item 02999)
FXSALE	International annual net sales (Worldscope item 07101) / net sales (Worldscope item 01001)
ANALYST	Number of analysts covering a firm (IBES)
CLOSE	Number of shares held by insiders / number of shares outstanding
ADR	Dummy variable equals 1 if the firm has ADR (DataStream)
DIV	Dummy variable equals 1 if the firm pays dividend
EPS	Earning per share
Instrumental variables	
FTSE	Dummy variable equals 1 if the firm is included in FTSE All World Index
AUDIT	Rank of Strength of Auditing and Accounting Standards at country level
RES_Equity	Foreign equity ownership restrictions

Appendix B   Top 1, 2, 4, 5 industries

Table 15: Biased investors labeled using Top 1, 2, 4, 5 industries in home country
This table represents OLS and 2SLS regressions of firm value (Tobin's Q) on foreign biased and unbiased ownership. Foreign investors are labeled with industry bias if the firm's industry is one of their home country's Top 1 (Column 1 and 2), Top 2 (Column 3 and 4), Top 4 (Column 5 and 6), Top 5 (Column 7 and 8) industries in terms of market capitalisation. The FIO_BS, FIO_NBS, DIO are ordinal variables, from 1 to 3, lowest to highest tertiles of biased ownership, unbiased ownership and domestic ownership. All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Top 1		Top 2		Top 4		Top 5	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
FIO_BS	0.035***	4.863***	0.064***	4.763***	0.095***	4.818***	0.051***	16.600*
	(2.63)	(3.71)	(4.89)	(3.73)	(7.33)	(3.08)	(4.47)	(1.66)
FIO_NBS	0.040***	-4.314***	0.025**	-3.314***	0.014	-5.182***	0.020*	-2.594
	(3.30)	(-3.51)	(2.12)	(-3.64)	(1.15)	(-3.58)	(1.80)	(-0.42)
IO_DOM	0.004	0.326***	0.003	0.140	0.002	0.140	0.003	-0.571
	(0.30)	(2.89)	(0.28)	(1.44)	(0.14)	(1.44)	(0.29)	(-0.96)
SIZE	-0.516***	-0.378**	-0.517***	-0.567***	-0.522***	-0.567***	-0.517***	-2.270**
	(-17.78)	(-2.34)	(-17.81)	(-3.48)	(-17.97)	(-3.48)	(-17.79)	(-2.05)
SGROWTH	0.150***	0.210***	0.150***	0.152***	0.150***	0.152***	0.150***	0.123
	(6.13)	(3.77)	(6.13)	(3.15)	(6.14)	(3.15)	(6.12)	(0.83)
LEV	0.248**	-0.479	0.248**	0.063	0.251**	0.063	0.247**	2.491
	(2.38)	(-1.24)	(2.39)	(0.19)	(2.41)	(0.19)	(2.37)	(1.31)
CASH	0.975***	1.799***	0.976***	1.415***	0.974***	1.415***	0.975***	-1.051
	(9.30)	(4.91)	(9.32)	(4.61)	(9.32)	(4.61)	(9.31)	(-0.68)
CAPEX	0.634***	1.705***	0.634***	0.715	0.627***	0.715	0.636***	-3.318
	(3.98)	(2.67)	(3.97)	(1.27)	(3.94)	(1.27)	(3.99)	(-1.05)
ROA	-0.005	-0.357*	-0.005	-0.094	-0.006	-0.094	-0.005	0.307
	(-0.04)	(-1.67)	(-0.04)	(-0.49)	(-0.05)	(-0.49)	(-0.04)	(0.57)
R&D	1.447***	2.337***	1.456***	2.784***	1.465***	2.784***	1.452***	1.216
	(3.29)	(2.93)	(3.31)	(3.95)	(3.34)	(3.95)	(3.30)	(0.60)
PPE	-0.198*	-0.465	-0.200*	-0.406	-0.198*	-0.406	-0.195*	-0.111
	(-1.82)	(-1.60)	(-1.84)	(-1.48)	(-1.82)	(-1.48)	(-1.79)	(-0.15)
FXSALE	-0.136***	0.250	-0.136***	0.064	-0.133***	0.064	-0.138***	-1.320
	(-3.24)	(1.51)	(-3.23)	(0.48)	(-3.18)	(0.48)	(-3.27)	(-1.62)
ANALYST	0.013***	0.032	0.013***	0.016	0.012***	0.016	0.012***	-0.214
	(3.97)	(1.43)	(3.97)	(0.76)	(3.78)	(0.76)	(3.94)	(-1.44)
CLOSE	0.131***	-0.504	0.128**	-0.475*	0.129**	-0.475*	0.128**	1.456
	(2.60)	(-1.52)	(2.53)	(-1.66)	(2.56)	(-1.66)	(2.53)	(0.89)
ADR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
SW F (FIO_BS)		*26.081*		*24.419*		*17.563*		*2.879*
SW F(FIO_NBS)		*20.633*		*32.471*		*18.665*		*4.439*
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
N	81410	81383	81410	81383	81410	81383	81410	81383
adj. R-sq	0.688		0.688		0.688		0.688	

Appendix C   World Top 3 industries

Table 16: Investors from countries where the firm's industry is Top 3 industries across the world
This table represents OLS and 2SLS regressions of firm value (Tobin's Q). FIO_WDT are foreign ownership held by investors from countries where the firm's industry is Top 3 industries across the world, comparing the market capitalisation of the same industries across all the countries in the sample. FIO_NWDT otherwise. The FIO_WDT, FIO_NWDT, DIO are ordinal variables, from 1 to 3, lowest to highest tertiles of ownership. All independent variables are lagged by one year. Standard errors are clustered at the firm level and t-statistics are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
	OLS		First stage		2SLS
	Q_{t+1}	FIO_WDT	FIO_NWDT	DIO	Q_{t+1}
FTSE		0.085***	0.094***	-0.050***	
		(3.98)	(4.51)	(-2.67)	
AUDIT		0.001***	0.000	-0.001**	
		(4.81)	(1.48)	(-2.01)	
RES_Equity		0.012	0.030	0.121***	
		(0.42)	(1.13)	(3.88)	
FIO_WDT	0.035***				-6.340*
	(3.11)				(-1.66)
FIO_NWDT	0.042***				9.796**
	(3.80)				(2.31)
DIO	0.001				3.171
	(0.11)				(1.29)
SIZE	-0.518***	0.129***	0.141***	0.086***	-1.354***
	(-17.87)	(14.07)	(15.18)	(9.61)	(-3.06)
SGROWTH	0.150***	-0.002	-0.009	0.053***	0.058
	(6.14)	(-0.24)	(-1.15)	(6.34)	(0.34)
LEV	0.253**	-0.310***	-0.291***	-0.354***	2.216*
	(2.43)	(-10.29)	(-9.29)	(-10.52)	(1.66)
CASH	0.971***	0.233***	0.212***	0.152***	-0.103
	(9.28)	(6.27)	(5.68)	(4.33)	(-0.12)
CAPEX	0.629***	0.200***	0.616***	0.755***	-6.432**
	(3.94)	(2.79)	(8.64)	(10.12)	(-2.38)
ROA	-0.004	-0.090***	-0.006	0.043	-0.628
	(-0.03)	(-3.56)	(-0.22)	(1.49)	(-1.45)
R&D	1.447***	0.173*	0.160	0.101	0.606
	(3.29)	(1.66)	(1.47)	(0.91)	(0.43)
PPE	-0.198*	0.155***	-0.028	-0.148***	1.529*
	(-1.82)	(3.46)	(-0.62)	(-3.30)	(1.85)
FXSALE	-0.139***	0.127***	0.069***	0.032*	-0.083
	(-3.32)	(6.18)	(3.44)	(1.71)	(-0.20)
ANALYST	0.012***	0.017***	0.024***	0.022***	-0.185**
	(3.84)	(12.68)	(17.50)	(15.38)	(-2.17)
CLOSE	0.136***	-0.242***	-0.324***	-0.463***	3.184**
	(2.69)	(-9.62)	(-13.13)	(-18.56)	(2.14)
ADR	0.000	0.000	0.000	0.000	
	(.)	(.)	(.)	(.)	
SW F-stats		6.555	6.169	9.494	
p-value		*(0.01)*	*(0.01)*	*(0.00)*	
Year FE	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y
N	81410	81383	81383	81383	81383
adj. R-sq	0.688	0.744	0.738	0.703	