



Do institutional blockholders influence corporate investment? Evidence from emerging markets



Roberto Alvarez^a, Mauricio Jara^a, Carlos Pombo^{b,*}

^a School of Economics and Business, Universidad de Chile, Chile

^b School of Management- Finance Department, Universidad de los Andes, Colombia

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ABSTRACT

This paper examines the relationship between firm investment ratios and institutional blockholders for a sample of 6300 publicly traded firms in 16 large emerging markets for the 2004–2016 period. Results show that independent, long-term, and local institutional investors boost investment ratios, and this is consistent with the monitoring role and blockholder voice intervention hypotheses. The presence of institutional blockholders, regardless of their monitoring involvement, reduces firm cash flow sensitivity ratios and thus, firms' financial constraints. Minority institutional investors complement the positive effect of blockholder investors. However, the effect on financial constraints decreases as the quality of the country's institutions increases.

1. Introduction

One stylized fact within the development of financial markets during the last five decades has been the increasing trend of institutional investor equity ownership across countries. The United States, United Kingdom and Canada have been leading this growth with the highest fractions of this type of ownership. For instance, institutional ownership represented a 20% fraction among listed companies in the United States in 1970. Forty years later, this number rose to 65% (Borochin and Yang, 2017). By 2007, the fraction of institutional holdings among listed firms was of around 59% in Canada, 38% in the UK, 37% in Spain and Sweden, 36% in Finland, and 31% in Norway and France (Aggarwal et al., 2011).

The presence and level of equity holdings by institutional investors within emerging markets has risen to similar levels today to those observed in developed economies such as Australia or New Zealand. In this study, we report, for instance, that institutional investor ownership is, on average, 21% in South Africa, 19% in Brazil and Poland, 12% in Chile, and 10% in Mexico for the 2004–2016 period.¹

This increase in institutional holdings coincides with the sophistication of financial markets, the increasing importance of corporate governance standards after structural financial reforms for equity issuers around the world, and the development of the private pension fund industry in several emerging markets. For example, the OECD (2011) reported that the private pension fund industry in Latin America, which began as part of economic openness programs in the 1990s, grew at an annual rate of 16% between 1999 and 2006 to reach a net asset value of US\$390 billion. Thus, private pension funds are, today, dominant local investors across large Latin American financial markets.

* Corresponding author.

E-mail addresses: robalvar@fen.uchile.cl (R. Alvarez), mjarab@fen.uchile.cl (M. Jara), cpombo@uniandes.edu.co (C. Pombo).

¹ See table Appendix B.

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The literature on institutional investors is extensive and covers many aspects regarding their ability to be informed investors, their monitoring role, and their activism to influence corporate policies such as executive compensation, firms' board of director structures, shareholder voting schemes, and anti-takeover amendments, among other shareholder proposals. Institutional investors' ability to gather information contributes to the development of capital markets by stimulating efficient transactions, good risk evaluation, and a sound corporate governance system. They can also exert a direct influence through their ownership (shares) by direct monitoring to discipline firm management, and exert an indirect influence through their ability to sell their shares (Gillan and Starks, 2003, 2007).

Empirical research carried out during the last 10 years highlights several advantages in the effect of the presence of institutional investors in firms' ownership structures on firm asset value, firm performance, cost of equity, demand for information disclosure, and firm-specific corporate governance standards. The main findings state that increasing institutional ownership explains higher firm value premiums (Ferreira and Matos, 2008), effective reduction on corporate bond yield spreads (Elyasiani et al., 2010), and changes in firm-level governance over time due to previous changes in foreign institutional ownership, and investors who promote higher governance standards in low investor protection countries (Aggarwal et al., 2011). Also, there is evidence concerning positive shocks of institutional ownership on increasing firms' quantity, form, and quality of corporate disclosure (Bird and Karolyi, 2016).

Recent years have witnessed increasing interest in studies on institutional investor heterogeneity. Such studies stress the monitoring role of institutional investors in reducing informational asymmetries and shareholder agency costs. Investor heterogeneity implies that not all institutional investors are alike. Their effect on ex-post firm performance might differ through portfolio turnover, holding concentration, and the degree of incentives to exert intensive monitoring of firm management by institutional investors. According to Ferreira and Matos (2008), investors' monitoring intensity is a function of the business relations that arise with the firms where they have shareholdings.

This work and other similar studies claim that independent institutional investors (investment funds and investment advisors) actively monitor firm management, while grey investors are more prone to being more loyal to corporate management and, thus, to hold shares without reacting to management actions that are not in line with shareholder interests. These studies show a positive effect on changes in institutional holdings by independent investors on firms' Tobin's Q, and the effect of grey investors is non-conclusive and statistically not significant.²

Previous research on multiple blockholder ownership in general and institutional ownership in particular, does not involve in-depth explorations of the direct and interacted effects of institutional holdings on corporate investment in a broader sense that includes capital expenditures, acquisitions and spending on research and development with a focus on emerging markets. First, the effect on firm value due to the presence of multiple blockholders has been empirically documented in country case studies such as the case of Finland (Maury and Pajuste, 2005); and regional studies such as those on Continental Europe (Laeven and Levine, 2008) and East Asia (Attig et al., 2009). These studies consistently show that a less dispersed distribution of votes among large blockholders has a positive effect on firm value, which is enhanced when there are multiple blockholders.

In the same vein, results on the marginal effects of blockholder identity and firm value confirm that the kind of second blockholder is vitally important when it comes to contesting the agency costs of controlling owners for different study samples carried out for Spain (Sacristan et al. 2015), Continental Europe (Jara-Bertin et al., 2008) and for Latin America (Pombo and Tabora, 2017).

Second, studies on relational investing analyse the role of institutional investors as blockholders in corporate investment as a consequence of a long-term partnership relations between outsider investors (e.g. institutional) and companies. In short, these studies find that institutional blockholders are generally correlated with lower executive pay levels (Hartzell and Starks, 2003), higher investment (Cronqvist and Fahlenbrach, 2009), and less opportunistic earnings management in firms because institutional investors put pressure on the firms to adopt better accounting policies (Chung et al., 2002). Other studies have found that institutional blockholders are associated with higher profitability and superior M&A outcomes (Chen and Harford, 2007) and on the effects that institutional investors have on firms' R&D investment. Brav et al. (2016) find that hedge funds activism leads to lower firm R&D spending, and increases in both the number of future patents and their quality. Thus they conclude that hedge funds improve innovation efficiency.

Third, studies on firm financial constraints supported by the predictions of information asymmetries in capital markets, hypothesize that agency costs faced by outside investors lead firm managers to make suboptimal investment choices (i.e., overinvestment and underinvestment rates) and become more dependent on lower cost internal funding. Benchmark cash flow sensitivity studies have concentrated on the interactions between operating cash flow and inside ownership (Hadlock, 1998) or interactions with family holdings (Pindado et al., 2011).

Fourth, despite the extensive literature mentioned above, there are only two studies that are closely related to our work on institutional blockholder ownership and corporate investment, but these are restricted to samples of US firms. The first, by Lev and Nissim (2003), studies how institutional ownership concentration reduces informational asymmetries that mitigate the firm hangout (underinvestment) problem. Their main findings provide evidence that institutional blockholder ownership levels have a positive impact on firm investment whether investors are classified by dedicated (long term) or transient (short term) investment, and it reduces firm financial constraints for acquisitions and investments in R&D. The second study by Richardson (2006) provides evidence that overinvestment is common across firms with higher levels of cash flow and that it is reduced by institutional blockholder ownership and by shareholder activism.³

² Other studies refer to institutional investor heterogeneity as "active/passive" investors (Almazán et al., 2005); "pure resistant/sensitive" investors (Brickley 1988); "dedicated/transient" investors (Borochin and Yang, 2017).

³ Firm governance attributes in Richardson's (2006) study are factor score indices. Shareholder activism index comprises the number of activist shareholders (public pension funds), the percentage held by activist shareholders, and the fraction of outstanding shares held by the average external director.

The present study empirically evaluates the impact of institutional investors on investment decisions. If institutional investors are related to investment decision-making and improvements in corporate governance, their presence may stimulate more investment. We consider the effect of minority institutional holdings that behave more as retail investors on investment and examine the effect of institutional investors as blockholders on the sensitivity of investment demand on internal resources (operating cash flow) as a proxy of firms' financial constraints.

The article makes a twofold contribution to the empirical literature on institutional investors. First, the paper fills a research gap by looking at whether the monitoring of institutional blockholder ownership (presence) increases firm investment and how investor heterogeneity affects firm investment ratios using reduced cash flow sensitivity as a proxy of firm financial constraints. We further the current understanding of investor heterogeneity by looking at both the monitoring role played by institutional investors (i.e., investor colours) and at other features of blockholder characteristics such as investors' horizon and origin location. When analysing investment regressions, we also consider minority institutional holds, which are present in 70% of this study sample of firms. Thus, our study extends prior work addressing institutional investor heterogeneity and firm financial constraints by focusing on the relations between institutional blockholder ownership and firm investment ratios.

Second, corporate governance reviews have stressed that the role of institutional investors in discipline management in emerging markets is under study because there is no solid evidence on their behaviour (Claessens and Yurtoglu, 2013). This study focuses on emerging markets where evidence is limited regarding the strategic role that institutional investors play on firms' investment dynamics. Our sample covers 16 major emerging markets representing the main markets from East Asia, Latin America, Eastern Europe, and South Africa.⁴

Our results confirm that blockholder institutional investor ownership increases investment spending, although the relationship is not linear. The inflexion point of a positive effect is of around 0.22 of institutional holdings of a firm's outstanding shares. Thus, when institutional blockholders have no control over the firm, they put pressure on current investment in order to obtain short- and medium-term returns (Gompers and Metrick, 2001). Once the threshold is exceeded, institutional blockholders lack sufficient incentives to put pressure on current investment. In this scenario, institutional investors exert control on over-investment, which is in line with the results reported by Ferreira and Matos (2008) in the sense that firms with greater independent institutional ownership decrease firms' capital spending and control over investment behaviour.

Regression estimates show that one standard deviation change in institutional blockholder ownership increases investment ratios by 240 base points for the total sample, and by 220 base points, excluding China. Investor heterogeneity regressions confirm that independent investors drive the marginal effect. The marginal effect of grey investors is not statistically significant in generalized method of moments (GMM) regressions. Independent investors have an effect in the short run when they do not sell their equity shares within one year. The size effect of their short-term holdings is, on average, 0.11. For long-term holdings, when investors remain for two or more years, the size effect increases to 0.23. In contrast, the effect of grey investor portfolio duration is not significant. Thus, their role in controlling suboptimal corporate investment spending remains inconclusive. Investor origin estimates show that local institutional ownership is a significant regressor in explaining firm investment ratios, while foreign ownership does not exert effective monitoring on the firm. This result is partially explained by the low fraction of equity ownership held in the hands of foreign institutional investors as blockholders in relation to local institutional blockholders.

Results also show that minority institutional ownership complements the blockholder investor effect. The overall marginal effect is of around 0.18, meaning that a one standard deviation change in minority holdings increases investment ratios by an additional 86 base points.

Investment cash flow sensitivity results show that institutional investors reduce firms' dependence on internal resources (i.e., operating cash flow) for funding investment. These results are consistent with the hypothesis that direct intervention by institutional blockholders reduces information asymmetries and enhances corporate disclosure. The presence of institutional blockholders also entails greater access to external borrowing.

The remainder of this paper is structured as follows. Section 2 presents the sample construction and methodology, and includes the description of the dependent and explanatory variables, and a discussion of the regression baseline estimating equation. Section 3 presents the econometric results of the baseline investment equation. Section 4 provides a robustness analysis of the baseline investment regressions through cross sectional tests by splitting the sample according to the heterogeneity in firms' financial constraints. Finally, Section 5 presents our conclusions.

2. Data and method

2.1. Sample construction

The working dataset comprises firm-level information from Thomson Reuters Eikon. The raw data sample includes 7253 firms from 16 emerging economies with 63,303 firm-year observations of annual financial and shareholder ownership information for the 2004–2016 period. The sample used in the estimations has the following characteristics. First, it focuses only on nonfinancial firms. Therefore, we exclude all firms that belong to the Thomson Reuters Business Classification: Banking and Investment Services,

⁴ South Africa is the only African country, which is a member of the BRICS association. The acronym BRIC was originally coined in 2001 by Goldman Sachs asset management to group the largest and fastest growing emerging economies, specifically, Brazil, Russia, India, and China. In 2010, South Africa joined the BRICS association.

Uranium, Insurance and Real State companies. Second, we exclude firms with less than three years' coverage as well as firms with missing values for ownership features, capital expenditures, sales, assets, debt, cash flow, and stock prices. Third, following [Hadlock and Pierce \(2010\)](#), we exclude observations with investment to assets ratios of above 2.0 and sales to assets ratios of above 4.5 so as to remove potential outliers. Fourth, we drop outliers in the top and bottom 1% of each variable. The final sample is thus an unbalanced panel of 46,858⁵ observations from 6422 listed nonfinancial firms from 16 emerging markets.⁶

[Table 1](#) provides the descriptive statistics for investment, cash flow and institutional ownership, as well as the main control variables included in the econometric analysis for the total sample and selected subsamples. The first subsample excludes China since it represents 37% of the total sample. The second subsample is the set of firms with institutional blockholder investors, and the third subsample only includes firms with minority institutional blockholder investors. The table provides several interesting insights. First, institutional investors are blockholders in 22% of the total sample with average equity rights of 14%. In contrast, minority institutional investors are present in 70% of the total sample, with average equity rights of 5.1%.

Second, firms with institutional blockholders have greater investment ratios (0.072) than the total sample (0.069) or the subsample that excludes China (0.062). Regardless of whether or not there are institutional blockholders, firms with minority investors display the highest investment rates (0.075). Third, the sample with minority institutional ownership exhibits higher firm valuation than the firms in the other subsamples. The mean of Tobin's Q is 1.45 whereas for the total sample, it is 1.33. For the subsample that excludes China, it is 1.08. This is to be expected as, where there are minority institutional investors, institutional investors tend to invest more in high value firms. Finally, firms with institutional blockholders are, on average, bigger, have higher cash flow ratios, and are less indebted. Descriptive statistics across countries exhibit similar patterns.⁷

2.2. Methodology

The main focus of the empirical approach is to analyse the effect of institutional investor blockholders on investment decisions by gauging the potential impact institutional investors have on relaxing financial constraints. We estimate an extended version of the [Fazzari et al. \(1998\)](#) investment model to test the relevance of institutional investors on investment decisions. Empirical literature on corporate investment has shown that cash flow is a good predictor of investment when a wedge exists in the financing costs between internal and external sources of funds. This would occur because financial markets tend to exhibit a certain degree of friction such as credit rationing and adverse selection problems due to information asymmetries ([Myers and Majluf, 1984](#)). Hence, the higher the funding costs wedge, the more financial constraints on the firms and the more investment decisions explained by internal cash flow. As such, greater dependence on internal funds can lead firms to invest sub-optimally.⁸ However, [Kaplan and Zingales \(1997\)](#) cast doubts on the usefulness of the investment cash flow model to capture financial constraints. This finding opened a keen, yet thus far unresolved debate regarding the usefulness of certain metrics for capturing financial constraints ([Allayannis and Mozumdar, 2004](#)).

Following [Laeven \(2003\)](#) and [Aguar \(2005\)](#), the empirical baseline investment regression equation is

$$Inv_{i,t} \text{ or } Inv. adj_{i,t} = \beta_1 Inv_{i,t-1} + \beta_2 IOwn_{i,t} + \beta_3 IOwn_{it}^2 + \beta_4 IOwn_{it} \times CFO_{it} + \beta_5 Min.IOwn_{i,t} + \beta_6 CFO_{i,t} + \delta_k X_{i,t-1} + I_{jt} + y_{ct} + u_{it}, \quad (1)$$

where subscript i stands for the firm, j for industry, l for country, and t for year. The dependent variable Inv_{it} is total firm investment and is computed as the sum of capital expenditures, acquisitions and R&D expenses, minus sales of PPE of firm i in year t over total assets at the beginning of the period ([Richardson, 2006](#)). Thus, the total investment ratio is computed as follows:

$$Inv_t = \frac{(CAPEX_t + AC_t + RD_t - Sales_{PPE_t})}{Assets_{t-1}} \quad (2)$$

We also include industry adjusted ratios ($Inv. adj_{i,t}$), as the dependent variable, computed as the total investment ratio scaled up industry-country median out of the total investment ratio in year t . That is

$$Inv. Adj_t = \frac{Inv_t}{Median Inv_{jt}} \quad (3)$$

To control investment ratios by financial constraint, the empirical equation includes cash from operating activities of firm i in year t over total assets at the beginning of the period - CFO_{it} . As regard institutional ownership variables, $IOwn_{it}$ represents institutional investor ownership in the hands of institutional blockholders ($IOwn$) (over 5%); $Min. IOwn_{it}$ represents total institutional ownership in

⁵ The total dataset with investment records is 46,858 firm-year observations. This number is greater than the total sample for either total investment or adjusted investment regressions, which is around 35,600 firm year observations. This difference is due to the fact that investment ratios are normalised by the lag of total assets and a lag of the dependent variable is introduced. Thus, there are two lags in all the regression estimates.

⁶ The total sample by country is: Brazil ($n = 1147$), Chile ($n = 942$), China ($n = 17,234$), Colombia ($n = 86$), Greece ($n = 1273$), Hungary ($n = 133$), Indonesia ($n = 2078$), Malaysia ($n = 5164$), Mexico ($n = 645$), Peru ($n = 335$), Poland ($n = 2084$), Republic of Korea ($n = 10,227$), Saudi Arabia ($n = 575$), South Africa ($n = 1549$), Thailand ($n = 3063$), and the United Arab Emirates ($n = 323$).

⁷ These statistics are reported in the table in [Appendix B](#).

⁸ For instance, firm overinvestment is associated with excess cash flow or the underinvestment problem due to agency costs of debt or debt overhang.

Table 1
Descriptive statistics: total sample and selected subsamples (2004–2016).

Variable	Total sample				Sub-sample excluding China			
	mean	sd	min	max	mean	sd	min	max
Investment ratios and institutional ownership variables								
Inv.	0.069	0.072	-0.055	0.443	0.081	0.077	-0.055	0.443
Inv. Adj.	1.371	1.322	-0.538	7.990	1.344	1.241	-0.532	7.939
IOwn	0.032	0.079	0.000	0.639	0.015	0.050	0.000	0.611
Min. IOwn	0.036	0.048	0.000	0.364	0.045	0.052	0.000	0.364
Ln(n [*] Inst.B.)	0.204	0.409	0.000	2.197	0.106	0.296	0.000	1.946
IndIO	0.020	0.051	0.000	0.321	0.012	0.038	0.000	0.317
Min. IndIO	0.030	0.040	0.000	0.193	0.039	0.044	0.000	0.192
GreyIO	0.005	0.022	0.000	0.177	0.001	0.007	0.000	0.175
Min. GreyIO	0.003	0.009	0.000	0.070	0.002	0.005	0.000	0.069
IO-Long Term	0.022	0.063	0.000	0.633	0.009	0.037	0.000	0.586
Min. IO-Long Term	0.010	0.021	0.000	0.225	0.008	0.017	0.000	0.172
IO-Short Term	0.010	0.038	0.000	0.558	0.006	0.027	0.000	0.486
Min. IO-Short Term	0.025	0.039	0.000	0.364	0.037	0.045	0.000	0.364
IndIO-long term	0.016	0.052	0.000	0.633	0.008	0.036	0.000	0.586
Min. IndIO-long term	0.009	0.018	0.000	0.202	0.008	0.016	0.000	0.172
Ind IO-short term	0.008	0.034	0.000	0.558	0.006	0.027	0.000	0.486
Min. IO-short term	0.023	0.037	0.000	0.364	0.035	0.045	0.000	0.364
GreyIO-long term	0.006	0.033	0.000	0.622	0.001	0.010	0.000	0.300
Min. GreyIO-long term	0.002	0.009	0.000	0.187	0.000	0.003	0.000	0.084
GreyIO-short term	0.002	0.014	0.000	0.430	0.000	0.004	0.000	0.268
Min. GreyIO-long term	0.002	0.009	0.000	0.217	0.001	0.005	0.000	0.128
IO-Foreign	0.007	0.034	0.000	0.586	0.005	0.031	0.000	0.586
Min. IO-Foreign	0.010	0.026	0.000	0.333	0.007	0.025	0.000	0.318
IO-Local	0.025	0.069	0.000	0.639	0.009	0.035	0.000	0.549
Min. IO-Local	0.025	0.040	0.000	0.334	0.038	0.046	0.000	0.334
Control variables								
CFO	0.066	0.090	-0.235	0.414	0.059	0.087	-0.235	0.414
Tobin's Q	1.586	1.067	0.435	8.047	2.143	1.268	0.439	8.047
Debt	0.222	0.171	0.000	0.677	0.230	0.173	0.000	0.677
Size	19.4	1.5	15.7	23.8	20.0	1.2	15.8	23.8
Sales	0.831	0.524	0.054	3.284	0.689	0.461	0.054	3.258
Cash	0.149	0.130	0.002	0.704	0.181	0.134	0.002	0.704
Index	0.075	0.263	0.000	1.000	0.019	0.137	0.000	1.000
Rule of Law	0.136	0.617	-0.654	1.322	-0.450	0.101	-0.639	-0.224
Reg. Quality	0.312	0.547	-0.702	1.539	-0.245	0.044	-0.309	-0.150
Obs (Inv. ratio)	46,858				17,234			
Fraction of total sample					0.368			
Subsample - BHL IOwn								
Subsample - Minority IOwn								
Variable	mean	sd	min	max	mean	sd	min	max
Investment ratios and institutional ownership variables								
Inv.	0.072	0.072	-0.054	0.441	0.075	0.074	-0.055	0.441
Inv. Adj.	1.480	1.338	-0.527	7.922	1.433	1.308	-0.535	7.939
IOwn	0.145	0.107	0.050	0.639	0.041	0.087	0.000	0.611
Min. IOwn	0.066	0.059	0.000	0.364	0.051	0.050	0.000	0.364
Ln(n [*] Inst.B.)	0.916	0.312	0.693	2.197	0.260	0.451	0.000	1.946
IndIO	0.095	0.073	0.000	0.321	0.026	0.057	0.000	0.317
Min. IndIO	0.052	0.047	0.000	0.192	0.043	0.042	0.000	0.192
GreyIO	0.023	0.042	0.000	0.177	0.006	0.024	0.000	0.175
Min. GreyIO	0.005	0.013	0.000	0.070	0.004	0.010	0.000	0.069
IO-Long Term	0.100	0.099	0.000	0.633	0.028	0.069	0.000	0.586
Min. IO-Long Term	0.019	0.028	0.000	0.211	0.015	0.024	0.000	0.172
IO-Short Term	0.045	0.071	0.000	0.558	0.013	0.043	0.000	0.486
Min. IO-Short Term	0.047	0.050	0.000	0.364	0.036	0.043	0.000	0.364
IndIO-long term	0.072	0.089	0.000	0.633	0.021	0.058	0.000	0.586
Min. IndIO-long term	0.015	0.023	0.000	0.202	0.012	0.020	0.000	0.172
Ind IO-short term	0.037	0.063	0.000	0.558	0.011	0.038	0.000	0.486
Min. IO-short term	0.042	0.048	0.000	0.364	0.033	0.041	0.000	0.364
GreyIO-long term	0.028	0.065	0.000	0.622	0.007	0.035	0.000	0.300
Min. GreyIO-long term	0.004	0.015	0.000	0.156	0.002	0.011	0.000	0.084
GreyIO-short term	0.008	0.028	0.000	0.430	0.002	0.015	0.000	0.268

(continued on next page)

Table 1 (continued)

Variable	Subsample - BHL IOwn				Subsample - Minority IOwn		
	mean	sd	min	max	mean	sd	min
Min. GreyIO-long term	0.005	0.016	0.000	0.217	0.003	0.011	0.000
IO-Foreign	0.033	0.065	0.000	0.586	0.009	0.037	0.000
Min. IO-Foreign	0.025	0.040	0.000	0.333	0.015	0.030	0.000
IO-Local	0.112	0.107	0.000	0.639	0.032	0.077	0.000
Min. IO-Local	0.041	0.049	0.000	0.304	0.036	0.044	0.000
Control variables							
CFO	0.080	0.089	-0.229	0.414	0.072	0.090	-0.235
Tobin's Q	1.510	1.000	0.438	7.974	1.706	1.113	0.435
Debt	0.209	0.164	0.000	0.677	0.223	0.170	0.000
Size	19.9	1.5	15.7	23.8	19.9	1.4	15.7
Sales	0.917	0.550	0.054	3.284	0.816	0.523	0.054
Cash	0.149	0.130	0.002	0.698	0.154	0.129	0.002
Index	0.095	0.294	0.000	1.000	0.095	0.293	0.000
Rule of Law	0.338	0.602	-0.654	1.322	0.078	0.613	-0.654
Reg. Quality	0.514	0.530	-0.702	1.539	0.261	0.558	-0.702
Obs (Inv. ratio)	10,432				32,960		
Fraction of total sample	0.223				0.703		

Notes: This table displays the descriptive statistics of the independent and dependent variables included in baseline regressions from Eq. (1) for the total sample and selected subsamples: excluding China, institutional ownership blockholder, and minority institutional ownership. Total firm-year observations with investment records are 46,858 for the 2004–2016 period. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio IOwn/IO stands for total institutional blockholder ownership. Min Own/IO stands for minority institutional ownership. Ind stands for institutional independent investor; Grey stands for grey institutional investor. Short term investor refers to institutional shareholders who exit within a year; Long term investor refers to institutional shareholders that last at least 2 years; Ln ($n^{Inst.B.}$) is the natural log of the number of institutional blockholders; a blockholder is a shareholder with equity rights equal to or greater than 5%. CFO stands for operative cash flow to lagged total assets ratio. Complete definitions for the remaining control variables can be found in A.

Sources: Data from Thomson Eikon, S&P Capital IQ, World Bank-WGI.

the hands of minority shareholders (below 5%). Vector X includes the set of lagged control variables commonly used in previous studies such as firm Tobin's Q (Tobin's Q) as a proxy of investment opportunities, firm size (Size), debt ratio (Debt), cash and short-term investments scaled total assets (Cash), and sales ratio (Sales). Following prior empirical estimates, in order to control for market liquidity, we include a dummy variable that takes the value 1 if a firm belongs to the most heavily traded local index in year t (e.g., IPSA, BOVEPSA, KOSPI, among others), and zero otherwise.⁹

The empirical investment equation includes a set of fixed effects at different aggregation levels to control for unobservable time-invariant and time-variant fixed effects. In particular, an industry fixed effect (I_j) captures the impact of unobservable factors at the industry-level affecting investment decisions. In addition, we include a set of country-year fixed effects (γ_{it}) to capture country time-variant determinants of investment, such as GDP growth and inflation, among others.

One concern regarding institutional ownership stems from the endogeneity associated with investor preferences that bias firm value or investment regression estimates. Empirical evidence shows that institutional investors invest more in large firms, and in firms with a good corporate governance reputation. Furthermore, they prefer firms that show higher market valuations, better operational performance, and lower capital expenditure (Ferreira and Matos, 2008). However, to attenuate this problem, in some estimations, we only focus on those institutional investors that can engage in monitoring through significant ownership holdings. Specifically, we define institutional ownership as the sum of all ownership held by any institutional investor blockholder (IOwn). When a stand-alone institutional investor does not meet the 5% threshold, we compute the institutional investor as zero. We also separately include the potential effect on investment of institutions defined as having minority institutional ownership, computed as the sum of all ownership held by any institutional investor categorized as a minority investor (a less than 5% stake). When a stand-alone institutional investor exceeds the 5% threshold, we compute the institutional investor as zero.

There are three main arguments concerning the relationship between institutional investor ownership and firm investment. First, the monitoring approach suggests that when institutional investors become blockholders, they have greater incentives to gather information, monitor controllers, and demand more and better investment to improve firm value (Cornett et al., 2007; Maug, 1998). They can use the voice mechanism or the threat of exit to demand greater investment, consistent with arguments related to investor demand for investment aimed at securing superior firm value (Gompers and Metrick, 2001).

Second, institutional investor ownership restricts overinvestment problems in firms that are more likely to suffer from it, such as in cases of excess cash flow within large firms. This argument predicts a negative relationship between institutional investors' holdings and industry-adjusted investment (Ferreira and Matos, 2008).

⁹ Appendix A provides the definitions of all the variables considered in the empirical analysis. The online supplementary material reports the partial correlations across the explanatory variables included in the regression estimates.

Third, a negative relation between institutional ownership and investment is also predicted when institutional blockholders can aggravate corporate decisions because of their propensity to extract private benefits (Edmans and Holderness, 2017). This likelihood increases when institutions wield greater power in the firm, which exacerbates agency conflict between institutional investors and other large shareholders, leading to non-maximizing corporate actions such as asset substitution and underinvestment. Ruiz-Mallorquí and Santana-Martín (2011) show that when institutional investors are banks, the effect on firm value is negative because dominant shareholders tend to strengthen their business relationship in order to extract private benefits. However, they find that when institutional investors are investment advisors, they tend to improve firm value. This positive effect on firm value may be related to incentives to avoid inefficiencies such as overinvestment. However, both arguments—private benefit extracting or efficiency in avoiding overinvestment—predict a negative relationship between high institutional ownership and corporate investment.

Thus, in order to analyse whether nonlinear effects are important in generating an inverted U-shaped relationship between the level of institutional equity holdings and firm investment ratio, we introduce a quadratic term for the institutional investor variable. Coefficients β_2 and β_3 in Eq. 1 should be negative and positive, respectively.

The empirical model takes into account whether institutional investor heterogeneity matters in explaining investment decisions. Thus, we distinguish institutional holdings between investor colours (i.e., grey vs. independent investor) and origin (i.e., domestic vs. foreign investor), and introduce the variables of institutional orientation type and their interactions with cash flow.

The monitoring argument highlights the beneficial influence of institutional investors on firm value (Elyasiani et al., 2010; Hartzell et al., 2014). This beneficial effect depends exclusively on institutional investor ability to attenuate asymmetrical information issues or to successfully influence controllers or managers to make value-creating decisions (Almazán et al., 2005) or to avoid overinvestment problems. Of course, as shown by Ferreira and Matos (2008), independent institutional investors may be more likely to spend greater resources on monitoring activities or to have fewer potential business relationships with the corporation in which they invest. We define independent investor ownership (IndIO) as the sum of blockholder ownership held by mutual fund managers and investment advisor firms, and if independent investors engage (do not engage) in monitoring activities, we expect for firms to display higher (lower) levels of investment.

On the other hand, grey investors are less likely to exert the voice mechanism because they maintain business ties with company managers, and may attempt to increase their control of the firm. We define grey investor ownership (GreyIO) as the sum of blockholder equity holdings by institutions classified as grey (i.e., bank trusts, insurance companies, pension funds, and endowments). For Latin America, De-La-Hoz and Pombo (2016) report a discount of 0.12 units on firms' Tobin's Q when grey institutional investors are the largest blockholder. This finding suggests that for firms whose largest shareholder is a grey investor, management may take on non-value-maximizing investments, making the expected relationship positive or non-significant.

We also analyse whether institutional investors increase or decrease financial constraints, expecting the coefficient β_5 for operating cash flow (CFO) to be positive in all the specifications according to the literature. In the presence of financial constraints, an increase in cash flow should increase investment. More importantly, institutional investors can shape financial constraints by alleviating or increasing asymmetric information through incentives to monitor controllers and managers. This effect is captured by introducing the interacting term of institutional ownership and firm cash flow in the estimating equation.

Two arguments can moderate the relationship between the type of institutional investor blockholders and financial constraints. First, when institutional investors become blockholders, they will engage in corporate governance activities to ensure value-maximizing decisions. If the monitoring argument prevails, we expect institutional blockholders to reduce financial constraints and, hence, the expected sign for the coefficient β_4 when estimating Eq. 1 to be negative. Second, as previously mentioned, institutional investors can influence managers to make non value-maximizing decisions such as overinvesting or underinvesting so as to extract private benefits. This influence may be critical when institutions control the firm. If the expropriation argument dominates, institutional blockholders will increase financial constraints, and so the sign for coefficient β_4 will be positive.

Due to endogeneity problems in dynamic panel data, ordinary least squares estimators can produce biased coefficients, which is why we use a generalized method of moments (GMM). The GMM system estimator deals with the endogeneity issues inherent to the relationship between investment and cash flow. In general, all right-hand variables are potentially endogenous (Pindado et al., 2011). One important feature of the GMM method is that it controls for endogeneity of all firm-level variables by introducing lagged right-hand side variables as instruments. Specifically, we introduce all right-hand side variables lagged from $t-2$ to $t-4$ when estimating Eq. 1. Thus, the GMM system estimator offers some advantages over other dynamic panel models that are regularly used in corporate finance research (Flannery and Hankins, 2013).

The consistency of the estimates depends on the absence of second-order serial autocorrelation in the residuals and on the validity of the instruments. Accordingly, we report p -values of the first and second order autocorrelation test. To test the validity of the instruments, we use the Hansen test that over-identifies constraints, which tests for the absence of correlation between the instruments and the error term and, therefore, checks the validity of the selected instruments.

3. Econometric results

3.1. Institutional blockholders and minority institutional investors

This section outlines the findings on whether institutional investors influence investment decisions and their effect on the cash flow sensitivity relationship. Table 2 shows the baseline results for the institutional investor ownership variable for the whole sample and for the subsample that excludes China. Three main findings should be highlighted. First, institutional blockholder ownership is statistically significant in its own term (IOwn) as well as in its squared term (IOwn²) across specifications. The size of the marginal

Table 2
Institutional ownership and firm investment ratios (GMM regressions).

Dep. Var. is:	Total Sample					Excluding China								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Dep. Var. $I_{i,t-1}$	0.353*** (0.017)	0.339*** (0.018)	0.338*** (0.017)	0.350*** (0.017)	0.347*** (0.017)	0.328*** (0.018)	0.324*** (0.018)	0.336*** (0.017)	0.324*** (0.019)	0.320*** (0.020)	0.311*** (0.021)	0.332*** (0.022)	0.317*** (0.022)	0.335*** (0.021)
$IOWn_{i,t}$	0.257*** (0.066)	1.178*** (0.209)	0.096*** (0.078)	0.355*** (0.117)	0.273*** (0.062)	1.305*** (0.416)	6.098** (2.591)	4.743*** (0.886)	0.058*** (0.020)	0.316*** (0.106)	0.222*** (0.050)	0.742 (0.398)	8.489*** (2.455)	3.915*** (0.792)
$IOWn_{i,t}^2$		-2.618*** (0.638)		-0.798** (0.355)		-1.487** (0.280)		-1.784** (0.330)		-0.784** (0.330)		-22.932*** (7.920)		
$CFO \times IOWn_{i,t}$					-2.187*** (0.743)									
$Min. IOWn_{i,t}$			0.225*** (0.033)	0.183** (0.028)	0.198*** (0.029)	2.881*** (0.502)	2.615*** (0.527)	3.121*** (0.490)	0.200*** (0.044)	0.187*** (0.046)	0.180*** (0.046)	2.758*** (0.809)	2.637*** (0.908)	2.674*** (0.776)
$CFO_{i,t}$		0.092*** (0.011)	0.086*** (0.012)	0.065*** (0.011)	0.072*** (0.022)	2.654*** (0.477)	2.473*** (0.498)	2.229*** (0.340)	0.068*** (0.013)	0.063*** (0.014)	0.136*** (0.023)	1.780*** (0.491)	1.539*** (0.521)	2.342*** (0.397)
Tobin's $Q_{i,t-1}$		0.006*** (0.001)	0.006*** (0.001)	0.006*** (0.001)	0.005*** (0.001)	0.072*** (0.020)	0.074*** (0.020)	0.045*** (0.013)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.034*** (0.011)	0.032** (0.013)	0.038** (0.015)
$Debt_{i,t-1}$		-0.144*** (0.011)	-0.151*** (0.012)	-0.137*** (0.012)	-0.139*** (0.012)	-3.525*** (0.258)	-3.505*** (0.259)	-2.805*** (0.210)	-0.139*** (0.013)	-0.140*** (0.014)	-0.151*** (0.014)	-3.196*** (0.328)	-3.268*** (0.335)	-2.684*** (0.270)
$Size_{i,t-1}$		-0.013*** (0.003)	-0.020*** (0.004)	-0.022*** (0.004)	-0.015*** (0.003)	-0.048 (0.042)	-0.069 (0.044)	-0.095** (0.040)	-0.010*** (0.003)	-0.012*** (0.003)	-0.011*** (0.003)	-0.140*** (0.056)	-0.227*** (0.063)	-0.160*** (0.050)
$Sales_{i,t-1}$		0.007*** (0.003)	0.008*** (0.003)	0.046*** (0.010)	0.040*** (0.009)	-0.027 (0.064)	-0.019 (0.064)	0.066 (0.060)	0.007** (0.003)	0.007** (0.003)	0.009*** (0.004)	0.008 (0.076)	0.015 (0.079)	0.098 (0.068)
$Cash_{i,t-1}$		0.017*** (0.005)	0.013*** (0.004)	0.041*** (0.018)	0.025** (0.011)	2.268*** (0.434)	2.327*** (0.446)	1.069*** (0.346)	0.060** (0.030)	0.075*** (0.032)	0.067*** (0.032)	2.555*** (0.651)	2.974*** (0.722)	1.431*** (0.496)
$Index_{i,t-1}$		0.118*** (0.031)	0.120*** (0.034)	0.151*** (0.037)	0.109*** (0.033)	0.566 (0.399)	0.657 (0.422)	0.518 (0.347)	0.081*** (0.022)	0.091*** (0.023)	0.083*** (0.023)	1.245*** (0.368)	1.581*** (0.419)	1.053*** (0.293)
Obs.	35,608	35,608	35,608	35,608	35,608	34,380	34,380	34,380	22,563	22,563	22,563	21,480	21,480	21,480
N° Firms	6422	6422	6422	6422	6422	6367	6367	6367	3972	3972	3972	3924	3924	3924
F-Test	26.2	29.66	35.31	37.80	36.6	37.26	35.40	39.91	25.36	22.77	23.88	24.17	22.04	27.39
Auto(2)	0.849	0.522	0.289	0.452	0.495	0.461	0.669	0.118	0.468	0.580	0.598	0.272	0.754	0.120
Hansen p-value	0.315	0.469	0.365	0.381	0.376	0.418	0.426	0.431	0.245	0.272	0.262	0.341	0.353	0.385
Country-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
VIF	1.71	1.89	1.69	1.87	1.71	1.54	1.85	1.58	1.35	1.55	1.37	1.12	1.48	1.18
<i>Marginal Effect</i> ($\partial Inv/\partial IOWn$) = 0		0.225*** (0.023)		0.223*** (0.032)		0.205*** (0.033)		0.205*** (0.033)		0.201*** (0.024)		0.185*** (0.017)		0.185*** (0.017)
$\beta_6 + \beta_4 * IOWn$					0.059*** (0.014)			0.841*** (0.226)			0.036** (0.017)			0.621** (0.297)

Notes: This table displays the baseline investment regressions of Eq. (1) for the total sample and selected subsample that excludes China. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio $IOWn$ stands for total institutional blockholder ownership. Min Own stands for minority institutional ownership. A blockholder is a shareholder with equity rights equal to or greater than 5%. CFO stands for operative cash flow to lagged total assets ratio. Complete definitions for the remaining control variables can be found in A. Overall marginal effects of $IOWn$ reported in the bottom rows of the table. The Hansen test is a test that over-identifies restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term; robust standard errors are in parentheses; VIF stands for variance inflating factor test for multicollinearity. ***, **, * and * represent significance levels at 1%, 5%, and 10% respectively.

effect is relevant in the presence of a non-linear relation of institutional blockholder ownership and controlling by firm operative cash flows. The marginal effect ranges from $\beta_2 = 0.26$ (Col. 1) to 0.30 (Col. 5).¹⁰ This latter estimate shows that with one standard deviation change in institutional blockholder ownership, firm investment ratios rise by 2.4%.¹¹ If we replace total investment with an industry-adjusted measure of total investment (columns 6 to 8 and 12 to 14 for the total sample and excluding China, respectively), the results are qualitatively similar to previous findings. These regressions are controlled by minority institutional holdings (MinIOwn) for all cases.

The above findings indicate an inverse U-shaped relationship between institutional blockholder ownership and investment ratios and suggest that, at low levels of institutional blockholder ownership, investors positively influence firm investment. These results confirm that institutions have incentives to demand more and better investment when they act as blockholders. Institutional investors' "voice" and the threat of exit account for the monitoring incentives of institutions to ensure value-maximizing decisions related to investment (Gompers and Metrick, 2001).

Second, using both dependent variables (Inv. and Inv. Adj.), the nonlinear relation indicates the existence of an average threshold point for institutional investors ownership of around 21.2% and 19.5% for the full sample (Cols. 2 and 8) and excluding China (Cols. 5 and 11), respectively. Above that point, institutional investors can take advantage of a dominant position to extract private benefits (i.e., dividend clientele effect) and thus lower firm investment spending (Edmans and Holderness, 2017). An alternative explanation is an efficiency argument that is related to institutional investor incentives to restrict overinvestment problems (Ferreira and Matos, 2008).¹²

Third, institutional ownership reduces financial constraints. The operating cash flow coefficient β_6 (CFO) is positively associated with investment across regressions. Cash flow sensitivity is 0.065 for the total sample (Col. 3) and 0.068 excluding China (Col. 9), while the regression coefficient β_4 for the interacting term $CFO \times IOwn$ is negative and statistically significant for the total sample and without China, respectively. The quantitative relevance of institutional blockholder ownership is significant. For instance, the marginal effect of operating cash flow (CFO) on investment rates in Col. 5 is 0.059. The marginal effect of CFO without the interacting term $CFO \times IOwn$ in Col. 3 is $\beta_6 = 0.065$. Therefore, the difference in investment cash flow sensitivities between both regressions is 0.006 or 60 base points. Excluding China, cash flow sensitivity decreases by 320 base points. Marginal effects are evaluated at the institutional blockholder ownership mean based on the observations included in the estimation.¹³

This finding corroborates the intuition that institutional blockholders actively participate in corporate governance. Boone and White (2015) show that institutional investors enhance monitoring capabilities by increasing transparency and improving managerial disclosure and liquidity, resulting in lower information asymmetry. Bird and Karolyi (2016) find that positive changes in institutional investors increase the volume and quality of firm disclosure. These results are consistent with the view that investors have incentives to gather information, monitor, and demand higher quality for investment projects so as to add asset value and reduce agency problems related to suboptimal investment policies (over- or underinvestment).

Table 2 also shows that minority institutional investors play an important role in explaining firm investment ratios. Columns 3 to 5 show that the parameter is around 0.2, meaning that 1 standard deviation change [0.048] in minority holdings increases investment ratios by 96 base points. The effect on investment ratios is not as great as it is with their blockholder peers, but it is by no means negligible. This evidence supports the idea about retail investor ability to discipline firm management by trading their shares, which has a direct impact on firms' stock turnover that affects mutual fund short-term performance and capital flows internationally.¹⁴

Regression estimates in Table 2 also test for potential multicollinearity, second order autocorrelation and instrument validity (the Hansen test). These tests show that collinearity does not skew the results, nor are either the null hypothesis of instrument validity (Hansen) or the null hypothesis of absence of second order autocorrelation rejected.

3.2. Number of Blockholders

One concern regarding our results is the fact that the institutional blockholders threshold point is around 22% in the full sample. Given that the sample mean of institutional blockholders is around 3.2% (SD: 7.9%), it seems to occur at extremely high levels of institutional blockholder ownership (about 2 standard deviations above the mean). Thus, at low levels there might be one or two blockholders who matter. At higher levels of this variable, there could be numerous blockholders that are unable to coordinate with each other.¹⁵ This is important because a larger set of blockholders could behave differently in monitoring than a small number of blockholders.

As mentioned in a previous section, multiple blockholder ownership studies have shown the positive effect of blockholder

¹⁰ The marginal effect of institutional blockholder ownership in Col. 5 is $\partial Inv / \partial IOwn = \beta_2 - 2\beta_3 \cdot IOwn$. Therefore: $\partial Inv / \partial IOwn = 0.355 - 2 \times 0.798 \times 0.032 = 0.304$ where 0.032 is the mean of IOwn for the full dataset reported in Table 1.

¹¹ The change in the investment ratio due to 1 standard deviation in *institutional ownership* is $0.304 \times 0.079 = 0.024 = 2.4\%$. Excluding China, that effect is 2.2%.

¹² We cannot differentiate between the "efficient" and "private benefits" arguments to explain the negative relation at high levels of institutional ownership.

¹³ Similarly, the marginal effect for the subsample that excludes China in Col.11 is 0.036 and the marginal effect of CFO without the interacting term in Col. 9 is $\beta_6 = 0.068$, which implies a decrease of 320 base points [$0.068 - 0.036 = 0.032$].

¹⁴ The online supplementary material includes additional OLS regressions. We run OLS with two-way fixed effects panel data for the specification as a robustness check. The results, using investment in fixed asset keeps the size and direction of all independent variables included in Table 2.

¹⁵ We thank an anonymous referee for suggesting this additional argument.

Table 3
Number of Institutional blockholders and firm investment ratios (GMM regressions).

Dep. Var. is:	Industry Adj. Total Investment						
		Total Sample			Excluding China		
		(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var. i_{t-1}	β_1	0.333*** (0.017)	0.311*** (0.018)	0.326*** (0.018)	0.293*** (0.022)	0.288*** (0.022)	0.321*** (0.021)
$\text{Ln}(n^{\text{Inst.B.}})_{i,t}$	β_2	0.334*** (0.079)	3.719*** (1.011)	1.138*** (0.179)	0.255*** (0.085)	3.789*** (0.874)	0.924*** (0.164)
$\text{Ln}(n^{\text{Inst.B.}})_{i,t}^2$	β_3		-1.784** (0.795)			-1.808*** (0.627)	
$\text{CFO} \times \text{Ln}(n^{\text{Inst.B.}})_{i,t}$	β_4			-12.286*** (2.384)			-9.607*** (1.977)
$\text{Min. IOwn}_{i,t}$	β_5	2.890*** (0.492)	2.318*** (0.712)	3.020*** (0.497)	5.360*** (1.210)	3.122** (1.278)	2.779*** (0.819)
$\text{CFO}_{i,t}$	β_6	2.170*** (0.452)	1.926*** (0.517)	3.140*** (0.430)	1.361** (0.558)	1.171** (0.535)	3.043*** (0.470)
Tobin's Q i_{t-1}	β_7	0.067*** (0.019)	0.095*** (0.021)	0.039** (0.019)	0.038** (0.017)	0.036** (0.014)	0.040** (0.018)
Debt i_{t-1}	β_8	-3.218*** (0.239)	-3.347*** (0.255)	-2.831*** (0.211)	-3.352*** (0.340)	-3.061*** (0.325)	-2.689*** (0.270)
Size i_{t-1}	β_9	-0.061 (0.040)	-0.172*** (0.052)	-0.095** (0.041)	-0.397*** (0.080)	-0.386*** (0.077)	-0.188*** (0.052)
Sales i_{t-1}	β_{10}	-0.006 (0.062)	0.006 (0.063)	0.055 (0.060)	0.006 (0.082)	0.046 (0.077)	0.099 (0.071)
Cash i_{t-1}	β_{11}	1.973*** (0.403)	2.654*** (0.473)	1.129*** (0.353)	3.755*** (0.828)	3.216*** (0.757)	1.573*** (0.511)
Index i_{t-1}	β_{12}	0.511 (0.365)	0.667 (0.433)	0.464 (0.353)	2.224*** (0.462)	2.120*** (0.453)	1.122*** (0.312)
VIF		1.54	1.95	1.58	1.12	1.76	1.19
Obs.		34,380	34,380	34,380	21,480	21,480	21,480
N° Firms		6367	6367	6367	3924	3924	3924
F-Test		38.58	33.68	38.71	23.02	21.27	26.89
Auto(2)		0.391	0.882	0.251	0.296	0.584	0.183
Hansen p-value		0.532	0.521	0.575	0.485	0.467	0.491
Country-Year FE		YES	YES	YES	YES	YES	YES
Industry FE		YES	YES	YES	YES	YES	YES
<i>Marginal Effect</i> ($\partial \text{Inv} / \partial \text{Ln}(n^{\text{Inst. B.}}) = 0$)			1.043*** (0.203)			1.048*** (0.149)	
$\beta_5 + \beta_3 * \text{Ln}(n^{\text{Inst. B.}})$				0.549** (0.261)			0.400 (0.329)

Notes. This table displays the baseline investment regressions of Eq. 1 controlled by the number of institutional blockholders for the total sample and selected subsample that excludes China. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio. $\text{Ln}(n^{\text{Inst.B.}})$ is the natural log of the number of institutional blockholders. Min Own stands for minority institutional ownership. A blockholder is a shareholder with equity rights equal to or greater than 5%. CFO stands for operative cash flow to lagged total assets ratio. Complete definitions for the remaining control variables can be found in A. Overall marginal effects of IOwn reported in the bottom rows of the table. The Hansen test is a test that over-identifies restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term; robust standard errors are in parentheses; VIF stands for variance inflating factor test for multicollinearity; ***, **, and * represent significance levels at 1%, 5%, and 10% respectively.

contestability in firms where no blockholder exercises absolute control on firm value, as well as the presence of a second blockholder related with some types of investors such as institutional ones or the presence of a non-family related block within family firms. These empirical facts imply that control lies in the hands of just a few players. As the number of voting-blocks increases, coordination problems might arise within these major blockholders, curtailing their capacity to monitor and avoid sub-optimal investment levels within the firms in which they have large equity holdings.

Table 3 shows the GMM investment regressions replacing institutional blockholder ownership by the natural logarithm of the number of institutional blockholders ($\text{Ln}(\text{no. Inst.B.})$).¹⁶ Results are consistent with previous baseline results; that is, there is a non-linear effect between investment ratios and the number of voting blocks. The inflexion point is 0.98 meaning that, on average, having more than three institutional blockholders causes coordination problems.

¹⁶ We do not include $\text{Ln}(\text{no. Inst.B.})$ as an additional covariate because the correlation with IOwn is of around 0.89. In addition, we estimate results in Table 3 using OLS regressions. The main results are qualitatively similar.

3.3. The colours of institutional blockholders

The next step in the analysis is to disentangle the effect of investor heterogeneity depending on investor orientation in their monitoring role. We hypothesize that orientation can influence investment decisions. Independent investors tend to monitor more actively because they are less likely to have business ties with the firms in which they invest and may be more likely to use the threat of exit and the voice mechanism to ensure value-creating decisions. In contrast, grey investors tend to engage in a business relationship with the company and are thus more likely to follow and approve managers' investment decisions rather than attempt to influence or monitor them.

Table 4 displays the main results regarding the effect of institutional investor heterogeneity and firm investment ratios. The regression equation in columns 1, 2 and 3 evaluates the effect of independent and grey blockholder institutional ownership (shares), respectively. The regression coefficients confirm that independent institutional blockholders positively affect firms' investment ratios and are consistent with the blockholder voice model. The role of grey investors is not, however, conclusive. Further, the regression equation in columns 1 and 3 report their squared terms to control for nonlinear relations, indicating that independent blockholder investors, account for the inverse U-shaped relation between investor holdings and firm investment. In Column 3, the parameter for $IndIO$ is positive and significant (0.99, $S.E.$ = 0.24), and the parameter of $IndIO^2$ is negative and significant (4.61, $S.E.$ = 1.23). These results hold when replacing the dependent variable with the industry adjusted variable (Cols. 4–6 and 10–12) and excluding China (Cols. 7–12). Pressure-resistant (or independent) institutional investors play a more active role in controlling the quality of investment projects, which is consistent with the demand for greater investment spending.

However, this effect turns negative when the equity rights of independent investors surpass the threshold of around 11% for the full sample, and excluding China. Institutions' incentives to limit overinvestment problems explains the negative effect on firms' investment ratios (Ferreira and Matos, 2008). Another explanation suggests that independent investors have incentives to demand investment because selling their shares may prove difficult, particularly in stock markets with liquidity restrictions. As a result, investors are motivated to align with insider strategic decision-making and to support managerial entrenchment (Adams and Ferreira, 2007).

As a robustness check, we replicate the above regression estimations (Table 4) using OLS with two-way fixed effects panel data. Appendix C reports the results, which are consistent with the GMM regression coefficients.

3.4. Investor horizons and country origin

Corporate finance literature suggests that the investor horizon is relevant to the impact of corporate policies on long- and short-term performance. Bushee (1998) shows that short-term investors are positively related to myopic investment decisions by managers. Thus, firms with short-term investors tend to invest less in R&D compared to firms with long-term investors. In a later study, said author finds that in the presence of short-term investors, managers tend to overweigh the nearest term expected earnings (Bushee et al., 2014). Pressure for short-term performance imposed by short-term investors can cause managers to sacrifice long-term value for short-term profit (Graham et al., 2005). This argument is consistent with the demand for investment to meet short-term returns. Thus, we expect the influence of short-term institutional investors to be positively related to investment.

Studies on the determinants of institutional ownership stress that firms' corporate governance standards are pivotal in explaining institutional investor entry, permanency, and amount of holdings. Thus, investors with a long-term horizon play an important role in restricting overinvestment problems. Their influence can explain firms' current investment demand and the focus on good corporate governance and long-run performance (Chen and Harford, 2007). The effectiveness of monitoring depends on the ownership fraction held by long-term investors. If the monitoring effect dominates, long-term institutional investors will prevent suboptimal investment policies such as overinvestment.

Table 5 reports the effect of investor horizon on firm investment ratios by breaking down the institutional ownership variable into long-term investor horizon (two years or more as a blockholder) and short-term investor horizon (only one year as a blockholder). The parameters for short-term institutional ownership (IOwn-Short Term) are positive with values of 0.131 (Col. 1) and 0.365 (Col. 2) when regression includes nonlinear terms in institutional holdings. This effect holds when short-term investors are independent (Cols. 5, 6 and 7). These estimates provide evidence that the short-term orientation of the institutional investor is related to higher investment ratios, which is consistent with demand for investment arguments.

As regard long-term investor orientation, institutional investors have incentives to monitor overinvestment up to a certain threshold of equity holdings. Col. 2 of Table 5 shows the existence of a non-linear relationship between long-term institutional investors and investment, with an inflexion point of around 22.9%. After this threshold, the effect on firm investment ratio turns negative, supporting the notion that institutional blockholders have more incentive to control corporate overinvestment and smooth spending across the time horizon. The presence of independent investors provides the main explanation for this effect (Cols. 5 and 7). In contrast, grey institutional blockholders are not a significant factor in explaining firm investment ratios.¹⁷

Table 6 reports the effect of foreign and domestic institutional blockholders. Previous literature suggests that foreign institutional investors promote better corporate governance through direct and indirect interventions (Gillan and Starks, 2003). However, Ferreira and Matos (2008) find that foreign institutional ownership is positively associated with firm value, although they fail to find any

¹⁷ We replicated the above investment regressions with OLS regressions (not shown) controlled by firm fixed-effects. The observed results are consistent with those reported above. For more details, see the online supplementary material.

Table 4
Institutional investor colours and firm investment ratios (GMM regressions).

Dep. Var. is:	Total Sample													
	Total Investment							Excluding China						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		
β_1	0.355*** (0.017)	0.357*** (0.017)	0.355*** (0.017)	0.339*** (0.017)	0.343*** (0.017)	0.339*** (0.017)	0.323*** (0.021)	0.330*** (0.021)	0.324*** (0.022)	0.324*** (0.020)	0.331*** (0.020)	0.324*** (0.020)		
β_2	0.775*** (0.188)	0.103*** (0.026)	0.992*** (0.237)	6.735*** (2.306)	1.242*** (0.443)	6.800*** (2.304)	0.669*** (0.188)	0.062** (0.026)	0.916*** (0.240)	8.318*** (2.404)	1.375*** (0.434)	8.602*** (2.405)		
β_3	-3.449*** (0.973)	-3.449*** (0.973)	-4.610*** (1.230)	-27.710** (11.686)	-28.245** (11.673)	-27.710** (11.673)	-2.983*** (0.925)	-4.156*** (1.178)	-38.442*** (11.612)	-38.442*** (11.612)	-38.442*** (11.612)	-39.825*** (11.612)		
β_4	0.225*** (0.032)	0.234*** (0.030)	0.221*** (0.033)	3.591*** (0.525)	3.688*** (0.517)	3.588*** (0.527)	0.252*** (0.054)	0.236*** (0.051)	0.260*** (0.057)	3.281*** (0.875)	3.288*** (0.849)	3.379*** (0.887)		
β_5	-0.103 (0.071)	0.179 (0.306)	0.143 (0.323)	-1.949 (1.234)	4.100 (4.782)	5.063 (4.488)	-0.122* (0.067)	0.178 (0.264)	0.196 (0.296)	-1.235 (1.138)	5.893 (4.498)	6.409 (4.333)		
β_6		-2.477 (2.738)	-2.066 (2.816)		-55.000 (44.436)	-65.133 (40.551)		-2.570 (2.348)	-2.674 (2.600)	-65.740 (41.961)	-73.413* (40.231)			
β_7	0.031 (0.124)	0.021 (0.116)	0.003 (0.129)	0.931 (2.161)	0.315 (2.141)	0.533 (2.168)	-0.162 (0.135)	-0.067 (0.125)	-0.078 (0.143)	-0.684 (2.370)	0.274 (2.352)	-0.534 (2.359)		
β_8	0.078*** (0.011)	0.076*** (0.011)	0.074*** (0.012)	2.088*** (0.370)	2.125*** (0.374)	2.001*** (0.376)	0.057*** (0.014)	0.053*** (0.014)	0.044*** (0.016)	1.489*** (0.381)	1.572*** (0.377)	1.392*** (0.385)		
β_9	0.005*** (0.001)	0.005*** (0.001)	0.006*** (0.001)	0.052*** (0.018)	0.053*** (0.018)	0.052*** (0.018)	0.005** (0.002)	0.004** (0.002)	0.005** (0.002)	0.041** (0.016)	0.032** (0.015)	0.042** (0.016)		
β_{10}	-0.148*** (0.012)	-0.145*** (0.012)	-0.160*** (0.013)	-2.927*** (0.217)	-2.932*** (0.216)	-2.906*** (0.218)	-0.143*** (0.015)	-0.136*** (0.014)	-0.154*** (0.016)	-2.632*** (0.272)	-2.592*** (0.270)	-2.601*** (0.273)		
β_{11}	-0.007** (0.003)	-0.006** (0.003)	-0.008*** (0.003)	-0.019 (0.036)	-0.024 (0.036)	-0.015 (0.036)	-0.009*** (0.003)	-0.008*** (0.003)	-0.012*** (0.003)	-0.079* (0.044)	-0.064 (0.042)	-0.088** (0.044)		
β_{12}	0.035*** (0.008)	0.034*** (0.008)	0.037*** (0.008)	0.022 (0.061)	0.015 (0.061)	0.025 (0.061)	0.025*** (0.008)	0.026*** (0.007)	0.032*** (0.008)	0.110 (0.072)	0.090 (0.071)	0.119* (0.071)		
β_{13}	0.030** (0.015)	0.029** (0.014)	0.052** (0.026)	1.232*** (0.347)	1.294*** (0.349)	1.209*** (0.350)	0.097*** (0.033)	0.084*** (0.031)	0.145*** (0.037)	1.403*** (0.527)	1.506*** (0.538)	1.364*** (0.534)		
β_{14}	0.060** (0.029)	0.067** (0.029)	0.090** (0.034)	0.209 (0.316)	0.229 (0.318)	0.302 (0.316)	0.085*** (0.024)	0.096*** (0.023)	0.113*** (0.026)	0.813*** (0.280)	0.834*** (0.282)	0.881*** (0.282)		
Obs.	35,608	35,608	35,608	34,380	34,380	34,380	22,563	22,563	22,563	21,480	21,480	21,480		
N Firms	6422	6422	6422	6367	6367	6367	3972	3972	3972	3924	3924	3924		
F-Test	34.64	36.01	33.64	35.64	36.19	34.53	20.95	41.85	42.85	21.60	22.40	21.09		
Auto(2)	0.578	0.354	0.921	0.421	0.834	0.415	0.688	0.521	0.200	0.342	0.498	0.433		

(continued on next page)

Table 4 (continued)

Dep. Var. is:	Total Sample			Excluding China								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Hansen p-value	0.343	0.428	0.415	0.562	0.613	0.621	0.512	0.552	0.546	0.662	0.673	0.684
Country-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Marginal Effect</i>												
$(\partial Inv/\partial IndIO) = 0$	0.112*** (0.006)	0.108*** (0.005)	0.122*** (0.014)	0.120*** (0.013)	0.112*** (0.006)	0.110*** (0.005)	0.110*** (0.006)	0.035 (0.022)	0.037 (0.023)	0.108*** (0.006)	0.045*** (0.010)	0.108*** (0.006)
$(\partial Inv/\partial GreyIO) = 0$		0.036 (0.024)	0.035 (0.034)	0.037** (0.016)	0.039*** (0.013)							0.044*** (0.009)

Notes. This table displays the baseline investment regressions of Eq. (1) controlled by institutional ownership heterogeneity for the total sample and selected subsample that excludes China. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio. Ind stands for institutional independent investor; Grey stands for grey institutional investor; IO stands for institutional blockholder ownership. Min IO stands for minority institutional ownership. A blockholder is a shareholder with equity rights equal to or greater than 5%. CFO stands for operative cash flow to lagged total assets ratio. Complete definitions for the remaining control variables can be found in Appendix A. Overall marginal effects of independent institutional blockholder ownership reported in the bottom rows of the table. The Hansen test is a test that over-identifies restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term; robust standard errors are in parentheses; VIF stands for variance inflating factor test for multicollinearity; ***, **, * and * represent significance levels at 1%, 5%, and 10% respectively.

evidence concerning the ability of foreign investors to change corporate governance mechanisms and outcomes. Aggarwal et al. (2011) find that foreign institutional investors are more sensitive to firm-level corporate governance improvements in countries characterized by weak investor protection. The results for our sample of emerging economies show that the IO-Foreign parameter is positive in relation to investment (Cols. 1 to 4 for total investment and 5 and 6 for adjusted-investment). Our results provide evidence that foreign institutional blockholders play a monitoring role. Also, local institutional ownership proves to be the robust regressor in the model. The estimates in Table 6 show that regression coefficients are positive, ranging from 0.132 (Cols. 1 and 3) to 0.718 (Cols. 2 and 4) when nonlinear terms are included. However, this effect turns negative when local investors surpass the threshold of around 24.6% and 21.1% for total investment and industry adjusted investment, respectively.

Table 5

Institutional Investor heterogeneity, holdings horizon and firm investment ratios (GMM regressions).

Dependent Variable is:	Total Investment		Industry Adj. Total Investment		Total Investment			Industry Adj. Total Investment		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dep. Var. i_{t-1}	0.347*** (0.017)	0.342*** (0.017)	0.328*** (0.018)	0.324*** (0.018)	0.352*** (0.017)	0.351*** (0.017)	0.351*** (0.017)	0.330*** (0.018)	0.331*** (0.018)	0.328*** (0.018)
IO-Long Term $i_{i,t}$	0.266*** (0.069)	0.719*** (0.217)	2.941** (1.225)	10.630*** (3.520)						
IO-Long Term $^2_{i,t}$		-1.571** (0.735)		-26.512** (12.807)						
Min. IO-Long Term $i_{i,t}$	0.213*** (0.048)	0.246*** (0.054)	2.884*** (0.827)	3.195*** (0.888)						
IO-Short Term $i_{i,t}$	0.131*** (0.031)	0.365*** (0.120)	1.639*** (0.561)	5.023** (2.371)						
IO-Short Term $^2_{i,t}$		-1.048** (0.521)		-15.305 (10.159)						
Min. IO-Short Term $i_{i,t}$	0.207*** (0.029)	0.200*** (0.032)	3.121*** (0.499)	3.063*** (0.519)						
Ind IO-Long Term $i_{i,t}$					0.702*** (0.204)	0.281*** (0.084)	0.688*** (0.206)	11.460*** (4.247)	4.133** (1.791)	11.276*** (4.312)
Ind IO-Long Term $^2_{i,t}$					-1.623** (0.722)		-1.525** (0.725)	-33.718** (16.374)		-30.693* (16.453)
Min.Ind IO-Long Term $i_{i,t}$					0.200*** (0.051)	0.214*** (0.051)	0.208*** (0.052)	3.179*** (0.989)	3.377*** (1.003)	3.354*** (1.038)
Ind IO-Short Term $i_{i,t}$					0.319* (0.193)	0.220*** (0.085)	0.326* (0.169)	4.839** (2.248)	6.634*** (1.977)	5.408** (2.642)
Ind IO-Short Term $^2_{i,t}$					-0.576 (0.801)		-0.672 (0.836)	5.031 (22.409)		5.115 (22.741)
Min.Ind IO-Short Term $i_{i,t}$					0.195*** (0.029)	0.193*** (0.029)	0.195*** (0.029)	3.305*** (0.564)	3.224*** (0.551)	3.332*** (0.579)
Grey IO-Long Term $i_{i,t}$					0.074 (0.101)	-0.167 (0.262)	-0.120 (0.249)	-2.311 (3.933)	-6.998 (7.657)	-7.103 (7.904)
Grey IO-Long Term $^2_{i,t}$						0.745 (0.898)	0.679 (0.848)	19.790 (25.005)	18.648 (26.342)	
Min Grey IO LongTerm $i_{i,t}$					0.304** (0.122)	0.384*** (0.123)	0.334*** (0.126)	9.050* (5.533)	4.387* (8.426)	10.277* (5.520)
Grey IO-Short Term $i_{i,t}$					0.374** (0.186)	0.669* (0.370)	0.455 (0.365)	3.850 (10.606)	5.187 (11.207)	3.991 (11.313)
Grey IO-Short Term $^2_{i,t}$						-0.765 (1.442)	-0.313 (1.423)	18.731 (55.323)	17.656 (54.354)	
Min Grey IO ShortTerm $i_{i,t}$					0.307*** (0.101)	0.314*** (0.104)	0.324*** (0.105)	4.504* (2.730)	4.447* (2.358)	4.970* (2.999)
Obs.	35,608	35,608	34,380	34,380	35,608	35,608	35,608	34,380	34,380	34,380
N° Firms	6422	6422	6367	6367	6422	6422	6422	6367	6367	6367
F-Test	119.9	98.84	34.93	31.37	32.40	113.6	105.7	26.65	27.66	25.44
Auto(2)	0.175	0.258	0.134	0.153	0.170	0.110	0.158	0.250	0.117	0.242
Hansen p-value	0.415	0.472	0.554	0.576	0.316	0.372	0.411	0.616	0.605	0.633
Country-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Marginal Effect</i>										
$(\partial Inv/\partial IOwnLT) = 0$		0.229*** (0.050)		0.200*** (0.043)						
$(\partial Inv/\partial IOwnST) = 0$		0.174*** (0.037)		0.164*** (0.039)						

(continued on next page)

Table 5 (continued)

Dependent Variable is:	Total Investment		Industry Adj. Total Investment		Total Investment		Industry Adj. Total Investment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$(\partial Inv/\partial IndIOLT) = 0$					0.216*** (0.047)		0.226*** (0.054)	0.170*** (0.038)		0.184*** (0.047)
$(\partial Inv/\partial IndIOST) = 0$					0.277 (0.252)		0.242 (0.186)	-0.481 (2.633)		-0.529 (2.840)
$(\partial Inv/\partial GreyIOLT) = 0$						0.112 (0.083)	0.089 (0.099)		0.177 (0.115)	0.190 (0.133)
$(\partial Inv/\partial GreyIOST) = 0$						0.437 (0.622)	0.726 (2.811)		-0.138 (0.681)	-0.113 (0.642)

Notes. This table displays the baseline investment regressions of Eq. 1 controlled by institutional investor holdings horizon and heterogeneity for the total sample. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio. Short term investor refers to institutional shareholders that exit within a year; Long term investor refers to an institutional shareholder that lasts at least 2 years; Ind stands for institutional independent investor; Grey stands for grey institutional investor; IO stands for institutional blockholder ownership. Min IO stands for minority institutional ownership. A blockholder is a shareholder with equity rights equal to or greater than 5%. Complete definitions for the remaining control variables can be found in Appendix A. Overall marginal effects for total institutional blockholder ownership by institutional blockholder investor heterogeneity and by holdings horizon are reported in the bottom rows of the table. The Hansen test is a test that over-identifies restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term; robust std. errors are in parentheses; ***, **, and * represent significance levels at 1%, 5%, and 10% respectively.

4. Heterogeneity

4.1. Cross sectional analysis

This section shows a cross sectional test as a complementary estimate to test the robustness of our baseline regression outcomes. Previous regressions estimated the average impact of institutional investors on firm investment rates. The evidence thus far suggests that institutional investors are relevant to corporate investment levels in emerging economies. These effects can be more fully observed by examining whether the influence of institutional investors retains the direction and size for different samples of firms. We expect institutional investors to have a greater effect in firms that face agency problems and/or are more highly exposed to financial constraints.

Based on prior corporate finance literature, we performed cross-test regressions that show that some firms are more prone to overinvest, to underinvest, or to be informationally opaque (Almeida and Campello, 2007). The literature suggests that in certain circumstances, managers have incentives to overinvest in real assets. Overinvestment, in turn, is related to excess free cash flow, which, in general, is more common in larger firms, those that have more fixed assets, and those that lack growth opportunities (D'Mello and Miranda, 2010; Gordon and Myers, 1998; Office, MS, 2011). If institutional investors effectively monitor firm managers who are more prone to overinvest, the relation between investment and institutional blockholder ownership should be negative.

Conversely, it is well-documented within corporate finance literature that underinvestment problems arise from risky debt. Firms with higher levels of leverage are more constrained and thus more prone to underinvest due to higher bankruptcy costs (Dirk et al., 2007; Morgado and Pindado, 2003). In this case, institutional investors can be motivated by two-fold incentives, depending on their level of ownership holdings. On the one hand, if monitoring incentives dominate, institutional investors will demand greater investment spending in firms that underinvest; therefore, the relationship between institutional ownership and corporate investment is positive. On the other hand, if institutional investors' intention is to extract private benefits, then the underinvestment problem is intensified, and the relation between investment and institutional ownership should be negative.

Prior research has used asset tangibility as a proxy for opacity (Almeida and Campello, 2007; Ratti et al., 2008). Firms with low asset tangibility are associated with higher asymmetric information. Institutional investors play a crucial role in monitoring and reducing asymmetric information. The literature suggests that institutional investors reduce asymmetric information by demanding high quality in corporate governance practices and information disclosure that leads to informed decisions on investment choices. Consequently, the presence of institutional investors should positively affect investment in firms with lower tangibility.

Table 7 provides the main results of the cross-sectional tests that split the sample according to firm size, leverage, and asset tangibility, which, respectively, represent heterogeneity in firms' financial constraints. Small (large) firms are defined as firms whose average size, measured by assets, is lower (higher) than the median size of the corresponding country. High (low) leverage firms are defined as those whose average leverage, measured by debt to assets ratio, is over (under) the median size of the corresponding country. Lower (higher) asset tangibility firms are defined as firms whose average fixed assets over total assets ratio is lower (higher) than the median size of the corresponding country.

Using the industry adjusted investment as the dependent variable, the results in Table 7 are consistent with the predicted relations. For the sample of large firms, higher levels of institutional ownership restrict overinvestment. Specifically, the regression

Table 6
Foreign/domestic institutional investors and firm investment (GMM regressions).

Dep. Var. is:	Total Investment				Industry Adj. Total Investment				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Dep. Var. $i_{i,t-1}$	β_1	0.357*** (0.016)	0.357*** (0.016)	0.356*** (0.016)	0.357*** (0.016)	0.287*** (0.018)	0.282*** (0.018)	0.286*** (0.018)	0.281*** (0.018)
IO-Local $i_{i,t}$	β_2	0.132*** (0.026)	0.352*** (0.104)	0.132*** (0.026)	0.354*** (0.104)	2.804*** (0.611)	9.808*** (2.908)	2.818*** (0.614)	9.756*** (2.909)
IO-Local $^2_{i,t}$	β_3		-0.713** (0.328)		-0.718** (0.329)		-23.392** (9.814)		-23.162** (9.817)
Min. IO-Local $i_{i,t}$	β_4	0.186*** (0.029)	0.174*** (0.030)	0.186*** (0.029)	0.174*** (0.030)	14.042*** (2.016)	14.184*** (2.067)	13.958*** (2.026)	14.107*** (2.077)
IO-Foreign $i_{i,t}$	β_5	0.324*** (0.123)	0.352*** (0.128)	0.508** (0.232)	0.489** (0.244)	1.786** (0.781)	1.674** (0.823)	2.463 (3.720)	2.603 (3.871)
IO-Foreign $^2_{i,t}$	β_6			-0.804 (0.910)	-0.591 (1.004)			-6.878 (15.167)	-7.900 (15.995)
Min. IO-Foreign $i_{i,t}$	β_7	0.262*** (0.070)	0.257*** (0.071)	0.269*** (0.071)	0.261*** (0.072)	9.244*** (2.620)	9.453*** (2.643)	9.377*** (2.654)	9.629*** (2.682)
CFO $i_{i,t}$	β_8	0.067*** (0.011)	0.066*** (0.011)	0.067*** (0.011)	0.065*** (0.011)	1.601*** (0.522)	1.470*** (0.541)	1.564*** (0.529)	1.432*** (0.547)
Tobin's Q $i_{i,t-1}$	β_9	0.006*** (0.001)	0.006*** (0.001)	0.006*** (0.001)	0.006*** (0.001)	0.127*** (0.023)	0.132*** (0.024)	0.126*** (0.023)	0.131*** (0.024)
Debt $i_{i,t-1}$	β_{10}	-0.139*** (0.012)	-0.138*** (0.012)	-0.139*** (0.012)	-0.138*** (0.012)	-3.352*** (0.263)	-3.363*** (0.265)	-3.338*** (0.264)	-3.347*** (0.267)
Size $i_{i,t-1}$	β_{11}	-0.014*** (0.003)	-0.016*** (0.003)	-0.014*** (0.003)	-0.016*** (0.003)	-0.214*** (0.053)	-0.234*** (0.054)	-0.217*** (0.054)	-0.238*** (0.055)
Sales $i_{i,t-1}$	β_{12}	0.036*** (0.008)	0.036*** (0.008)	0.036*** (0.008)	0.036*** (0.008)	0.006 (0.066)	0.014 (0.066)	0.007 (0.066)	0.014 (0.066)
Cash $i_{i,t-1}$	β_{13}	0.042** (0.021)	0.043* (0.025)	0.042** (0.020)	0.044** (0.021)	1.801*** (0.481)	1.918*** (0.498)	1.800*** (0.482)	1.916*** (0.498)
Index $i_{i,t-1}$	β_{14}	0.107*** (0.028)	0.113*** (0.029)	0.104*** (0.028)	0.111*** (0.029)	0.874* (0.448)	1.052** (0.484)	0.874* (0.447)	1.047** (0.483)
Obs.		35,608	35,608	35,608	35,608	34,380	34,380	34,380	34,380
N° Firms		6422	6422	6422	6422	6367	6367	6367	6367
F-Test		28.4	24.1	25.3	21.2	33.13	31.46	31.97	30.39
Auto(2)		0.582	0.662	0.617	0.691	0.707	0.876	0.721	0.793
Hansen p-value		0.583	0.627	0.572	0.612	0.459	0.492	0.475	0.522
Country-Year FE		YES	YES	YES	YES	YES	YES	YES	YES
Industry FE		YES	YES	YES	YES	YES	YES	YES	YES
<i>Marginal Effect</i>									
$(\partial Inv/\partial IO - Local) = 0$									
			0.247*** (0.047)		0.246*** (0.047)		0.210*** (0.032)		0.211*** (0.032)
$(\partial Inv/\partial IO - Foreign) = 0$									
				0.316 (0.246)	0.414 (0.538)			0.179 (0.142)	0.165 (0.108)

Notes. This table displays the baseline investment regressions of Eq. (1) controlled by institutional investor geographical origin. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio. Local stands for institutional ownership held by domestic investors. Foreign stands for non-resident institutional investors. IO stands for institutional blockholder ownership. Min IO stands for minority institutional ownership. A blockholder is a shareholder with equity rights equal to or greater than 5%. Complete definitions for the remaining control variables can be found in Appendix A. Overall marginal effects for total institutional blockholders by geographical origin are reported in the bottom rows of the table. The Hansen test is a test that over-identifies restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term; robust standard errors are in parentheses; ***, **, and * represent significance levels at 1%, 5%, and 10% respectively.

coefficients in Column 2 show that the parameters are positive for $IOWn$ and negative for $IOWn^2$ with values of 8.806 (S.E. = 3.156) and -21.07 (S.E. = 9.983), respectively. These findings reconfirm the inverse U-shaped relation between institutional ownership and investment from the baseline regressions: up to a threshold of equity ownership, institutional investors have an incentive to attenuate agency problems related to overinvestment.

The regression results in Column 4 show that institutional investors can aggravate underinvestment problems in high-leveraged firms, which is consistent with the notion that some institutional investors have incentives to extract private benefits. Lower levels of institutional ownership positively affect firm investment ratios. However, when institutional investor holdings exceed 24%, the investment turns negative, suggesting underinvestment. Our results also suggest that institutional investors may influence investment in firms that have greater tangibility. For instance, the regression estimates in Column 6 show that the effect of institutional investors is nonlinear with an inverse U-shaped pattern. Specifically, the threshold is around 25%. For low tangibility firms, the effect of institutional blockholder ownership is not conclusive. Minority institutional shareholders seem to have a positive effect on

Table 7
Institutional ownership and firm investment – Cross test samples (GMM regressions).

Dep. Var. is:	Industry Adj. Total Investment						
		Small Size	Large Size	Leverage: Low	Leverage: High	Tangibility Low	Tangibility High
		(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var. i_{t-1}	β_1	0.292*** (0.023)	0.351*** (0.027)	0.279*** (0.023)	0.314*** (0.026)	0.247*** (0.024)	0.313*** (0.026)
IOwn i_{t-1}	β_2	1.830 (2.607)	8.806*** (3.156)	0.393 (2.118)	9.749*** (3.460)	3.258 (2.074)	8.994*** (3.056)
IOwn ² i_{t-1}	β_3	-2.234 (7.995)	-21.074** (9.983)	1.219 (6.489)	-19.800* (11.157)	-6.357 (5.659)	-17.348* (9.189)
Min. IOwn i_{t-1}	β_4	13.394*** (2.384)	3.720** (1.592)	8.223*** (1.876)	13.992*** (2.411)	9.364*** (1.687)	12.436*** (2.270)
CFO i_{t-1}	β_5	1.323** (0.657)	1.498** (0.619)	2.155*** (0.601)	1.357* (0.719)	1.008* (0.564)	1.235 (0.866)
Tobin's Q i_{t-1}	β_6	0.123*** (0.026)	0.070* (0.038)	0.051** (0.024)	0.207*** (0.037)	0.057** (0.024)	0.157*** (0.035)
Debt i_{t-1}	β_7	-3.248*** (0.356)	-3.086*** (0.337)	-3.819*** (0.354)	-2.979*** (0.353)	-2.431*** (0.303)	-3.709*** (0.410)
Size i_{t-1}	β_8	-0.343*** (0.086)	-0.299*** (0.066)	-0.091 (0.067)	-0.276 (0.172)	-0.154 (0.129)	-0.296 (0.183)
Sales i_{t-1}	β_9	0.051 (0.094)	0.033 (0.082)	0.136* (0.081)	0.141 (0.092)	0.003 (0.072)	0.272 (0.222)
Cash i_{t-1}	β_{10}	2.202*** (0.561)	2.997*** (0.692)	1.399*** (0.442)	2.008** (1.006)	1.149** (0.484)	2.076** (1.017)
Index i_{t-1}	β_{11}	-0.810 (1.450)	0.663 (0.409)	0.663 (0.583)	1.018* (0.599)	0.655 (0.513)	0.706 (0.643)
Obs.		16,319	18,061	17,229	17,151	17,104	17,276
N° Firms		3392	2975	3267	3100	3302	3065
F-Test		18.10	21.84	18.60	21.40	13.29	25.46
Auto(2)		0.853	0.0653	0.932	0.185	0.312	0.814
Hansen p-value		YES	YES	YES	YES	YES	YES
Country-Year FE		YES	YES	YES	YES	YES	YES
Industry FE		0.415	0.313	0.512	0.456	0.541	0.472
Marginal Effect ($\partial \ln v / \partial IOwn$) = 0		0.410 (0.913)	0.209*** (0.030)	-0.161 (1.712)	0.246*** (0.059)	0.256*** (0.081)	0.259*** (0.059)

Notes. This table displays the baseline investment regressions of Eq. 1 splitting the sample by firm size, capital structure and asset tangibility. All subsamples are defined according to the median value for each country. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio. IOwn stands for institutional blockholder ownership. Min IOwn stands for minority institutional ownership. A blockholder is a shareholder with equity rights equal to or greater than 5%. CFO stands for operative cash flow to lagged total assets ratio. Complete definitions for the remaining control variables can be found in Appendix A. Overall marginal effect of institutional blockholder ownership reported at the bottom row in the table. The Hansen test is a test that over-identifies restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term; robust standard errors are in parentheses; ***, **, and * represent significance levels at 1%, 5%, and 10% respectively.

investment, which might be explained by their tendency to adopt investment strategies in markets that have some stock liquidity restrictions or which implement trade-exit strategies.

Table 8 provides the main results of the cross-sectional analysis on the investment cash flow sensitivity regressions tests that split the sample according to firm size, leverage, and asset tangibility. Specifically, Column 5 suggests that institutional blockholders have incentives to reduce asymmetric information in firms that might display more informational asymmetries. The coefficient of CFO is positive (1.902, S.E. = 0.468) and statistically significant at the 1% level. Moreover, the CFO * IOwn parameter is negative (-25.847, S.E. = 7.897). Measured at the sample average of IOwn, the marginal effect indicates that the cash flow sensitivity is reduced to 1.009. Thus, our findings suggest that institutional blockholders reduce firms' financial constraints in firms with lower levels of tangible collaterals. These findings show that firms become less credit rationed by financial borrowers because, in general, institutional investors are concerned with raising corporate governance standards and demanding greater information disclosure (Bird and Karolyi, 2016).¹⁸

¹⁸ Supplementary online appendix provides OLS estimation as a robustness check, yielding similar results to those in Table 8.

Table 8
Institutional ownership and investment-cash flow sensitivity Cross test samples (GMM regressions).

Dep. Var. is:	Industry Adj. Total Investment						
		Small Size	Large Size	Leverage: Low	Leverage: High	Tangibility Low	Tangibility High
		(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var. i_{t-1}	β_1	0.312*** (0.022)	0.397*** (0.024)	0.298*** (0.022)	0.484*** (0.024)	0.278*** (0.023)	0.467*** (0.022)
IOwn i_{t-1}	β_2	2.531*** (0.898)	3.165*** (0.645)	1.716** (0.708)	0.034 (0.701)	2.646*** (0.677)	1.084 (0.823)
CFO x IOwn i_{t-1}	β_3	-23.150** (10.741)	-23.265*** (7.881)	-16.258** (6.600)	-6.360 (9.397)	-25.847*** (7.897)	13.028 (9.057)
Min. IOwn i_{t-1}	β_4	2.179*** (0.679)	1.909*** (0.574)	1.632*** (0.607)	2.522*** (0.707)	2.061*** (0.508)	1.705** (0.724)
CFO i_{t-1}	β_5	2.204*** (0.653)	2.451*** (0.579)	2.835*** (0.534)	3.919*** (0.647)	1.902*** (0.468)	3.755*** (0.668)
Tobin's Q i_{t-1}	β_6	0.048** (0.020)	0.063** (0.026)	0.042** (0.017)	0.089*** (0.024)	0.031* (0.018)	0.047** (0.023)
Debt i_{t-1}	β_7	-2.914*** (0.316)	-2.335*** (0.282)	-3.320*** (0.312)	-2.755*** (0.398)	-2.003*** (0.254)	-2.533*** (0.306)
Size i_{t-1}	β_8	-0.156** (0.072)	-0.214*** (0.051)	-0.011 (0.051)	-0.034 (0.024)	-0.004 (0.042)	-0.023 (0.024)
Sales i_{t-1}	β_9	0.149* (0.085)	0.042 (0.070)	0.083 (0.076)	0.046 (0.056)	0.040 (0.062)	0.043 (0.064)
Cash i_{t-1}	β_{10}	1.143*** (0.431)	2.253*** (0.517)	0.847** (0.365)	1.968*** (0.617)	1.133*** (0.364)	1.274** (0.612)
Index i_{t-1}	β_{11}	0.059 (0.699)	0.551** (0.255)	0.040 (0.482)	0.015 (0.309)	0.290 (0.384)	0.782 (0.559)
Obs.		16,319	18,061	17,229	17,151	17,104	17,276
N° Firms		3392	2975	3267	3100	3302	3065
F-Test		19.16	27.55	21.50	32.23	17.22	39.62
Auto(2)		0.251	0.816	0.397	0.307	0.807	0.683
Hansen p-value		0.622	0.714	0.734	0.685	0.553	0.526
Country-Year FE		YES	YES	YES	YES	YES	YES
Industry FE		YES	YES	YES	YES	YES	YES
Marginal Effect							
$\beta_6 + \beta_4 * IOwn$		1.678*** (0.549)	1.444*** (0.484)	2.254*** (0.474)	3.720*** (0.569)	1.009** (0.408)	4.178*** (0.648)

Notes. This table displays the baseline investment regressions of Eq. (1) splitting the sample by firm size, capital structure and asset tangibility. All subsamples are defined according to the median value for each country. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio. IOwn stands for institutional blockholder ownership. Min IOwn stands for minority institutional ownership. A blockholder is a shareholder with equity rights equal to or greater than 5%. CFO stands for operative cash flow to lagged total assets ratio. Complete definitions for the remaining control variables can be found in Appendix A. Overall marginal effect of CFO is reported at the bottom row in the table. The Hansen test is a test that over-identifies restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term; robust standard errors are in parentheses;***, **, and * represent significance levels at 1%, 5%, and 10% respectively.

4.2. Heterogeneity based on country characteristics

This section explores the multi-country dataset under analysis. Clearly, there are broad national differences across governance regimes in the sample countries. Assessment of the effects of institutional ownership may be shaped by the country's macro conditions such as the quality of its institutions and regulatory control, all of which affects overall levels of investor protection and might vary across governance regimes. We follow the approach of La Porta et al. (1998) and incorporate levels of shareholder protection that reveal the moderating effects that said macro institutional variables have on investment levels by institutional investors as blockholders.

Table 9 explores some possible institutional moderating factors that may actually induce a clearer separation of the institutional investor's role in influencing investment decisions and reducing financial constraints. To do so we introduce interactions of our main variable of interest – $Iown$, $Iown^2$, CFO – with institutional factors that proxy for investor protection –i.e., Regulatory Quality, Rule of Law, and Legal Origin–. Yet we find no significant coefficient for those interactions with $Iown$ and $Iown^2$ (Cols. 1, 2, 4 and 5). Overall, there seems to be no clear pattern across countries regarding the moderating effect of institutional development in attenuating the linear relationship between institutional blockholders and investment.

However, our results suggest that institutional blockholders do reduce financial constraints but that this effect is attenuated by the quality of institutions (Cols. 3 and 6). The standard CFO coefficient is positive and statistically significant. Consequently, the

Table 9
Institutional ownership, country corporate governance and firm investment (GMM regressions).

Dep. Var. is:	Industry Adj. Total Investment									
X _{i,t} is:	Regulatory Quality			Rule of Law			Civil Law Dummy			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Dep. Var. i _t -1	β_1	0.367*** (0.018)	0.347*** (0.019)	0.333*** (0.016)	0.359*** (0.019)	0.357*** (0.019)	0.337*** (0.017)	0.376*** (0.026)	0.377*** (0.026)	0.335*** (0.017)
IOwn _{i,t}	β_2	10.934*** (3.702)	9.950** (4.281)	4.488*** (1.203)	5.665** (2.525)	6.819** (2.857)	4.019*** (0.864)	8.130** (3.799)	7.504* (3.866)	4.139*** (0.862)
IOwn _{i,t} * X _{i,t}	β_3	-2.375 (4.803)	3.734 (6.333)	-2.121 (2.006)	-4.924 (3.423)	-2.100 (3.896)	-1.613 (1.643)	11.828 (9.736)	11.976 (9.772)	1.016 (1.195)
IOwn _{i,t} ²	β_4	-23.138** (10.649)	-23.966** (12.071)		-15.208** (7.632)	-21.326** (8.746)		-25.830*** (9.767)	-23.631** (9.974)	
IOwn _{i,t} ² * X _{i,t}	β_5	11.722 (12.762)	5.361 (17.904)		14.374 (9.757)	9.253 (11.573)		-16.482 (26.174)	-18.497 (26.472)	
Min. IOwn _{i,t}	β_6	2.336*** (0.526)	5.003*** (0.889)	3.474*** (0.490)	2.256*** (0.507)	4.871*** (0.629)	3.235*** (0.491)	0.730 (0.903)	1.639 (1.149)	3.342*** (0.506)
Min. IOwn _{i,t} * X _{i,t}	β_7		-13.878*** (3.171)			-12.863** (2.045)			-9.751 (6.814)	
CFO _{i,t}	β_8	1.956*** (0.466)	2.227*** (0.530)	2.623*** (0.447)	2.854*** (0.471)	3.137*** (0.486)	1.982*** (0.307)	3.621*** (0.588)	3.658*** (0.587)	1.327*** (0.354)
CFO _{i,t} * IOwn _{i,t}	β_9			-62.748*** (12.807)			-36.641*** (9.511)			-33.433*** (9.654)
CFO _{i,t} * IOwn _{i,t} * X _{i,t}	β_{10}			68.345*** (17.398)			34.724** (14.462)			-2.614 (17.641)
CFO _{i,t} * X _{i,t}	β_{11}			-3.178*** (1.185)			-1.746* (1.033)			9.195*** (3.056)
Obs.		34,380	34,380	34,380	34,380	34,380	34,380	34,380	34,380	34,380
N° Firms		6367	6367	6367	6367	6367	6367	6367	6367	6367
F-Test		32.93	29.99	37.68	30.92	29.54	35.46	20.48	20.16	34.84
Auto(2)		0.460	0.278	0.496	0.287	0.451	0.332	0.500	0.509	0.225
Hansen p-value		0.371	0.326	0.432	0.215	0.205	0.294	0.241	0.236	0.428
Country-Year FE		YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE		YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Marginal Effect</i>										
$\beta_2 + \beta_3 * X_{i,t}$		10.197*** (2.912)	11.109*** (3.397)		4.992** (2.343)	6.532** (2.632)		19.958** (8.983)	19.479** (8.982)	
$\beta_4 + \beta_5 * X_{i,t}$		-19.500** (8.639)	-22.302** (10.062)		-13.245* (7.255)	-20.062** (8.237)		-42.312* (25.336)	-42.128* (25.482)	
$\beta_8 + \beta_9 * IOwn_{i,t}$				0.518 (0.496)			0.758** (0.295)			0.210 (0.295)
$\beta_8 + \beta_9 * IOwn_{i,t}$ $+ \beta_{10} * IOwn_{i,t} * X_{i,t}$				1.229*** (0.438)			0.917*** (0.273)			0.122 (0.651)

Notes: This table displays the baseline investment regressions of Eq. 1 including the interacting term of a country's corporate governance proxies with institutional ownership. Country's investor protection variables are regulatory quality, rule of law and civil law dummy. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio. IOwn stands for institutional blockholder ownership. Min IOwn stands for minority institutional ownership. A blockholder is a shareholder with equity rights equal to or greater than 5%. CFO stands for operative cash flow to lagged total assets ratio. Complete definitions for the remaining control variables can be found in Appendix A. Overall marginal effects on country corporate governance variables are at the bottom rows in the table. The Hansen test is a test that over-identifies restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term; robust standard errors are in parentheses; ***, **, and * represent significance levels at 1%, 5%, and 10% respectively.

parameters of the interacted term $CFO \times IOwn$ are negative and statistically significant but are counterbalanced by the positive effect of the interacted term $CFO \times IOwn \times Rule\ of\ Law$ (Col. 3) and $CFO \times IOwn \times Regulatory\ Quality$ (Col. 6). Thus, the better a country's institutions, the smaller the effect of institutional blockholders in reducing financial constraints. This result suggests that institutional investors reduce more financial constraints in institutional settings that provide weaker investor protection. These results are consistent with the arguments related to the role of institutional investors in improving corporate governance by spending resources to engage in monitoring activities (Chung et al., 2002; Hartzell et al., 2014) and reduce asymmetric information, particularly in institutional settings in which investors' rights are not fully protected.¹⁹ The moderating effect of minority institutional

¹⁹ The online supplementary material provides the OLS estimations, yielding similar results.

ownership explained by institutional quality also increases corporate investment. In particular, the marginal effect evaluated as the mean of regulatory quality and rule of law are both positive, and regression coefficients are statistically significant at the 5% level. Finally, with regards the legal system origin, the civil law dummy has no role in moderating the effect of institutional ownership: regression coefficients are not statistically different to zero.

5. Conclusions

This article examines the effect of institutional blockholders on firms' current investment ratios and firm dependency on internal liquidity to fund investment spending. Results show that institutional ownership boosts firm investment ratios when institutional blockholders do not have absolute control. Thus, the relationship between firm investment and institutional holdings is nonlinear and follows an inverse U-shaped pattern. When institutional blockholders surpass the threshold of 22% control rights, their investment rates even out and decrease. This behaviour suggests that a large fraction of firms' equity in the hands of institutional investors motivates long-term investments that curb firms' capital spending, thus controlling potential overinvestment. In contrast, when institutional blockholders hold a short-run investment position, firms' current investment ratios reflect pressure to produce short-run returns. This result is reinforced by including the number of institutional blockholders instead of institutional ownership. The main finding is that coordination problems arise when there are three or more institutional investors as blockholders.

Minority institutional investors are also important in explaining corporate investment rates. The margin of minority institutional ownership on total investment ratio is, on average, 18.5%, yielding similar size effects to their blockholder peers.

Analysis of investor heterogeneity confirms that independent and local investors explain the effect of blockholder institutional ownership. These investors have more incentives to monitor firms and use their voice to control firms' investment policy. Grey investors are passive in monitoring investment policy, suggesting that their business relations with the firm in which they invest are management-policy friendly. The institutional blockholder contestability analysis shows that institutional blockholders actively monitor the largest shareholder in order to avoid potential diversion of rents and cash flow tunnelling.

The cash flow sensitivity analysis shows that, overall, institutional ownership reduces firm dependence on internal operating cash flow to fund current capital expenditure. This finding is consistent with the monitoring hypothesis and the reduction of information asymmetries among stakeholders. Furthermore, the presence of institutional investors is a positive sign of higher credit access and internal corporate governance standards for private investors.

The results related with the country's corporate governance regimes show that, unless the rule of law or regulatory quality improves, this has a second order effect on the moderating role that institutional blockholders play in reducing firms' financial constraints. The better the institutional quality, the lower the need for institutional blockholders to spend resources in reducing agency costs. In sum, our results extend the empirical evidence on the central role that institutional investors play in emerging markets in boosting firm investment and firm growth opportunities.

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Appendix A. Variable definition

Abbreviation	Variable	Definition
Investment variables		
Inv _{i,t-1}	Investment ratio	Total Investment ratio is the sum of capital expenditures, R&D expenses and acquisitions minus sales of fixed assets scaled up to lagged total assets (<i>t</i> -1).
Inv. Adj.	Industry adjusted-investment ratio	Industry adjusted ratio is the relation between the investment ratio over the industry-country median of the investment ratio
Institutional ownership related variables		
IOwn	Blockholder institutional ownership	Proportion of shares owned by institutional blockholder investors
Min. IOwn	Minority institutional ownership	Proportion of shares owned by minority blockholder investors
Ln(<i>n</i> ^{Inst.B.})	Log of number of blockholders	Number of blockholders
IndIO	Blockholder independent institutional ownership	Proportion of shares owned by independent institutional blockholders
Min. IndIO	Minority independent institutional ownership	Proportion of shares owned by minority independent investors

GreyIO	Blockholder grey institutional ownership	Proportion of shares owned by independent institutional blockholders
Min. GreyIO	Minority grey institutional ownership	Proportion of shares owned by minority grey investors
IO-Long Term	Blockholder long term institutional ownership	Proportion of shares owned by institutional blockholders who remain for at least two years
Min. IO-Long Term	Minority long term institutional ownership	Proportion of shares owned by minority long term investors who remain for at least two years
IO-Short Term	Blockholder short term institutional ownership	Proportion of shares owned by institutional blockholders who exit within 1 year
Min. IO-Short Term	Minority short term institutional ownership	Proportion of shares owned by minority short term investors who exit within 1 year
IndIO-long term	Independent Blockholder long term institutional ownership	Proportion of shares owned by institutional independent blockholders who remain for at least two years
Min. IndIO-long term	Minority long term independent institutional ownership	Proportion of shares owned by minority long term independent investors who remain for at least two years
Ind IO-short term	Independent Blockholder short term institutional ownership	Proportion of shares owned by institutional independent blockholders who exit within 1 year
Min. IO-short term	Minority short term independent institutional ownership	Proportion of shares owned by minority independent investors who exit within 1 year
GreyIO-long term	grey Blockholder long term institutional ownership	Proportion of shares owned by institutional grey blockholders who remain for at least two years
Min. GreyIO-long term	Minority long term grey institutional ownership	Proportion of shares owned by minority long term grey investors who remain for at least two years
GreyIO-short term	grey Blockholder short term institutional ownership	Proportion of shares owned by institutional grey blockholders who exit within 1 year
Min. GreyIO-long term	Minority short term grey institutional ownership	Proportion of shares owned by minority grey investors who exit within 1 year
Firm level financial variables		
CFO	Operating Cash flow	Cash Flow from operating activities of year t over total assets at the beginning of period $(t-1)$
Tobin's Q	Tobin's Q	(Market capitalization + Total debt)/Total asset book value
Size	Size	Natural logarithm of total assets
Debt	Debt ratio	Total debt to total assets
Cash	Cash ratio	Cash and equivalents over total assets
Sales	Sales ratio	Net Sales to total assets
P1	Cash Flow Rights	Cash Flow Rights of the largest Shareholder
Index	Local Index Dummy	Takes value 1 if firm belongs to the most traded local market index at year t .
Moderating variables		
Tangibility	Assets tangibility	Ratio of property, plants, and equipment over total assets
Medtandf	Dummy firm-country asset tangibility	1 if firm tangibility is over the year-country-industry median (unrestricted), and zero otherwise (opaque)
Meddebt	Dummy Debt industry assets tangibility	1 if firm debt ratio is over the year-country-industry median (unrestricted), and zero otherwise (opaque)
Medsize	Dummy size	1 if firm size is over the year-country-industry median (unrestricted), and zero otherwise (restricted)
Country, Industry, and Year		
Rule of law		Rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
Regulatory Quality		Measures the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
Civil Law Dummy		Dummy variable that takes the value of 1 if country's legal system comes from French origin, zero otherwise
Country-Year FE	Country-year fixed effects	Set of year-country dummies
Industry FE	Industrial Dummies	Set of Thomson Reuters TRBC Business classification industrial code

Sources: Firm level variables data from Thomson's Eikon (Datatream) and S&P Capital IQ. Country level variables: Wold Bank - WGI Indicators.

Appendix B. Descriptive statistics by country 2004–2016 (Mean values and standard deviation)

	Brazil		Chile		China		Colombia		Greece			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Investment ratios, total institutional ownership and number of blockholders												
Inv.	0.067	0.068	0.060	0.058	0.081	0.077	0.057	0.054	0.046	0.062		
Inv. Adj.	1.249	1.173	1.302	1.173	1.344	1.241	1.339	1.073	1.409	1.457		
IOwn	0.109	0.142	0.045	0.081	0.015	0.050	0.064	0.106	0.018	0.050		
Min. IOwn	0.070	0.056	0.069	0.061	0.045	0.052	0.052	0.045	0.031	0.046		
Ln(n°Inst.B.)	0.570	0.575	0.309	0.448	0.106	0.296	0.390	0.483	0.147	0.344		
Institutional ownership colours - blockholders and minorities												
IndIO	0.062	0.084	0.035	0.064	0.012	0.038	0.003	0.013	0.017	0.046		
Min. IndIO	0.061	0.048	0.052	0.047	0.039	0.044	0.007	0.012	0.028	0.040		
GreyIO	0.009	0.031	0.004	0.017	0.001	0.007	0.030	0.043	0.000	0.005		
Min. GreyIO	0.006	0.010	0.010	0.018	0.002	0.005	0.026	0.027	0.001	0.003		
Institutional ownership colours by holdings horizon- blockholders and minorities												
IO-Long Term	0.080	0.123	0.035	0.070	0.009	0.037	0.057	0.103	0.014	0.042		
Min. IO-Long Term	0.020	0.025	0.035	0.041	0.008	0.017	0.034	0.041	0.013	0.021		
IO-Short Term	0.029	0.064	0.011	0.040	0.006	0.027	0.007	0.020	0.005	0.022		
Min. IO-Short Term	0.050	0.050	0.034	0.045	0.037	0.045	0.018	0.027	0.018	0.034		
IndIO-long term	0.060	0.106	0.030	0.064	0.008	0.036	0.023	0.084	0.013	0.041		
Min. IndIO-long term	0.018	0.023	0.027	0.034	0.008	0.016	0.003	0.006	0.013	0.021		
Ind IO-short term	0.027	0.061	0.010	0.038	0.006	0.027	0.001	0.006	0.004	0.021		
Min. IO-short term	0.046	0.047	0.027	0.038	0.035	0.045	0.005	0.010	0.017	0.033		
GreyIO-long term	0.020	0.067	0.005	0.026	0.001	0.010	0.035	0.057	0.001	0.011		
Min. GreyIO-long term	0.002	0.008	0.008	0.018	0.000	0.003	0.031	0.039	0.000	0.001		
GreyIO-short term	0.002	0.015	0.001	0.009	0.000	0.004	0.006	0.019	0.000	0.004		
Min. GreyIO-long term	0.004	0.008	0.007	0.017	0.001	0.005	0.013	0.024	0.001	0.003		
Institutional ownership by geographical origin - blockholders and minorities												
IO-Foreign	0.029	0.061	0.003	0.026	0.005	0.031	0.003	0.012	0.015	0.047		
Min. IO-Foreign	0.037	0.043	0.007	0.017	0.007	0.025	0.006	0.013	0.018	0.039		
IO-Local	0.080	0.131	0.042	0.077	0.009	0.035	0.061	0.103	0.003	0.017		
Min. IO-Local	0.032	0.034	0.062	0.054	0.038	0.046	0.046	0.042	0.013	0.023		
Control variables												
CFO	0.085	0.090	0.082	0.086	0.059	0.087	0.079	0.068	0.042	0.077		
Tobin's Q	1.370	0.824	1.252	0.564	2.143	1.268	1.226	0.469	1.035	0.456		
Debt	0.286	0.166	0.236	0.140	0.230	0.173	0.221	0.152	0.312	0.178		
Size	20.873	1.430	20.072	1.702	19.971	1.238	21.121	1.676	19.241	1.453		
Sales	0.765	0.452	0.683	0.431	0.689	0.461	0.436	0.225	0.683	0.454		
Cash	0.139	0.105	0.074	0.077	0.181	0.134	0.059	0.050	0.089	0.095		
Index	0.265	0.442	0.307	0.461	0.019	0.137	0.349	0.479	0.286	0.452		
Rule of Law	-0.110	0.121	1.270	0.066	-0.450	0.101	-0.320	0.053	0.567	0.238		
Reg. Quality	0.005	0.130	1.452	0.063	-0.245	0.044	0.429	0.045	0.614	0.247		
Obs (Inv. ratio)	1147		942		17,234		86		1273			
Hungary												
Indonesia												
Malaysia												
Mex.												
Peru												
Pol.												
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Investment ratios, total institutional ownership and number of blockholders												
Inv.	0.083	0.077	0.067	0.074	0.046	0.061	0.059	0.053	0.071	0.064	0.053	0.066
Inv. Adj.	1.203	0.989	1.381	1.383	1.515	1.589	1.334	1.259	1.358	1.173	1.356	1.381
IOwn	0.059	0.109	0.016	0.055	0.019	0.051	0.046	0.077	0.047	0.106	0.118	0.135
Min. IOwn	0.031	0.037	0.018	0.030	0.023	0.035	0.051	0.045	0.015	0.032	0.069	0.063
Ln(n°Inst.B.)	0.333	0.469	0.098	0.264	0.127	0.301	0.287	0.392	0.265	0.500	0.664	0.595
Institutional ownership colours - blockholders and minorities												
IndIO	0.044	0.077	0.007	0.028	0.016	0.044	0.041	0.066	0.022	0.050	0.048	0.075
Min. IndIO	0.028	0.035	0.018	0.028	0.018	0.029	0.049	0.042	0.010	0.018	0.039	0.037

GreyIO	0.001	0.009	0.004	0.019	0.003	0.016	0.000	0.004	0.013	0.038	0.033	0.052
Min. GreyIO	0.003	0.007	0.001	0.004	0.004	0.011	0.001	0.003	0.002	0.009	0.012	0.020
Institutional ownership colours by holdings horizon- blockholders and minorities												
IO-Long Term	0.037	0.071	0.013	0.049	0.016	0.046	0.040	0.074	0.036	0.090	0.084	0.112
Min. IO-Long Term	0.014	0.022	0.008	0.016	0.009	0.019	0.024	0.027	0.009	0.024	0.027	0.037
IO-Short Term	0.023	0.069	0.003	0.023	0.003	0.020	0.006	0.027	0.011	0.046	0.033	0.072
Min. IO-Short Term	0.017	0.027	0.011	0.021	0.013	0.025	0.027	0.035	0.006	0.016	0.042	0.048
IndIO-long term	0.037	0.071	0.006	0.026	0.013	0.041	0.040	0.074	0.015	0.040	0.036	0.071
Min. IndIO-long term	0.013	0.022	0.008	0.015	0.007	0.016	0.024	0.026	0.005	0.013	0.012	0.019
Ind IO-short term	0.022	0.068	0.002	0.019	0.003	0.018	0.006	0.026	0.007	0.029	0.019	0.051
Min. IO-short term	0.015	0.025	0.010	0.020	0.011	0.022	0.026	0.034	0.004	0.012	0.027	0.032
GreyIO-long term	0.000	0.000	0.007	0.042	0.003	0.019	0.000	0.000	0.020	0.057	0.049	0.086
Min. GreyIO-long term	0.001	0.003	0.000	0.002	0.002	0.009	0.000	0.002	0.004	0.014	0.015	0.028
GreyIO-short term	0.001	0.009	0.001	0.012	0.000	0.006	0.000	0.004	0.005	0.025	0.014	0.043
Min. GreyIO-long term	0.002	0.006	0.000	0.003	0.002	0.008	0.001	0.003	0.002	0.008	0.016	0.029
Institutional ownership by geographical origin - blockholders and minorities												
IO-Foreign	0.019	0.037	0.012	0.049	0.006	0.027	0.008	0.028	0.007	0.028	0.004	0.024
Min. IO-Foreign	0.025	0.031	0.018	0.029	0.007	0.018	0.033	0.040	0.008	0.016	0.007	0.015
IO-Local	0.040	0.094	0.004	0.026	0.013	0.041	0.037	0.074	0.040	0.098	0.114	0.132
Min. IO-Local	0.006	0.013	0.001	0.005	0.015	0.027	0.018	0.018	0.007	0.026	0.063	0.059
Control variables												
CFO	0.095	0.091	0.078	0.098	0.064	0.087	0.090	0.073	0.108	0.099	0.070	0.092
Tobin's Q	1.356	0.758	1.440	0.920	1.142	0.753	1.458	0.678	1.287	0.862	1.219	0.664
Debt	0.163	0.137	0.254	0.175	0.179	0.158	0.231	0.151	0.233	0.142	0.168	0.130
Size	18.907	1.955	19.231	1.548	18.509	1.515	21.113	1.376	20.147	1.241	18.452	1.552
Sales	1.075	0.546	0.951	0.624	0.785	0.509	0.782	0.385	0.656	0.386	1.131	0.586
Cash	0.105	0.111	0.111	0.109	0.147	0.128	0.088	0.066	0.070	0.089	0.093	0.102
Index	0.391	0.490	0.154	0.361	0.062	0.241	0.403	0.491	0.161	0.368	0.052	0.222
Rule of Law	0.699	0.195	-0.505	0.113	0.485	0.053	-0.490	0.065	-0.548	0.041	0.697	0.134
Reg. Quality	0.967	0.190	-0.273	0.133	0.608	0.145	0.351	0.088	0.437	0.100	0.948	0.088
Obs (Inv. ratio)	133		2078		5164		645		335		2084	

Notes: This table displays the mean and standard deviation of all variables included in baseline regressions from Eq. (1) by country. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio IOwn/IO stands for total institutional blockholder ownership. Min Own/IO stands for minority institutional ownership. Ind stands for institutional independent investor; Grey stands for grey institutional investor. Short term investor refers to institutional shareholders that exit within a year; Long term investor refers to an institutional shareholder that lasts at least 2 years; Ln (n°Inst.B.) is the natural log of the number of institutional blockholders; a blockholder is a shareholder with equity rights equal to or greater than 5%. CFO stands for operative cash flow to lagged total assets ratio. Complete definitions for the remaining control variables can be found in [Appendix A](#).

Sources: Data from Thomson Eikon, S&P Capital IQ, World Bank-WGI.

Appendix C. Institutional blockholders and investment (OLS regressions)

Dep. Var. is:	Total Sample																							
	Total Investment						Industry Adj. Total Investment						Excluding China											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dep. Var. β_1	0.463*** (0.009)	0.462*** (0.009)	0.183*** (0.015)	0.180*** (0.015)	0.179*** (0.015)	0.123*** (0.017)	0.121*** (0.017)	0.162*** (0.009)	0.150*** (0.017)	0.150*** (0.017)	0.098*** (0.016)	0.127*** (0.011)	0.463*** (0.009)	0.462*** (0.009)	0.183*** (0.015)	0.180*** (0.015)	0.179*** (0.015)	0.123*** (0.017)	0.121*** (0.017)	0.162*** (0.009)	0.150*** (0.017)	0.150*** (0.017)	0.098*** (0.016)	0.127*** (0.011)
IOWN $_{i,t}$	0.006* (0.003)	0.023*** (0.009)	0.030** (0.013)	0.031** (0.013)	0.022*** (0.008)	0.542* (0.289)	0.546* (0.288)	0.386** (0.152)	0.044*** (0.015)	0.044*** (0.015)	0.732** (0.337)	0.429** (0.175)	0.006* (0.003)	0.023*** (0.009)	0.030** (0.013)	0.031** (0.013)	0.022*** (0.008)	0.542* (0.289)	0.546* (0.288)	0.386** (0.152)	0.044*** (0.015)	0.044*** (0.015)	0.732** (0.337)	0.429** (0.175)
IOWN $_{i,t}^2$		-0.050** (0.022)	-0.076** (0.031)	-0.066** (0.031)		-1.416** (0.663)	-1.281* (0.662)		-0.089*** (0.032)	-0.089*** (0.032)	-1.681** (0.697)	-1.681** (0.697)		-0.050** (0.022)	-0.076** (0.031)	-0.066** (0.031)		-1.416** (0.663)	-1.281* (0.662)		-0.089*** (0.032)	-0.089*** (0.032)	-1.681** (0.697)	-1.681** (0.697)
CFO x IOWN $_{i,t}$			-0.167*** (0.059)		-0.167*** (0.059)			-2.236* (1.229)		-0.194*** (0.068)		-2.816** (1.366)								-2.236* (1.229)		-0.194*** (0.068)		-2.816** (1.366)
Min. IOWN $_{i,t}$			0.110*** (0.013)	0.108*** (0.013)	0.110*** (0.013)	1.494*** (0.247)	1.494*** (0.247)	1.693*** (0.224)	0.090*** (0.020)	0.090*** (0.020)	1.538*** (0.442)	1.263*** (0.350)								1.693*** (0.224)		0.090*** (0.020)		1.538*** (0.442)
CFO $_{i,t}$	0.114*** (0.005)	0.113*** (0.005)	0.083*** (0.005)	0.081*** (0.005)	0.078*** (0.005)	1.288*** (0.130)	1.256*** (0.131)	1.469*** (0.121)	0.078*** (0.007)	0.078*** (0.007)	1.179*** (0.162)	1.444*** (0.157)								1.469*** (0.121)		0.078*** (0.007)		1.179*** (0.162)
Tobin's Q $_{i,t}$	0.010*** (0.001)	0.010*** (0.001)	0.011*** (0.001)	0.011*** (0.001)	0.011*** (0.001)	0.166*** (0.023)	0.152*** (0.022)	0.110*** (0.009)	0.015*** (0.001)	0.015*** (0.001)	0.012 (0.026)	0.012 (0.026)								0.110*** (0.009)		0.015*** (0.001)		0.012 (0.026)
Debt $_{i,t-1}$			-0.076*** (0.006)	-0.075*** (0.006)	-0.072*** (0.006)	-1.268*** (0.131)	-1.257*** (0.129)	-1.244*** (0.092)	-0.071*** (0.008)	-0.071*** (0.008)	-1.333*** (0.188)	-1.359*** (0.126)								-1.244*** (0.092)		-0.071*** (0.008)		-1.333*** (0.188)
Size $_{i,t-1}$			-0.016*** (0.002)	-0.017*** (0.002)	-0.017*** (0.002)	-0.327*** (0.047)	-0.331*** (0.048)	-0.221*** (0.023)	-0.017*** (0.002)	-0.017*** (0.002)	-0.369*** (0.045)	-0.227*** (0.036)								-0.221*** (0.023)		-0.017*** (0.002)		-0.369*** (0.045)
Sales $_{i,t-1}$			0.013*** (0.002)	0.012*** (0.002)	0.012*** (0.002)	0.198*** (0.043)	0.190*** (0.043)	0.205*** (0.034)	0.012*** (0.002)	0.012*** (0.002)	0.259*** (0.053)	0.258*** (0.044)								0.205*** (0.034)		0.012*** (0.002)		0.259*** (0.053)
Cash $_{i,t-1}$			0.095*** (0.007)	0.094*** (0.007)	0.095*** (0.008)	1.323*** (0.165)	1.306*** (0.165)	1.407*** (0.102)	0.090*** (0.008)	0.090*** (0.008)	1.712*** (0.203)	1.560*** (0.148)								1.407*** (0.102)		0.090*** (0.008)		1.712*** (0.203)
Index $_{i,t-1}$			0.007** (0.003)	0.007** (0.003)	0.007** (0.003)	0.194** (0.069)	0.196** (0.069)	0.155** (0.060)	0.006* (0.003)	0.006* (0.003)	0.170** (0.070)	0.108* (0.064)								0.155** (0.060)		0.006* (0.003)		0.170** (0.070)
Obs.	35,608	35,608	35,608	35,608	35,608	34,380	34,380	34,380	22,563	22,563	21,480	21,480								34,380		22,563		21,480
R-squared	0.437	0.437	0.559	0.560	0.559	0.479	0.480	0.519	0.554	0.554	0.479	0.518								0.519		0.554		0.479
adj. R-squared	0.414	0.434	0.458	0.460	0.458	0.325	0.326	0.407	0.452	0.451	0.329	0.406								0.407		0.451		0.329
Country-squared	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES								YES		YES		YES
Year FE																								

Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<i>Marginal Effect</i>												
$(\partial \ln v / \partial IOwn) - = 0$	0.226***	0.196***	0.233***	0.191***	0.213***	0.248***	0.218***	0.218***	0.248***	0.218***	0.218***	0.218***
	(0.041)	(0.040)	(0.049)	(0.057)	(0.066)	(0.043)	(0.056)	(0.056)	(0.043)	(0.056)	(0.056)	1.316***
$\beta_5 + \beta_{3 * IOwn}$				0.073***		1.394***			0.079***			(0.143)
				(0.005)		(0.112)			(0.007)			(0.143)

Notes: This table displays the baseline investment OLS regressions of Eq. (1) as robustness checks from GMM regressions for the total sample and selected subsample that excludes China. Regressions are controlled by country-year and firm fixed effects. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio IOwn stands for total institutional blockholder ownership. Min Own stands for minority institutional ownership. A blockholder is a shareholder with equity rights equal to or greater than 5%. CFO stands for operative cash flow to lagged total assets ratio. Complete definitions for the remaining control variables can be found in Appendix A. Overall marginal effects of IOwn reported in the bottom rows of the table. The Hansen test is a test that over-identifies restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term; robust standard errors are in parentheses; ***, **, and * represent significance levels at 1%, 5%, and 10% respectively.

Appendix D. Institutional investor colours and investment (OLS regressions)

Dep. Var. is:	Total Sample											
	Including China						Excluding China					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Total Investment	0.168***	0.170***	0.169***	0.151***	0.152***	0.151***	0.143***	0.143***	0.142***	0.125***	0.123***	0.124***
	(0.014)	(0.015)	(0.014)	(0.016)	(0.016)	(0.016)	(0.018)	(0.017)	(0.017)	(0.018)	(0.018)	(0.016)
IndIO _{i,t}	0.095***	0.015	0.094***	1.212***	0.379**	1.204***	0.091***	0.014	0.090***	1.083***	0.411**	1.070**
	(0.018)	(0.009)	(0.018)	(0.357)	(0.161)	(0.358)	(0.020)	(0.010)	(0.020)	(0.440)	(0.196)	(0.444)
IndIO _{i,t} ²	-0.412***		-0.411***	-4.273***		-4.260***	-0.375***		-0.374***	-3.269*		-3.247*
	(0.071)		(0.071)	(1.535)		(1.539)	(0.079)		(0.079)	(1.810)		(1.818)
Min. IndIO	0.144***	0.146***	0.144***	2.633***	2.653***	2.630***	0.097***	0.097***	0.097***	2.331***	2.324***	2.322***
	(0.015)	(0.016)	(0.015)	(0.233)	(0.233)	(0.234)	(0.020)	(0.020)	(0.020)	(0.387)	(0.390)	(0.389)
GreyIO _{i,t}	0.006	0.067	0.064	-0.270	0.691	0.663	0.023	0.076	0.071	0.060	1.045	1.011
	(0.023)	(0.057)	(0.057)	(0.416)	(0.898)	(0.894)	(0.023)	(0.059)	(0.058)	(0.414)	(0.909)	(0.909)
GreyIO _{i,t} ²		-0.547	-0.524	-8.643	-8.643	-8.438	-0.463	-0.436	-0.436	-8.826	-8.622	-8.622
		(0.420)	(0.413)	(7.108)	(7.108)	(7.060)	(0.431)	(0.425)	(0.425)	(7.265)	(7.248)	(7.248)
Min. GreyIO	0.112***	0.118***	0.114***	2.726***	2.802***	2.763***	0.110**	0.117**	0.112**	2.349**	2.443***	2.404**

CFO _{i,t}	(0.042)	(0.043)	(0.042)	(0.785)	(0.791)	(0.786)	(0.047)	(0.048)	(0.933)	(0.937)	(0.933)
β_8	0.076***	0.076***	0.076***	1.067***	1.069***	1.067***	0.073***	0.073***	1.251***	1.251***	1.250***
	(0.004)	(0.004)	(0.004)	(0.089)	(0.089)	(0.089)	(0.006)	(0.006)	(0.129)	(0.129)	(0.129)
Tobin's Q _{i,t-1}	0.010***	0.010***	0.010***	0.148***	0.149***	0.148***	0.015***	0.015***	0.200***	0.201***	0.200***
	(0.001)	(0.001)	(0.001)	(0.023)	(0.023)	(0.023)	(0.001)	(0.001)	(0.018)	(0.018)	(0.018)
Debt _{i,t-1}	-0.075***	-0.075***	-0.075***	-1.203***	-1.201***	-1.202***	-0.073***	-0.073***	-1.274***	-1.273***	-1.272***
	(0.006)	(0.006)	(0.006)	(0.097)	(0.097)	(0.097)	(0.007)	(0.007)	(0.128)	(0.128)	(0.128)
Size _{i,t-1}	-0.007***	-0.007***	-0.007***	-0.079***	-0.080***	-0.080***	-0.014***	-0.014***	-0.149***	-0.149***	-0.149***
	(0.002)	(0.002)	(0.002)	(0.030)	(0.030)	(0.030)	(0.002)	(0.002)	(0.034)	(0.034)	(0.034)
Sales _{i,t-1}	0.006***	0.006***	0.006***	0.159***	0.159***	0.160***	0.005**	0.005**	0.173***	0.173***	0.173***
	(0.002)	(0.002)	(0.002)	(0.033)	(0.033)	(0.033)	(0.002)	(0.002)	(0.039)	(0.039)	(0.039)
Cash _{i,t-1}	0.077***	0.077***	0.077***	1.176***	1.178***	1.178***	0.071***	0.071***	1.135***	1.138***	1.136***
	(0.005)	(0.005)	(0.005)	(0.110)	(0.110)	(0.110)	(0.007)	(0.007)	(0.135)	(0.135)	(0.135)
Index _{i,t-1}	0.005*	0.005	0.005*	0.125**	0.123**	0.125**	0.002	0.002	0.087	0.085	0.087
	(0.003)	(0.003)	(0.003)	(0.059)	(0.059)	(0.059)	(0.003)	(0.003)	(0.068)	(0.068)	(0.068)
Obs.	35,608	35,608	35,608	34,380	34,380	34,380	22,563	22,563	21,480	21,480	21,480
R-squared	0.520	0.521	0.523	0.480	0.482	0.482	0.522	0.523	0.487	0.486	0.489
adj. R-squared	0.431	0.430	0.432	0.382	0.381	0.382	0.431	0.434	0.386	0.385	0.388
Country-Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Marginal Effect											
($\partial \ln v / \partial \ln IO$) = 0	0.115***	0.115***	0.115***	0.142***	0.141***	0.141***	0.121***	0.120***	0.166***	0.166***	0.165***
	(0.011)	(0.011)	(0.011)	(0.023)	(0.023)	(0.023)	(0.014)	(0.014)	(0.043)	(0.043)	(0.043)
($\partial \ln v / \partial \text{Grey}IO$) = 0	0.061***	0.061***	0.061***	0.040	0.040	0.039	0.082***	0.082***	0.059**	0.059**	0.059**
	(0.019)	(0.019)	(0.020)	(0.027)	(0.027)	(0.028)	(0.028)	(0.028)	(0.023)	(0.023)	(0.024)

Notes. This table displays the baseline investment OLS regressions of Eq. (1) as robustness check controlled by institutional ownership heterogeneity for the total sample and selected subsample that excludes China. The total investment ratio is the sum of capital expenditures, R&D expenses, and acquisitions minus sales of fixed assets scaled up to lagged total assets. The industry adjusted ratio is the relationship between the investment ratio over the industry-country median of the investment ratio. Ind stands for institutional independent investor; Grey stands for grey institutional investor; IO stands for institutional blockholder ownership. Min IO stands for minority institutional ownership. A blockholder is a shareholder with equity rights equal to or greater than 5%. CFO stands for operative cash flow to lagged total assets ratio. Complete definitions for the remaining control variables can be found in Appendix A. Overall marginal effects of independent institutional blockholder ownership reported in the bottom rows of the table. The Hansen test is a test that over-identifies restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term; robust standard errors are in parentheses; VIF stands for multicollinearity; ***, **, and * represent significance levels at 1%, 5%, and 10% respectively.

Appendix E. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jcorpfin.2018.09.003>.

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