No.57

OCTUBRE DE 2017

Documentos **CEDE**

ISSN 1657-7191 Edición electrónica.

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CEDE
CENTRO DE ESTUDIOS SOBRE DESARROLLO ECONÓMICO

Universidad de
los Andes
Facultad de Economía

Serie Documentos Cede, 2017-57
ISSN 1657-7191 Edición electrónica.
Octubre de 2017

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Impreso en Colombia – Printed in Colombia

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Do institutional blockholders influence corporate investment? Evidence from emerging markets

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Abstract

This paper examines the relation between firm investment ratios and institutional blockholder ownership for a sample of 6,300 publicly traded firms of 16 large emerging markets for the 2005–2014 period. Results show that independent, long-term, and local institutional investors boost investment ratios, consistent with the monitoring role and blockholder voice intervention hypotheses. The presence of institutional blockholders, regardless their monitoring involvement, reduces firm cash flow sensitivity ratios and thus decreasing firms' financial constraints.

Keywords: Institutional Investors, Corporate Investment, Financial Constraints, Corporate Governance, Emerging Markets

JEL codes: C20, G00, G20, G30

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¿Los inversionistas institucionales como grandes accionistas influyen en la inversión corporativa?

Evidencia de los mercados emergentes

Roberto Alvarez^a,

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Resumen

En este trabajo se examina la relación entre la tasa de inversión de las firmas y la propiedad en manos de accionistas institucionales cuando ellos son grandes accionistas y representan bloques de votación (Blockholders), para una muestra de 6.300 empresas que cotizan en bolsa de 16 grandes mercados emergentes para el período 2005-2014. Los resultados muestran que los inversionistas institucionales independientes, de largo plazo y locales aumentan los coeficientes de inversión, de acuerdo con la función de monitoreo y las hipótesis de intervención directa. La presencia de inversionistas institucionales, independientemente de su orientación en realizar un monitoreo directo o de comportarse más pasivamente con las gerencias, reduce de sensibilidad de la inversión del flujo de efectivo -recursos propio líquidos-, disminuyendo de esta forma las restricciones financieras de las empresas.

Palabras clave: inversionistas institucionales, inversión corporativa, gobierno corporativo, mercados emergentes.

Códigos JEL: C20, G00, G20, G30

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1. Introduction

Institutional investors have become key players in financial markets over the last three decades. They have grown substantially in developed economies such as Canada, the United States, and the United Kingdom to the point that they now control more than half of corporate ownership (Aggarwal, Erel, Ferreira, & Matos, 2011). According to the International Monetary Fund (2005), institutional investors from around the world manage financial assets in excess of US\$45 trillion. This pattern is also observed across emerging markets. The OECD (2011) reported the private pension fund industry in Latin America grew at an annual rate of 16% per year between 1999 and 2006 reaching a net asset value of US\$390 billion. These funds constitute the most dominant institutional investors in the regional markets, with the exception of Brazil where the mutual fund industry is one of the largest internationally.

These investors contribute to the development of capital markets by stimulating efficient transactions, good risk evaluation, and a good corporate governance system. They can also exert a direct influence on management activities through their ownership (shares) by direct monitoring as blockholders or indirect influence through their ability to sell their shares (Edmans & Manso, 2011).

The empirical literature suggests several advantages derived from the presence of institutional investors in the ownership structure of firms. First, their presence implies firm market value premium. The estimated premium is around 12% for non-US firms listed in developed equity markets (Ferreira & Matos, 2008), 8% for a sample of Latin American public companies (De-La-Hoz and Pombo, 2016), and up to 38% for firms in New Zealand (Navissi and Naiker, 2006). One of the explanatory factors behind these results is that institutional investors, as blockholders,

exercise direct monitoring -in the same way as any other large shareholder- which reduces agency costs and asymmetric information associated with shareholders' cash flow rights.

Other papers find that the institutional ownership stability reduces firms' cost of capital and increases firm performance. [Elyasiani, Jingyi Jian, and Mao \(2010\)](#) show that institutional investor stability reduces the cost of debt measured either by firm bond credit ratings or by bond yield spreads relative to treasuries with the same duration. They show that 1 standard deviation (0.213) in the proportion of institutional ownership reduces credit ratings by 33 points (Moody's rating variables), which is equivalent to more than one-fourth of one rating downgrade.¹ Similar results hold for direct measures of institutional ownership stability such as volatility and persistence in reducing bond ratings or yield spreads.

Other research line states that institutional investment improves firm-level corporate governance. [Aggarwal et al. \(2011\)](#) find that positive changes to institutional ownership increase the firm-level governance index, but the opposite case does not necessarily hold. They also highlight the special role that foreign investors play in enhancing firm corporate governance through direct monitoring because they are credit rated. Related firm-level studies consistently show that institutional investors enhance firm market value overall and that monitoring is a function of investors' strategies ([Woidtke, 2002](#)). These findings indicate that these investors' monitoring optimizes administrative performance. Regarding investment funds activism, [Brav, Jiang, Partnoy, and Thomas \(2008\)](#) report that operational and financial recommendations of these investors are successful in two out of three cases, confirming active investor activism for U.S firms.

¹ Elyasiani et al. (2010) use Moody's ratings range from AAA = 2 to Ca = 21.

Previous research has not closely analyzed the relation between institutional investors' holdings and corporate investment for developed and emerging markets. This 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 also analyze the effect of institutional investors as blockholders on the sensibility of investment demand on internal resources (operating cash flow) as proxy of firm financial constraints.

The contribution of this article to the empirical literature on institutional investors is twofold. 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 expand the understanding of investor heterogeneity by looking not only at the monitoring role of institutional investors (i.e., investor colors) but also at other features of blockholder characteristics such as investors' horizon and origin location.

Second, this study focuses on emerging markets where little evidence exists regarding the strategic role that institutional investors play in the dynamics of firm investment. Our sample covers 16 large emerging markets representing the main markets from East Asia, Latin America, and East Europe. The sample includes South Africa as the only African country member of the BRICS association.² Most prior empirical studies regarding blockholder voice (intervention) and exit (trading) activism are based either in the United States and United Kingdom as highlighted in recent reviews on blockholders and corporate governance (Edmans, 2014).

² The acronym BRIC was originally coined in 2001 by Goldman Sachs asset management to group the largest and growing emerging economies, specifically, Brazil, Russia, India, and China. In 2010 South Africa joined the BRICS association. According to World Bank, as of 2015, BRICS economies represented 22% of global GDP (nominal).

This study extends prior work of institutional investor heterogeneity and firm financial constraints by focusing on the relations between institutional blockholder ownership and firm investment ratios. Conversely, previous studies have focused on other relations such as institutional ownership drivers and firm value (Ferreira & Matos, 2008), corporate governance indices and changes in institutional holdings (Aggarwal et al., 2011), and the valuation effects of the incentive structure of different types of institutional investors using the ownership levels of public and private pension funds (Woodkie, 2001). Benchmark cash flow sensitivity studies have concentrated on the interactions with operation cash flow of inside ownership (Hadlock, 1998) or family holdings (Pindado, Requejo, & De la Torre, 2011).

Our results confirm that blockholder institutional investor ownership increases investment spending, but the relation is not linear. The inflexion point of a positive effect is around 0.30 to 0.33 of institutional holdings of a firm's outstanding shares. Thus, when institutional blockholders do not have firm control, they put pressure on current investment to get short- and medium-term returns (Gompers & Metrick, 2001). Once the threshold is surpassed, institutional blockholders do not have enough incentives to put pressure on current investment. In this scenario, institutional investors exert control on over-investment, which is in line with the result by Ferreira and Matos (2008) that firm with higher independent institutional ownership decreases firm capital spending and control overinvestment behavior.

Regression estimates show that a 1 standard deviation change in institutional blockholder ownership raises investment ratios by 800 base points for the total sample and by 500 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 the 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, 0.18. For long-term holdings, when investors stay for two or more years, the size effect increases to 0.21. On the other hand, the effect of grey investor portfolio duration is not significant. Thus, their role is inconclusive on controlling suboptimal corporate investment spending. 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 relative to local institutional blockholders.

Investment cash flow sensitivity results show that institutional investors reduce firms' dependence on internal resources (i.e., operating cash flow) to fund investment. These results show that direct intervention by institutional blockholders reduces informational asymmetries and enhances corporate disclosure. The presence of institutional blockholders also implies better access to external borrowing.

The remainder of this paper is structured as follows. Section 2 presents the sample construction and method. It includes the description on 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 test by splitting the sample according to the heterogeneity in firm financial constraints. Finally, Section 5 offers 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 7,253 firms from 16 emerging economies with 54,581 firm-year observations of annual financial and shareholder ownership information for period of 2003 to 2014. 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, Uranium, Insurance and Real State companies. Second, we exclude firms with less than three years' coverage and 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 above 4.5 to remove potential outliers. Fourth, we drop outliers in the top and bottom 1% of each variable. Then, the final sample is an unbalanced panel of 32,997 observations from 6,319 listed nonfinancial firms from 16 emerging markets³.

[Table 1](#) provides the descriptive statistics of investment, cash flow and institutional ownership, and the main control variables included in the empirical analysis for the total sample and selected subsamples. The first subsample excludes China because it represents 38% of the total sample. The second subsample is the set of firms with institutional blockholder investors, and the third subsample only includes firms with independent blockholder investors. The table provides several interesting insights. First, institutional investors are blockholders in 25% of the total sample and represent around 13% of equity holdings, independent investors hold 10% of firm equity, and the

³ Brazil ($n=788$), Chile ($n=721$), China ($n=12,698$), Colombia ($n=49$), Greece ($n=825$), Hungary ($n=100$), Indonesia ($n=1,262$), Malaysia ($n=3,728$), Mexico ($n=513$), Peru ($n=226$), Poland ($n=1,507$), Republic of Korea ($n=6,649$), Saudi Arabia ($n=304$), South Africa ($n=1,306$), Thailand ($n=2,122$), and United Arab Emirates ($n=199$)

remaining 3% is allocated to grey investors. Second, firms with institutional blockholders have greater investment ratios (0.069) than the total sample (0.065) or the subsample that excludes China (0.060). Third, firms with independent institutional investors have greater valuation than firms in the other subsample. The mean of Tobin's Q is 1.31 for firms with independent investors and 1.26 for firms with institutional blockholders, which is much higher than the Tobin's Q of around 1.0 for the subsample that excludes China. This is expected because independent investors tend to exert more direct monitoring and control and put more pressure on investment spending in the short run. Finally, firms with institutional blockholders are, on average, bigger, have higher cash flow ratios, and are less indebted. These firms are also less concentrated in terms of ownership structure. Descriptive statistics across countries exhibit similar patterns. In particular, institutional blockholders' presence is more relevant in Brazil and South Africa (Appendix C).

[TABLE 1 ABOUT HERE]

2.2 Methodology

The main focus of the empirical strategy is to analyze the effect of institutional investor blockholders on investment decisions by analyzing the potential impact of institutional investor on relaxing financial constraints. We estimate an extended version of investment model of [Fazzari, Hubbard, and Petersen \(1988\)](#) for testing 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 some frictions such as credit rationing and adverse selection problems due to information asymmetries ([Myers & Majluf, 1984](#)). Hence, the higher the funding costs wedge is, the more financial constraint on the firms and the more investment decisions explained by internal cash flow. As such, higher

dependence on internal funds can lead firms to invest sub-optimally.⁴ However, [Kaplan and Zingales \(1997\)](#) cast doubts about the usefulness of the investment cash flow model to capture financial constraints. This finding opened a strong, but still unsettled debate regarding the usefulness of some metrics for capturing financial constraints ([Allayannis & Mozundar, 2004](#))

Following [Laeven \(2003\)](#) and [Aguilar \(2005\)](#), we use the maximization conditions of the Euler investment equation to obtain the empirical investment ratio equation that includes its lag value to capture the model dynamics. The empirical baseline investment equation is

$$Inv_{i,t} = \beta_1 Inv_{i,t-1} + \beta_2 IOwn_{i,t} + \beta_3 IOwn_{it}^2 + \beta_4 IOwn_{it} \times CFO_{it} + \beta_5 CFO_{i,t} + \delta_k \mathbf{X}_{i,t-1} + I_{jt} + \gamma C_{lt} + u_{it}, \quad (1)$$

where subscripts i stand for firm, j for industry, l for country, and t for year. The dependent variable Inv_{it} is capital expenditures of firm i in year t over total assets at the beginning of the period; CFO_{it} is the cash from operation activities of firm i in year t over total assets at the beginning of the period; $IOwn_{it}$ represents the institutional investor ownership feature defined as blockholders institutional ownership ($IOwn$) Vector $\mathbf{X}$ includes the set of lagged control variables that are 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), sales ratio (Sales), and the ownership of the largest blockholder ([Almeida & Campello, 2007](#); [Andrn & Jankensgrd, 2015](#); [Claessens, Ueda, & Yafeh, 2014](#); [Kuo & Hung, 2012](#)). Following prior empirical estimates, to control for market liquidity we include a dummy

⁴ For instance, firm overinvestment is associated with the excess cash flow or underinvestment problem due to agency costs of debt or debt overhang.

variable that takes value 1 if a firm belongs to the most traded local index in the year t (e.g., IPSA, BOVEPSA, KOSPI, among others), and zero otherwise⁵.

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 that affect investment decisions. In addition, we include a set of country-year fixed effect (γ_{lt}) to capture country time-variant determinants of investment, such as GDP growth and inflation, among others.

A major concern about institutional ownership is related to the endogeneity associated with investor preferences that bias firm value or investment regression estimates. Empirical evidence show that institutional investors invest more in large firms, and in firms with a good corporate governance reputation. Further, they prefer firms that show higher market valuations, better operational performance, and lower capital expenditure (Ferreira and Matos, 2008).

To attenuate the endogeneity of investors' preferences, we restrict the sample to 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.

There are three main arguments about the relation between institutional investor's ownership and firm investment. First, the monitoring approach suggest that when institutional investors becomes blockholders, they have greater incentives to collect information, monitor controllers, and demand for more and better investment to improve firm value (Cornett et. al., 2007; Maug,

⁵ Appendix A provides the definitions of all variables considered in the empirical analysis. Appendix B reports the partial correlations across explanatory variables included in the regression estimates.

1998; McConnell & Servaes, 1990). They can use the voice mechanism or the threat of exit to demand more investment, consistent with arguments related to investors demand for investment to achieve higher firm value (Gompers & Metrick, 2001; Xuemin & Zhang, 2009).

Second, institutional investor ownership restricts overinvestment problems. This argument predicts a negative relation between institutional investors' holdings and industry-adjusted investment (Ferreira and Matos, 2008).

Third, a negative relation between institutional ownership and investment is also predicted when institutional blockholders can worse corporate decisions due to their propensity to extract private benefits (Edmans, 2014). This likelihood increases when institutions have greater power in the firm, which exacerbates the 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 strength their business relationship to extract private benefits. However, they find that when institutional investors are investment advisors, they tend to improve the firm value. This positive effect on firm value may be related to incentives to avoid inefficiencies such as overinvestment. However, either arguments—private benefits extracting or efficiency in avoid overinvestment—predicts a negative relation between high institutional ownership and industry-adjusted corporate investment.

Thus, for analyzing whether nonlinear effects are important in generating an inverted U-shaped relation between the level of institutional equity holdings and firm investment ratio, we introduce a quadratic term for the institutional investor variable. The coefficients β_2 and β_3 in Equation 1 should be negative and positive, respectively.

The empirical model takes into account whether institutional investor heterogeneity matters to explain investment decisions. Thus, we distinguish institutional holdings between investor colors (i.e., grey vs. independent investor) and origin (i.e., domestic vs. foreigner 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, Sun, & Titman, 2014). This beneficial effect depends exclusively on the ability of the institutional investors to attenuate asymmetrical information issues or successfully influence controllers or managers to make value-creating decisions (Almazán et. al, 2005) or to avoid overinvestment problems. Of course, as Ferreira and Matos (2008) show that independent institutional investors may be more likely to spend more resources on monitoring activities or have fewer potential business relationships with corporation in which they invest. We define independent investor ownership (IndIO) as the sum of blockholder ownership held by mutual fund managers and investment advisors firms, and expect that if independent investors engage (do not engage) in monitoring activities, firms should present higher (lower) levels of investment.

On the other hand, grey investors (e.g., banks, pension funds, among others) are less likely to exert the voice mechanism because they maintain business ties with company managers, and they also may attempt to increase their control of the firm. De-La-Hoz and Pombo (2016), for a sample of Latin American listed firms, 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 nonvalue-maximizing investments, and thus the expected relation is positive or nonsignificant. 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).

We also analyze if institutional investors increase or decrease financial constraints. In that sense, we expect 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 important, 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 relation 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 that institutional blockholders will reduce financial constraints and, hence, the expected sign for the coefficient β_4 on estimating Equation 1 will be negative. Second, as previously mentioned, institutional investors can influence managers to make nonvalue-maximizing decisions such as overinvest or underinvest 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, so the sign for the coefficient β_4 will be positive.

Due to endogeneity problems in dynamic panel data, ordinary least squares estimators can produce biased coefficients; for this reason, we use generalized method of moments (GMM). The GMM system estimator deals with the endogeneity issues in the relation between investment and cash flow. In general, all right-hand variables are potentially endogenous ([Pindado et al. 2011](#)).

An important feature of GMM method is that it controls for endogeneity of all firm-level variables by introducing lagged variables of the right-hand side as instruments. Specifically, we introduce all right-hand side variables lagged from $t-2$ to $t-4$ in estimating Equation 1. Thus, the GMM system estimator offers some advantages over others dynamic panel models that are regularly used in corporate finance research (Flannery & 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 of over-identifying 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

This section reports on findings on whether institutional investors influence investment decisions and their effect on the cash flow sensitivity relation. Table 2 shows the baseline results for the institutional investor ownership variable for the entire sample and the subsample that excludes China. We can highlight three main findings. First, institutional blockholders ownership (IOwn) is positive and statistically significant across specifications. The marginal effect ranges from 0.48 for total sample (Col. 1) to 0.30 excluding China (Col. 4). If one introduces the squared term of institutional ownership (IOwn²) that coefficient is negative and statistically significant, for the entire sample (Col.2) with value of -1.839 (t -stat: -3.57), and excluding China -0.907 (t -stat: -2.69). However, overall size effect is 2.1 times evaluated at sample means of institutional ownership. A 1 standard deviation change on institutional blockholder ownership, firm investment

ratios raise by 8%.⁶ These findings indicate an inverse U-shaped relation between institutional blockholder ownership and investment ratios and suggest that, at low levels of institutional blockholder ownership, investors positively influence firm's investment. These results confirm institutions have incentives to demand more and better investment when they act as blockholders. Institutional investors' "voice" and the threat of exit explain the monitoring incentives of institutions to ensure value-maximizing decisions related to investment (Gompers & Metrick, 2001; Xuemin & Zhang, 2009).

Second, the nonlinear relation indicates the existence of a threshold point of institutional investors ownership is around 31% and 36% for the full sample (Col.2) and excluding China (Col.5) respectively⁷. 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, 2014). An alternative explanation is an efficiency argument that is related to the incentives of institutional investors to restrict overinvestment problems (Ferreira & Matos, 2008).⁸

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 0.041 for the total sample and 0.052 excluding China. The parameter 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 blockholders ownership is large. Indeed,

⁶ That is: $\partial y / \partial IOwn = \beta_2 + 2 \times \beta_3 \times IOwn = 1.139 - 2 \times 1.84 \times 0.035 = 1.01$ is the marginal effect for total sample, where 0.035 is the mean of institutional ownership. The change of the investment ratio due to 1 standard deviation in *institutional ownership* is $1.01 \times 0.081 = 0.0818 = 8.1\%$. Excluding China that effect is 5.2%.

⁷ That is $\partial y / \partial IOwn = 0 \rightarrow IOwn^* = 1.139 / 3.68 = 0.31$ for full sample. Excluding China that inflexion point is $IOwn^* = 0.65 / 1.81 = 0.36$.

⁸ We cannot differentiate between the "efficient" and "private benefits" arguments to explain that negative relation at high levels of institutional ownership.

firm financial constraints are reduced by 85 base points for total sample and 267 excluding China. Marginal effects are evaluated at sample means of institutional ownership⁹

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 managers' 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 view that investors have incentives to collect information, monitor, and demand higher quality for investment projects to add asset value and reduce agency problems related to suboptimal investment policies (over- or underinvestment).

All regressions control for industry fixed effects, which captures deviations over industry means, and therefore investment regression coefficients are industry-adjusted. Regression estimates in that table also test for potential multicollinearity, second order autocorrelation and instruments validity (the Hansen test). Those tests show that collinearity does not skew the results and do not reject either the null hypothesis of validity of the instruments (Hansen) or the null hypothesis of absence of second order autocorrelation. We run ordinary least squares regressions with two-way fixed effects panel data for the specification as robustness check. The results, which are reported in Appendix D, are consistent in size and direction for all regression coefficients.

[TABLE 2 ABOUT HERE]

⁹ Specifically the marginal effect of CFO evaluated at means of institutional ownership in Col.3 is: $\partial y / \partial CFO = \beta_6 + \beta_4 \times IOwn \rightarrow 0.146 - 3.23 \times 0.035 = 0.032$; Thus, the difference in cash flow sensitivities between regression equations Col.1 – Col.3 is $0.041 - 0.0325 = 0.0085$. Similarly, the marginal effect without China (Col.6) is $\partial y / \partial CFO = 0.142 - 2.55 \times 0.046 = 0.025$, which implies a financial constraints decrease of 270 base points [$0.052 - 0.0253 = 0.0267$].

3.2. *The colors of institutional blockholders*

The next step in the analysis is to disentangle the effect of investor heterogeneity according to the investor's orientation on their monitoring role. We hypothesize that orientation can influence investment decisions. Independent investors tend to monitor more actively because they have less propensity to have business ties with firms in which they invest (B. Bushee, Carter, & Gerakos, 2014; Ferreira & Matos, 2008), and may be more likely to use the threat of exit and the voice mechanism ensure value-creating decisions. Contrarily, grey investors tend to engage in a business relationship with the company and thus are more likely to follow and approve managers' investment decisions rather than attempt to influence or monitor them.

Table 3 displays the main results regarding the effect of institutional investor heterogeneity and firm investment ratios. The estimates suggest that, on average, the presence of independent blockholders (Dummy Indep.) represents a premium of 12% on the firm investment ratio for the total sample (Col.1). This marginal effect implies that the investment ratio increases from 0.065 to 0.073. In contrast, the presence of a grey blockholder investor has no statistically significant effect on investment. The results also hold for the sample excluding China (Col. 5).

The regression equation in Col. 2 evaluates the effect of independent and grey blockholder institutional ownership (shares), respectively. The regression coefficients confirm that independent institutional blockholders positively (0.64, $t = 3.77$) affect firms' investment ratios and it is consistent with blockholder voice model; the role of grey investors is not conclusive. Further, regression equation in Col.3 report their squared terms to control for nonlinear relations, indicating that independent blockholder investors explain the inverse U-shaped relation between investor holdings and firm investment. The parameter for *IndIO* is positive and significant (1.5, $t = 5.54$), and the parameters of *IndIO*² is negative and significant (-2.711 , $t = -3.46$). The overall

marginal effect on independent institutional ownership is 1.35, meaning that a change in 1 standard deviation in their equity shares will raise firm investment ratio by 9.4%. These results hold excluding China but at lower magnitudes¹⁰.

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 more investment spending. However, this effect turns negative when the equity rights of independent investors surpasses the threshold of around 27% for the full sample and excluding China. The incentives of institutions to limit overinvestment problems explains the negative effect on firms' investment ratios (Ferreira & Matos, 2008). Another explanation suggests that independent investors have incentives to demand investment because selling their shares can become difficult, particularly in stock markets with liquidity restrictions. As a result, investors are motivated to align with insiders' strategic decision-making and supporting managerial entrenchment (Adams & Ferreira, 2007).

[TABLE 3 ABOUT HERE]

Regarding the effect on firm financial constraints regression coefficients show that Independent investors reduce more firm cash flow sensitivity rather than Grey investors. The regression in Col. 4 shows that the parameter for the interactions of operating cash flow multiplied by institutional ownership heterogeneity are both negative and statistically significant. The quantitative relevance of the investment–cash flow relation is larger for independent investors rather than grey blockholders according to the marginal effects. Total cash flow sensitivity is 0.158 (β_{11}) without taking into account the effect of institutional ownership. Independent investors (*IndIO*) reduce

¹⁰ In particular, overall marginal effect of independent institutional ownership in Col.3 is $\partial y / \partial IndIO = \beta_7 + 2 \times \beta_8 \times IOwn \rightarrow 1.5 - 2 \times 2.71 \times 0.028 = 1.348$, where 0.028 is the mean of IndIO; and $dy = 1.35 \times dSTD(IndIO) = 1.35 \times 0.07 = 0.094$. Those marginal effects excluding China are 0.579 and 0.046.

cash flow sensitivity to 0.072, whereas grey investors (*GreyIO*) reduce cash flow sensitivity to 0.112, resulting in a reduction of 860 and 460 base points, respectively.

These findings show that firms become less credit rationed by financial borrowers because, in general, institutional investors are concerned with raising corporate governance standards (Aggarwal et al., 2011) and demanding more information disclosure (Bird & Karolyi, 2016).

Marginal effects are evaluated at sample means across firms with institutional ownership. Results holds excluding China but at lower magnitudes (Col. 8). We replicate the above regressions estimations (Table 3) using OLS with two-way fixed effects panel data. Appendix E reports the results, which are consistent in direction, efficiency and size with the GMM regression coefficients.

3.3. Investor horizons and country origin.

The literature in corporate finance suggests that the investor horizon is relevant to the influence 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 he finds that in the presence of short-term investors managers tend to overweight the nearest term expected earnings (Bushee, 2001). Pressure for short-term performance imposed by short-term investors can cause managers to sacrifice long-term value for short-term profits (Graham et. al, , 2005). This argument is consistent with the demand for investment to meet short-term returns, so 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 their holdings (Aggarwal et al., 2011). 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 et. al , 2007; Gaspar et. al., 2012). 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 4 reports the effect of investor horizon on firm investment ratios by disentangling 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 blockholder). The parameter for short-term institutional ownership (IOwn-Short Term) are positive with values of 0.052 (Col.1) and 0.194 (Col.2) when regression include nonlinear terms in institutional holdings. This effect increases more than threefold when short-term investors are independent (Col. 3 and 5). 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. Regression coefficients are significant for all cases at the 5% level.

[TABLE 4 ABOUT HERE]

Regarding to long-term investor orientation, institutional investors have incentives to monitor overinvestment up to a certain threshold of equity holdings. Col. 2 in the table shows the existence of a non-linear relationship between long term institutional investors and investment, with an inflexion point around 24%. After this threshold, the effect on firm investment ratio turns negative, giving support to the intuition that institutional blockholders have more incentive to control

corporate overinvestment and smooth spending across time horizon. The presence of independent investors primarily explains this effect (Col. 4 and 5). In contrast, grey institutional blockholders are not a significant factor in explaining firm investment ratios (Col. 5). Regressions coefficients are significant at the 5% level.

[Table 5](#) 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 & Starks, 2003](#)). However, [Ferreira and Matos \(2008\)](#) find that foreign institutional ownership is positively associated with firm value, but they do not find evidence about the ability of foreign investors to change corporate governance mechanism 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 parameters of *IO-Foreign* is not statistically significant on investment (Col. 1 to 4). Unlike previous arguments related to foreign investors, our results do not provide evidence that foreign institutional blockholders play a monitoring role. In contrast, local institutional ownership turns out the robust regressor in the model. In the table the estimates show that regression coefficients are positive, ranging from 0.07 (Col. 1 and 2) to 0.14 (Col. 3 and 4) when nonlinear terms are included. Overall marginal effects on firm investment ratios doubles¹¹. Hence, domestic institutional investors have a greater influence on investment decisions because their holdings are, on average, 2.6 times larger than their foreign peers in our sample from emerging economies.

[TABLE 5 ABOUT HERE]

¹¹ For instance, the marginal effect of local institutional ownership in Col. 3 is $\partial I / \partial IO_{LOCAL} = 0.147 - 2 \times 0.29 \times 0.016 = 0.137$, where 0.016 is the mean of local institutional ownership.

4. Robustness

4.1. Cross Sectional Analysis.

This section displays cross sectional test as complementary estimates for testing the robustness of our baseline regression outcomes. Previous regressions estimate 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 financially constrained.

We run estimations based on the prior corporate finance literature that shows that some firms are more prone to overinvest, underinvest, or to be informationally opaque (Almeida & Campello, 2007). The literature suggests that in certain situations managers have incentives to overinvest in real assets. Of course, overinvestment is related to excess free cash flow, which, in general, is more common in firms that are larger (and have more fixed assets) and lack growth opportunities (D'Mello & Miranda, 2010; Gordon & Myers, 1998; Office, 2011). If institutional investors effectively monitor firm management that are more prone to overinvest, the relation between investment and institutional blockholder ownership should be negative.

Conversely, underinvestment problems arise from risky debt, argument that trace back to Myers (1977). Firms with higher levels of leverage are more constrained and thus are more prone to underinvest due to higher bankruptcy costs (Dirk et al., 2007;; Morgado & Pindado, 2003). In this case, institutional investors can be motivated by double incentives, depending on their level of ownership holdings. On the one hand, if the monitoring incentives dominates, institutional investors will demand more investment spending in firms that underinvest; therefore, the relation

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 & 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 (Bird & Karolyi, 2016). Institutional investors demand quality corporate governance and information disclosure, leading to better decisions such as more and better investments in fixed assets. Consequently, the presence of institutional investors should positively affect investment in firms with lower tangibility.

Table 6 provides the main results of the cross-sectional tests that split the sample according to firm size, leverage, and asset tangibility, which, respectively, represents the heterogeneity in firm 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 firms 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.

[TABLE 6 ABOUT HERE]

The results in the table are consistent with the predicted relations. For the sample of large firms, higher levels of institutional ownership restrict overinvestment. Specifically, the regression coefficients in Col 2 show that the parameters are positive for IOwn and negative for IOwn², with

values of 0.585 ($t = 2.378$) and -1.381 ($t = 2.494$), 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 investor have an incentive to attenuate agency problems related to overinvestment.

The regression results in Col.4 show that institutional investor can aggravate underinvestment problems in high-leveraged firms, which is consistent with notion that some institutional investors have incentives to extract private benefits. Lower levels of institutional ownership positively affects firm investment ratios. However, when institutional investor holdings exceed 18.5%, the investment turns negative, suggesting underinvestment. The finding results are also consistent with the arguments related to institutional investors' incentives to reduce asymmetric information. The regression estimates in Cols. 5 and 6 show for instance that the effect of institutional investors demand lower (higher) investment spending in firms with low (high) collateral. In particular, the change in 1 standard deviation of institutional ownership in firms with low collateral is 3.9% and with high collateral 7.1% respectively. All regression coefficients are significant at 5%.

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 relation between firm investment and institutional holdings is nonlinear and follows an inverse U-shaped pattern. When institutional blockholder surpass the threshold of 33% of control rights, their investment rates smooth and decrease. This behavior suggests that a large fraction of firms' equity in the hands of institutional investors motivates long-term

investments that curb firms' capital expending and thus controls potential overinvestment. In contrast, when institutional blockholders hold a short-run investment position, firms' current investment ratios reflect pressure to produce short-run returns.

The analysis of investor heterogeneity confirms that independent and local investors explain these effects. 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 friendly to management policies. The institutional blockholder contestability analysis shows that institutional blockholders actively monitor the largest shareholder to avoid potential diversion of rents and cash flow tunneling.

The cash flow sensitivity analysis shows that, overall, institutional ownership reduces firms' dependence on internal operating cash flow to fund current capital expenditures. This finding is consistent with the monitoring hypothesis and the reduction of information asymmetries among stakeholders. Also, the presence of institutional investor is a positive signal to private investors of higher credit access and internal corporate governance standards. Thus, our results extend the empirical evidence of the central role that institutional investors play in emerging markets in boosting firm investment and firm growth opportunities.

Acknowledgements

We want thank the discussant and seminar participants for the discussions and comments at the 2016-Paris Financial Management Conference held at IPAG Business School, the 2017 World Finance Conference held at the School of Economics University of Cagliari and seminar participants at the research workshop at Universidad de los Andes School of Management.

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Table 1. Descriptive statistics total sample and selected subsamples

Variables	Total Sample				Subsample excluding China				Subsample with Institutional Blockholders				Subsample with Institutional Independent Blockholders			
	mean	sd	min	max	mean	sd	min	max	mean	sd	min	max	mean	sd	min	max
Investment	0.065	0.064	0.000	0.423	0.060	0.061	0.000	0.419	0.069	0.065	0.000	0.419	0.070	0.065	0.000	0.419
IOwn	0.035	0.081	0.000	0.920	0.046	0.092	0.000	0.920	0.138	0.107	0.050	0.920	0.140	0.108	0.050	0.920
IndepIO	0.028	0.070	0.000	0.920	0.034	0.079	0.000	0.920	0.108	0.103	0.000	0.920	0.127	0.101	0.050	0.920
GreyIO	0.008	0.036	0.000	0.660	0.012	0.045	0.000	0.660	0.030	0.067	0.000	0.660	0.014	0.042	0.000	0.600
Iown-Short Term	0.011	0.038	0.000	0.560	0.013	0.042	0.000	0.560	0.044	0.065	0.000	0.560	0.047	0.067	0.000	0.560
Iown-Long Term	0.024	0.067	0.000	0.920	0.033	0.078	0.000	0.920	0.094	0.104	0.000	0.920	0.093	0.104	0.000	0.920
IO-Local	0.027	0.071	0.000	0.920	0.037	0.084	0.000	0.920	0.107	0.107	0.000	0.920	0.106	0.108	0.000	0.920
IO-Foreign	0.008	0.034	0.000	0.530	0.009	0.035	0.000	0.530	0.031	0.062	0.000	0.530	0.034	0.063	0.000	0.530
Tobin's Q	1.290	0.987	0.209	6.905	1.000	0.747	0.209	6.905	1.258	0.982	0.209	6.880	1.310	1.019	0.209	6.880
CFO	0.068	0.092	-0.240	0.435	0.072	0.094	-0.240	0.435	0.082	0.092	-0.238	0.435	0.083	0.093	-0.238	0.435
Cash	0.172	0.281	0.000	35.294	0.141	0.175	0.000	12.941	0.177	0.174	0.000	2.118	0.187	0.180	0.000	2.118
Debt	0.228	0.171	0.000	0.672	0.219	0.168	0.000	0.672	0.211	0.163	0.000	0.671	0.206	0.162	0.000	0.667
Size	19.596	1.638	13.705	26.689	19.297	1.742	13.705	26.522	20.014	1.615	13.769	26.492	20.010	1.562	13.769	26.492
Sales	0.981	0.748	0.000	17.188	1.051	0.773	0.000	17.188	1.087	0.783	0.000	8.182	1.071	0.763	0.000	7.917
P1	0.324	0.197	0.000	0.990	0.306	0.202	0.000	0.990	0.303	0.174	0.050	0.890	0.297	0.174	0.050	0.890
Index	0.081	0.273	0.000	1.000	0.118	0.323	0.000	1.000	0.098	0.298	0.000	1.000	0.105	0.307	0.000	1.000
Obs	32,997				20,299				8,439				7,183			

Sources: Data are from Thomson Eikon and S&P Capital IQ.

Note: Appendix A provides definitions of the variables.

Table 2. Institutional blockholders and investment (GMM regressions)

		Total Sample			Excluding China		
VARIABLES		(1)	(2)	(3)	(4)	(5)	(6)
Investment _{i,t-1}	B ₁	0.416*** (19.6)	0.404*** (18.56)	0.421*** (19.71)	0.329*** (14.55)	0.325*** (13.80)	0.320*** (14.43)
IOwn _{i,t}	B ₂	0.484*** (3.21)	1.139*** (4.94)	0.302*** (4.75)	0.299** (2.21)	0.649*** (3.37)	0.229*** (4.21)
IOwn ² _{i,t}	B ₃	... ...	1.839*** (-3.57)	... ...	... ...	0.907*** (-2.69)	... ...
CFO x IOwn _{i,t}	B ₄	... ...	... ...	3.233*** (-4.09)	... ...	... ...	2.545*** (-3.83)
Tobin's Q _{i,t-1}	B ₅	0.004*** (2.45)	0.002 (1.47)	0.006*** (3.96)	0.014*** (4.07)	0.012*** (3.58)	0.015*** (4.39)
CFO _{i,t}	B ₆	0.041*** (3.85)	0.032*** (2.75)	0.146*** (5.93)	0.052*** (3.42)	0.053*** (3.37)	0.142*** (5.13)
Cash _{i,t-1}	B ₇	0.062*** (-3.55)	0.074*** (-3.91)	0.047*** (-3.01)	-0.049* (-1.65)	-0.043 (-1.41)	-0.045* (-1.72)
Debt _{i,t-1}	B ₈	0.092*** (-9.03)	0.091*** (-8.69)	0.095*** (-9.12)	0.126*** (-10.36)	0.127*** (-10.24)	0.122*** (-9.99)
Size _{i,t-1}	B ₉	-0.012** (-2.19)	0.018*** (-3.73)	-0.003 (-0.52)	0.012*** (-3.38)	0.015*** (-3.80)	0.009*** (-2.93)
Sales _{i,t-1}	B ₁₀	0.006 (1.22)	0.007 (1.30)	0.005 (1.41)	0.006 (0.96)	0.004 (0.59)	0.009* (1.93)
Pl _{i,t-1}	B ₁₁	0.01 (0.29)	0.001 (0.017)	0.012 (0.44)	-0.086* (-1.880)	-0.084* (-1.905)	-0.063** (-2.013)
Index _{i,t-1}	B ₁₂	0.168*** (3.87)	0.209*** (4.64)	0.089*** (2.18)	0.132*** (3.92)	0.137*** (3.95)	0.106*** (3.73)
Observations		32706	32706	32528	20154	20154	20007
Number of id		6306	6306	6299	3883	3883	3876
Country-Year							
FE		YES	YES	YES	YES	YES	YES
Industry FE		YES	YES	YES	YES	YES	YES
F-Test		30.6	24.4	42.07	18.58	56.9	65.38
Auto(1)		0	0	0	0	0	0
Auto(2)		0.723	0.156	0.961	0.855	0.841	0.932
Hansen p-value		0.253	0.211	0.19	0.37	0.426	0.311
VIF		1.11	1.72	1.3	1.13	1.78	1.32
<i>Marginal Effects at means</i>							
dy/IOwn = 0 then IOwn* =			0.31			0.36	
dy/dCFO = (B6 + B4 x IOwn)				0.0325** (2.50)			0.0253** (2.05)
CF Sensitivity decrease (base points)				85			267

Notes: The investment ratio is the capital expenditure scaled by lagged total assets. The Hansen test is a test of over-identifying restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term. t-statistics from robust standard errors are in parentheses. Appendix A provides definitions of all variables. ***, **, and * represents a level of significance lower than 1%, 5%, and 10%, respectively.

Table 3. Institutional investors colors and investment (GMM regressions)

VARIABLES		Total Sample				Excluding China			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Investment _{i,t-1}	B ₁	0.396*** (18.86)	0.408*** (18.83)	0.399*** (18.22)	0.418*** (19.60)	0.359*** (16.16)	0.362*** (16.29)	0.341*** (13.95)	0.360*** (15.96)
Dummy Grey.	B ₂	0.037 (1.03)	...	...	...	0.001 (0.22)	...	...	...
Dummy Indep.	B ₃	0.124*** (5.98)	...	...	...	0.011*** (2.66)	...	...	...
GreyIO	B ₄	...	-0.104 (-0.34)	0.253 (0.41)	0.235 (1.17)	...	0.005 (0.13)	0.752* (1.65)	0.051 (0.81)
GreyIO ² _{i,t}	B ₅	...	...	-0.287 (-0.13)	...	...	...	-1.917 (-1.09)	...
CFO x GreyIO _{i,t}	B ₆	...	...	...	-6.01*** (-2.91)	...	...	...	-0.438 (-0.74)
IndIO	B ₇	...	0.640*** (3.77)	1.503*** (5.54)	0.346*** (4.28)	...	0.048** (2.37)	0.661*** (3.10)	0.164*** (3.55)
IndIO ² _{i,t}	B ₈	...	...	2.711*** (-3.46)	...	...	...	-1.209** (-2.32)	...
CFO x IndIO _{i,t}	B ₉	...	...	...	3.082*** (-3.81)	...	...	...	1.642*** (-2.90)
Tobin's Q _{i,t-1}	B ₁₀	0.001 (0.65)	0.004*** (2.76)	0.002 (1.23)	0.006*** (4.05)	0.011*** (4.20)	0.011*** (4.31)	0.008*** (2.68)	0.011*** (4.20)
CFO _{i,t}	B ₁₁	0.029** (2.43)	0.037*** (3.31)	0.032*** (2.60)	0.158*** (6.18)	0.054*** (4.57)	0.055*** (4.64)	0.056*** (3.65)	0.102*** (5.18)
Cash _{i,t-1}	B ₁₂	0.081*** (-4.108)	0.069*** (-3.781)	0.079*** (-4.078)	0.048*** (-3.133)	-0.043* (-1.935)	-0.043** (-1.977)	-0.045 (-1.457)	-0.037* (-1.758)
Debt _{i,t-1}	B ₁₃	0.095*** (-9.144)	0.094*** (-9.172)	-0.094 (-8.678)	0.095*** (-9.152)	0.116*** (-10.095)	0.116*** (-10.136)	0.121*** (-9.394)	0.114*** (-9.766)
Size _{i,t-1}	B ₁₄	0.018*** (-3.948)	-0.011** (-2.099)	0.019*** (-3.653)	-0.002 (-0.497)	-0.002 (-0.942)	-0.002 (-0.693)	-0.012 (-3.122)	-0.002 (-0.867)

Table 3 (Cont.) Institutional investors colors and investment (GMM regressions)

VARIABLES		Total Sample				Excluding China			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sales _{i,t-1}	B15	0.009* (1.85)	0.007 (1.47)	0.007 (1.43)	0.006 (1.55)	0.002 (0.46)	0.002 (0.54)	0.002 (0.03)	0.003 (0.85)
Pl _{i,t-1}	B16	0.007 (0.19)	0.009 (0.27)	0.011 (0.31)	0.016 (0.59)	0.061*** (-3.07)	0.060*** (-3.14)	-0.061 (-1.42)	-0.073*** (-3.40)
Index _{i,t-1}	B13	0.209*** (4.88)	0.171*** (3.78)	0.206*** (4.14)	0.091** (2.24)	0.102*** (5.04)	0.100*** (5.0)	0.16*** (5.04)	0.079*** (3.96)
Observations		32,706	32,706	32,706	32,528	20,154	20,154	20,154	20,007
Number of id		6,306	6,306	6,306	6,299	3,883	3,883	3,883	3,876
Country-Year FE		YES	YES	YES	YES	YES	YES	YES	YES
Industry FE		YES	YES	YES	YES	YES	YES	YES	YES
F-Test		35.16	48.1	31.31	180	23.3	24.91	24.27	23.75
Auto(1)		0	0	0	0	0	0	0	0
Auto(2)		0.168	0.42	0.15	0.734	0.494	0.461	0.574	0.522
Hansen p-value		0.13	0.423	0.487	0.556	0.313	0.512	0.543	0.582
VIF		1.11	1.1	1.87	1.39	1.13	1.12	1.97	1.41
Marginal Effects									
dy/IndIO = (B7 - 2 x B8 x IndIO)				1.353				0.579	
dy/IndIO = 0 then IndIO* equal				0.277				0.273	
dy/dSTD(IndIO)				0.095				0.046	
dy/dCFO (IndIO > 0) = (B11 + B9xIndIO)					0.0726*** (3.87)				0.0467*** (2.93)
dy/dCFO (IndIO > 0) = (B11 + B6xGreyIO)					0.112*** (5.67)				0.0967*** (5.29)

Notes: The investment ratio is the capital expenditure scaled by lagged total assets. The Hansen test is a test of over-identifying restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term. t-statistics from robust standard errors are in parentheses. Appendix A provides definitions of all variables. ***, **, and * represents a level of significance lower than 1%, 5%, and 10%, respectively.

Table 4. Investors horizon and investment (GMM regressions)

VARIABLES		Total Sample	Total Sample	Total Sample	Total Sample	Total Sample
		(1)	(2)	(3)	(4)	(5)
Investment _{i,t-1}	B ₁	0.444*** (23.47)	0.442*** (22.39)	0.435*** (21.72)	0.434*** (20.07)	0.434*** (21.51)
IOwn-Short Term _{i,t}	B ₂	0.052*** (2.71)	0.194* (1.675)	... ...	... ...	... ...
IOwn-Short Term ² _{i,t}	B ₃	... ...	-0.486 (-0.946)	... ...	... ...	... ...
IOwn-Long Term _{i,t}	B ₄	0.039** (2.01)	0.373** (2.209)	... ...	... ...	... ...
IOwn-Long Term ² _{i,t}	B ₅	... ...	-0.774* (-1.703)	... ...	... ...	... ...
IndIO-Short Term _{i,t}	B ₆	... ...	... ...	0.175*** (2.582)	0.333** (2.04)	0.184** (2.532)
IndIO-Short Term ² _{i,t}	B ₇	... ...	... ...	... ...	-0.348 (-0.464)	... ...
IndIO-Long Term _{i,t}	B ₈	... ...	... ...	0.210** (2.203)	0.827** (2.449)	0.217** (2.272)
IndIO-Long Term ² _{i,t}	B ₉	... ...	... ...	... ...	-1.981** (-2.255)	... ...
GreyIO-Short Term _{i,t}	B ₁₀	... ...	... ...	-0.335 (-1.206)	-0.560* (-1.802)	-0.415 (-1.001)
GreyIO-Short Term ² _{i,t}	B ₁₁	... ...	... ...	... ...	... ...	0.251 -0.221
GreyIO-Long Term _{i,t}	B ₁₂	... ...	... ...	-0.022 (-0.106)	0.213 (0.754)	-0.062 (-0.169)
GreyIO-Long Term ² _{i,t}	B ₁₃	... ...	... ...	... ...	... ...	0.248 (0.174)
Observations		32,706	32,706	32,706	32,706	32,706
Number of id		6,306	6,306	6,306	6,306	6,306
Firm's Control Variables		YES	YES	YES	YES	YES
Country-Year FE		YES	YES	YES	YES	YES
Industry FE		YES	YES	YES	YES	YES
F-Test		48.79	44.3	68.9	63.49	67.8
Auto(1)		0	0	0	0	0
Auto(2)		0.366	0.643	0.627	0.502	0.643
Hansen <i>p</i> -value		0.654	0.587	0.635	0.622	0.614

Notes: The investment ratio is the capital expenditure scaled by lagged total assets. The Hansen test is a test of overidentifying restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term. *t*-statistics from robust standard errors are in parentheses. Appendix A provides definitions of all variables. ***, **, and * represents a level of significance lower than 1%, 5%, and 10%, respectively.

Table 5. Foreign/domestic investors and investment (GMM regressions)

Variables	(1)	(2)	(3)	(4)
Investment _{i,t-1}	0.439*** (23.152)	0.439*** (22.994)	0.438*** (24.691)	0.438*** (24.622)
IO-Foreign _{i,t}	-0.009 (-0.327)	-0.077 (-0.697)	0.005 (0.188)	-0.105 (-1.023)
IO-Foreign ² _{i,t}		0.334 (0.666)		0.517 (1.094)
IO-Local _{i,t}	0.069*** (3.019)	0.069*** (2.966)	0.147** (2.432)	0.146** (2.403)
IO-Local ² _{i,t}			-0.294* (-1.669)	-0.294* (-1.666)
Tobin's Q _{i,t-1}	0.007*** (6.206)	0.007*** (6.170)	0.007*** (5.776)	0.007*** (5.783)
CFO _{i,t}	0.053*** (5.656)	0.053*** (5.645)	0.053*** (6.077)	0.054*** (6.113)
Cash _{i,t-1}	-0.043*** (-3.487)	-0.043*** (-3.500)	-0.033*** (-3.142)	-0.033*** (-3.128)
Debt _{i,t-1}	-0.101*** (-10.865)	-0.102*** (-10.865)	-0.099*** (-11.284)	-0.099*** (-11.244)
Size _{i,t-1}	0.005*** (3.422)	0.005*** (3.239)	0.005*** (3.899)	0.005*** (3.629)
Sales _{i,t-1}	0.001 (0.248)	0.001 (0.302)	-0.002 (-0.642)	-0.002 (-0.548)
PI _{i,t-1}	0.031 (1.447)	0.029 (1.380)	0.030 (1.639)	0.031* (1.676)
Index _{i,t-1}	0.101*** (3.053)	0.100*** (3.010)	0.062*** (2.801)	0.062*** (2.818)
Observations	32,706	32,706	32,706	32,706
Number of id	6,306	6,306	6,306	6,306
Country-Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
F-Test	40.3	43.4	47.21	45.15
Auto(1)	0	0	0	0
Auto(2)	0.416	0.408	0.355	0.346
Hansen <i>p</i> -value	0.542	0.571	0.635	0.611

Notes: The investment ratio is the capital expenditure scaled by lagged total assets. The Hansen test is a test of overidentifying restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term. *t*-statistics from robust standard errors are in parentheses. Appendix A provides definitions for all variables. ***, **, and * represents a level of significance lower than 1%, 5%, and 10%, respectively.

Table 6. Institutional blockholders and investment (heterogeneity; GMM regressions)

VARIABLES		Small Size	Large Size	Leverage: Low	Leverage: High	Tangibility Low	Tangibility High
		(1)	(2)	(3)	(4)	(5)	(6)
Investment _{i,t-1}	B ₁	0.346*** (14.20)	0.501*** (17.52)	0.366*** (13.78)	0.451*** (16.97)	0.337*** (13.66)	0.449*** (16.23)
IOwn _{i,t}	B ₂	0.374* (1.75)	0.585** (2.37)	0.478* (1.92)	0.706*** (2.99)	0.540*** (3.13)	1.013*** (3.56)
IOwn ² _{i,t}	B ₃	-0.952 (-1.508)	-1.381** (-2.494)	-0.122 (-0.179)	-1.908*** (-3.001)	-0.901* (-1.785)	-1.736** (-2.445)
Tobin's Q _{i,t-1}	B ₄	0.001 (0.87)	0.012*** (4.95)	0.005*** (3.66)	0.009*** (3.49)	0.004*** (3.11)	0.010*** (3.80)
CFO _{i,t}	B ₅	0.045*** (3.62)	0.022 (1.55)	0.054*** (4.51)	0.062*** (3.64)	0.027*** (2.67)	0.087*** (3.96)
Cash _{i,t-1}	B ₆	-0.003 (-0.18)	-0.120*** (-3.62)	-0.023** (-2.00)	-0.064* (-1.93)	-0.018 (-1.63)	-0.087* (-1.72)
Debt _{i,t-1}	B ₇	-0.104*** (-8.03)	-0.070*** (-4.60)	-0.141*** (-9.73)	-0.118*** (-8.41)	-0.077*** (-7.57)	-0.132*** (-7.81)
Size _{i,t-1}	B ₈	-0.030*** (-5.93)	-0.005 (-0.71)	-0.007* (-1.78)	-0.002 (-0.74)	-0.004 (-1.37)	0.004 (1.51)
Sales _{i,t-1}	B ₉	0.006 (1.15)	0.0001 (-0.07)	0.003 (1.06)	-0.003 (-0.46)	0.0001 (0.09)	-0.008 (-0.94)
P1 _{i,t-1}	B ₁₀	0.03 (0.94)	-0.026 (-0.67)	0.029 (1.04)	0.051 (1.09)	0.001 (0.04)	0.01 (0.19)
Index _{i,t-1}	B ₁₁	-0.096 (-1.09)	0.036 (0.90)	0.187*** (3.46)	0.009 (0.25)	0.077* (1.88)	0.076 (1.29)
Observations		15,310	17,396	16,085	16,621	16,055	16,651
Number of id		3,434	2,872	3,293	3,013	3,287	3,019
Country-Year FE		YES	YES	YES	YES	YES	YES
Industry FE		YES	YES	YES	YES	YES	YES
F-Test		19.13	105.7	79.23	99.04	16.42	25.53
Auto(1)		0	0	0	0	0	0
Auto(2)		0.408	0.966	0.351	0.462	0.0636	0.237
Hansen p-value		0.678	0.731	0.718	0.754	0.762	0.698
Marginal Effects							
dy/IOwn = (B ₂ - 2 x B ₃ x IOwn)						0.473	0.897
1 STD Change in IOwn						0.039	0.071

Notes: The investment ratio is the capital expenditure scaled by lagged total assets. The Hansen test is a test of overidentifying restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term. *t*-statistics from robust standard errors are in parentheses. Appendix A provides definitions of all variables. ***, **, and * represents a level of significance lower than 1%, 5%, and 10%, respectively.

APPENDIX

Appendix A. Variable definition

Abbreviation	Variables	Definition
Investment variable		
Investment $i_{i,t-1}$	Investment	Capital expenditures of the year t over total assets at the beginning of the period $(t-1)$.
Hypothesis explanatory variables		
CFO	Operating Cash flow	Cash Flow from operating activities of year t over total assets at the beginning of period $(t-1)$
IOwn	Institutional ownership	Proportion of shares owned by institutional investors
IndepIO	Independent investor ownership	Proportion of shares owned by blockholders classified as Independent.
GreyIO	Grey investor ownership	Proportion of shares owned by blockholders classified as Grey.
IO-Foreign	Foreign institutional ownership	Proportion of shares owned by foreign institutional blockholders
IO-Local	Local institutional ownership	Proportion of shares owned by domestic institutional blockholders
IO-Short term	Short Term Institutional Investor	Proportion of shares owned by an institutional blockholders who exit the firm ownership within a year (or loss the category of blockholder)
IO-Long Term	Short Term Institutional Investor	Proportion of shares owned by an institutional blockholders who remains as blockholder for at least two years.
Dummy Indep	Dummy independent investor	Takes value of 1 if independent institutional ownership is greater than zero, and zero otherwise
Dummy Grey	Dummy grey investor	Takes value of 1 if grey institutional ownership is greater than zero, and zero otherwise
Moderating variables		
Tangibility	Assets tangibility	Ratio of property, plants, and equipment over total assets
Medtandf	Dummy firm-country asset tangibility	Takes the value of 1 if firm tangibility is over the year-country-industry median (unrestricted), and zero otherwise (opaque)
Meddebt	Dummy Debt industry assets tangibility	Takes the value of 1 if firm debt ratio is over the year-country-industry median (unrestricted), and zero otherwise (opaque)
Medsized	Dummy size	Takes the value of 1 if firm size is over the year-country-industry median (unrestricted), and zero otherwise (restricted)
Firm-level control variables		
Tobin's Q	Tobin's Q	(Market capitalization + Total debt)/Total asset's replacement 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 of 1 if firm belongs to the most traded local market index at year t .
Country, Industry, and Year variables		
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

Appendix B. Partial correlations

	Investment	IOwn _{i,t}	Ind IO _{i,t}	Grey IO _{i,t}	IOwn-Short-Term _{i,t}	IOwn-Long-Term _{i,t}	CFO _{i,t}	Tobin's Q _{i,t-1}	Cash _{i,t-1}	Debt _{i,t-1}	Size _{i,t-1}	Sales _{i,t-1}	PI _{i,t-1}
IOwn _{i,t}	0.013**												
IndIO _{i,t}	0.021***	0.893***											
GreyIO _{i,t}	-0.012**	0.492***	0.049***										
IOwn-Short Term _{i,t}	0.023***	0.574***	0.554***	0.203***									
IOwn-Long Term _{i,t}	0.002	0.884***	0.766***	0.480***	0.125***								
CFO _{i,t}	0.237***	0.066***	0.067***	0.015***	0.038***	0.058***							
Tobin's Q _{i,t-1}	0.161***	-0.030***	-0.002	-0.063***	-0.0009	-0.036***	0.167***						
Cash _{i,t-1}	0.019***	-0.004	0.0186***	-0.0445***	0.024***	-0.018***	0.057***	0.222***					
Debt _{i,t-1}	0.039***	-0.052***	-0.060***	0.0002	-0.044***	-0.038***	-0.131***	-0.115***	-0.320***				
Size _{i,t-1}	0.101***	0.129***	0.119***	0.056***	0.085***	0.108***	0.075***	-0.018***	-0.031***	0.281***			
Sales _{i,t-1}	0.020***	0.087***	0.065***	0.0684***	0.058***	0.072***	0.085***	-0.021***	0.052***	-0.070***	-0.058***		
PI _{i,t-1}	0.024***	-0.083***	-0.086***	-0.016***	-0.102***	-0.042***	0.062***	0.019***	-0.035***	0.003	0.155***	0.024***	
Index _{i,t-1}	0.058***	0.040***	0.044***	0.002	-0.003	0.050***	0.127***	0.063***	-0.047***	0.048***	0.392***	-0.045***	0.024***

Note: ***, **, and * represents a level of significance lower than 1%, 5%, and 10%,

Appendix C. Descriptive statistics by country

Variable	Chile		Colombia		China		Greece		Hungary		Indonesia		Malaysia	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
Investment	0.064	0.056	0.064	0.058	0.072	0.069	0.047	0.057	0.078	0.061	0.075	0.071	0.049	0.054
IOwn	0.042	0.073	0.076	0.126	0.018	0.054	0.018	0.046	0.064	0.110	0.018	0.063	0.022	0.059
IndepIO	0.037	0.070	0.037	0.108	0.018	0.053	0.017	0.044	0.061	0.109	0.009	0.032	0.017	0.048
GreyIO	0.006	0.022	0.039	0.059	0.001	0.011	0.001	0.011	0.003	0.015	0.009	0.053	0.004	0.030
IOwn-Short Term	0.010	0.036	0.017	0.042	0.008	0.030	0.006	0.025	0.026	0.072	0.003	0.019	0.004	0.020
IOwn-Long Term	0.032	0.063	0.058	0.113	0.010	0.040	0.013	0.038	0.037	0.070	0.015	0.059	0.018	0.055
IO-Local	0.039	0.069	0.075	0.125	0.012	0.039	0.003	0.017	0.041	0.094	0.004	0.022	0.016	0.052
IO-Foreign	0.003	0.026	0.001	0.007	0.006	0.033	0.015	0.044	0.022	0.039	0.014	0.056	0.006	0.025
Tobin's Q	1.025	0.604	1.013	0.514	1.758	1.136	0.803	0.489	0.958	0.546	1.257	0.979	0.930	0.760
CFO	0.085	0.090	0.082	0.084	0.062	0.089	0.045	0.076	0.092	0.090	0.086	0.104	0.066	0.089
Cash	0.081	0.100	0.073	0.069	0.222	0.390	0.096	0.104	0.095	0.106	0.143	0.386	0.163	0.161
Debt	0.241	0.132	0.226	0.146	0.241	0.173	0.318	0.173	0.190	0.149	0.244	0.171	0.181	0.157
Size	20.293	1.909	20.977	1.839	20.07	1.32	19.54	1.40	19.09	2.06	19.34	1.62	18.59	1.60
Sales	0.771	0.543	0.481	0.336	0.869	0.692	0.825	1.014	1.084	0.524	1.158	0.889	0.869	0.665
P1	0.466	0.216	0.393	0.218	0.3515	0.1864	0.300	0.253	0.380	0.249	0.466	0.240	0.286	0.189
Index	0.333	0.472	0.306	0.466	0.0221	0.1469	0.324	0.468	0.380	0.488	0.190	0.393	0.076	0.264
Obs	721		49		12,698		825		100		1,262		3,728	

Appendix C continues

Appendix C (cont.)

Variable	Mexico		Peru		Poland		South Korea		Saudi Arabia		South Africa		Thailand		Arab Emirates	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
Investment	0.060	0.050	0.074	0.061	0.054	0.057	0.062	0.062	0.066	0.064	0.071	0.061	0.063	0.064	0.054	0.055
IOwn	0.051	0.098	0.055	0.105	0.112	0.118	0.038	0.069	0.004	0.018	0.146	0.158	0.010	0.035	0.015	0.044
IndepIO	0.051	0.098	0.025	0.050	0.053	0.084	0.025	0.051	0.004	0.018	0.145	0.158	0.006	0.027	0.013	0.043
GreyIO	0.000	0.000	0.030	0.066	0.058	0.090	0.013	0.042	0.000	0.000	0.000	0.006	0.005	0.022	0.002	0.013
IOwn-Short Term	0.007	0.028	0.013	0.044	0.031	0.063	0.015	0.041	0.000	0.003	0.042	0.081	0.002	0.012	0.004	0.021
IOwn-Long Term	0.044	0.096	0.042	0.095	0.081	0.104	0.024	0.054	0.004	0.017	0.104	0.136	0.009	0.032	0.011	0.039
IO-Local	0.041	0.095	0.049	0.101	0.107	0.116	0.029	0.061	0.003	0.017	0.132	0.152	0.007	0.029	0.003	0.013
IO-Foreign	0.010	0.033	0.006	0.026	0.005	0.028	0.010	0.033	0.001	0.006	0.014	0.043	0.003	0.020	0.012	0.043
Tobin's Q	1.193	0.691	1.115	0.905	0.893	0.625	0.848	0.593	1.788	1.127	1.345	0.938	1.182	0.763	0.860	0.498
CFO	0.095	0.082	0.118	0.104	0.070	0.090	0.056	0.089	0.120	0.103	0.087	0.094	0.095	0.105	0.075	0.086
Cash	0.097	0.081	0.085	0.107	0.097	0.139	0.160	0.160	0.108	0.132	0.147	0.150	0.125	0.150	0.132	0.128
Debt	0.238	0.151	0.215	0.147	0.171	0.132	0.234	0.174	0.238	0.178	0.158	0.135	0.225	0.189	0.192	0.162
Size	21.41	1.41	20.17	1.32	18.55	1.60	19.30	1.48	20.64	1.61	19.42	1.96	18.84	1.60	20.42	1.54
Sales	0.838	0.447	0.755	0.447	1.281	0.912	1.095	0.644	0.632	0.509	1.536	1.094	1.170	0.818	0.507	0.429
P1	0.310	0.258	0.437	0.300	0.369	0.200	0.267	0.147	0.276	0.202	0.266	0.182	0.267	0.197	0.368	0.232
Index	0.437	0.496	0.181	0.386	0.056	0.229	0.000	0.000	0.993	0.081	0.118	0.323	0.126	0.332	0.000	0.000
Obs	513		226		1,507		6,649		304		1,306		2,122		199	

Sources: Data are from Thomson Eikon and S&P Capital IQ.

Note: Appendix A provides definitions of all variables.

Appendix D. Institutional blockholders and investment (OLS regressions)

Variables	Total Sample					Excluding China		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Investment _{i,t-1}	0.167*** (18.201)	0.167*** (18.207)	0.180*** (19.011)	0.180*** (19.022)	0.180*** (18.921)	0.135*** (10.910)	0.135*** (10.931)	0.134*** (10.761)
IOwn _{i,t}	0.012 (1.567)	0.039*** (3.072)	0.014* (1.805)	0.040*** (3.141)	0.023*** (2.847)	0.009 (1.092)	0.035** (2.348)	0.047*** (3.001)
IOwn ² _{i,t}		-0.077*** (-2.918)		-0.075*** (-2.761)			-0.067** (-2.209)	
CFO × IOwn _{i,t}					-0.139** (-2.437)			-0.131** (-2.028)
Tobin's Q _{i,t-1}	0.012*** (14.773)	0.012*** (14.761)	0.009*** (10.422)	0.008*** (10.397)	0.009*** (10.351)	0.010*** (7.245)	0.010*** (7.231)	0.010*** (7.172)
CFO _{i,t}	0.054*** (10.084)	0.054*** (10.050)	0.056*** (10.456)	0.055*** (10.421)	0.062*** (10.670)	0.052*** (7.748)	0.051*** (7.715)	0.058*** (7.845)
Cash _{i,t-1}			0.018*** (4.414)	0.018*** (4.424)	0.018*** (4.460)	0.013*** (2.969)	0.013*** (2.984)	0.013*** (3.034)
Debt _{i,t-1}			-0.072*** (-13.271)	-0.072*** (-13.227)	-0.071*** (-13.078)	-0.071*** (-10.613)	-0.071*** (-10.556)	-0.070*** (-10.403)
Size _{i,t-1}			-0.020*** (-11.126)	-0.020*** (-11.185)	-0.021*** (-11.433)	-0.020*** (-7.814)	-0.020*** (-7.887)	-0.020*** (-8.170)
Sales _{i,t-1}			-0.001 (-1.168)	-0.001 (-1.193)	-0.001 (-1.241)	0.002** (2.388)	0.002** (2.375)	0.002** (2.255)
P1 _{i,t-1}			0.003 (0.588)	0.003 (0.706)	0.002 (0.509)	0.003 (0.574)	0.003 (0.657)	0.003 (0.565)
Index _{i,t-1}			0.002 (0.731)	0.002 (0.800)	0.001 (0.654)	0.002 (0.880)	0.002 (0.945)	0.002 (0.877)
Observations	32,706	32,706	32,706	32,706	32,528	20,154	20,154	20,007
Adj. R ²	0.116	0.116	0.146	0.147	0.148	0.124	0.125	0.126
Number of id	6,306	6,306	6,306	6,306	6,299	3,883	3,883	3,876
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Country-Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: The investment ratio is the capital expenditure scaled by lagged total assets. *t*-statistics from robust standard errors are in parentheses. Appendix A provides definitions of all variables. ***, **, and * represents a level of significance lower than 1%, 5%, and 10%, respectively.

Appendix E. Institutional investors colors and investment (OLS regressions)

Variables	Total Sample				Excluding China			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Investment _{i,t-1}	0.180*** (19.023)	0.180*** (19.017)	0.180*** (19.031)	0.180*** (18.924)	0.135*** (10.919)	0.135*** (10.910)	0.135*** (10.931)	0.134*** (10.735)
Dummy Grey.	0.000 (0.033)				-0.000 (-0.132)			
Dummy Indep.	0.003*** (2.936)				0.003** (2.031)			
GreyIO _{i,t}		-0.001 (-0.058)	0.010 (0.369)	0.014 (0.836)		0.001 (0.088)	0.015 (0.546)	0.019 (1.156)
GreyIO ² _{i,t}			-0.037 (-0.523)				-0.043 (-0.626)	
CFO x GreyIO _{i,t}				-0.222** (-2.059)				-0.262** (-2.389)
IndIO		0.017** (2.025)	0.041*** (3.107)	0.025*** (2.847)		0.012 (1.190)	0.035** (2.183)	0.017* (1.707)
IndIO ² _{i,t}			-0.074** (-2.556)				-0.064** (-1.969)	
CFO x IndIO _{i,t}				-0.116* (-1.786)				-0.067 (-0.908)
Tobin's Q _{i,t-1}	0.008*** (10.384)	0.009*** (10.431)	0.008*** (10.396)	0.009*** (10.353)	0.010*** (7.233)	0.010*** (7.254)	0.010*** (7.230)	0.010*** (7.178)
CFO _{i,t}	0.055*** (10.434)	0.056*** (10.458)	0.055*** (10.422)	0.062*** (10.668)	0.052*** (7.742)	0.052*** (7.750)	0.052*** (7.715)	0.058*** (7.832)
Cash _{i,t-1}	0.018*** (4.419)	0.018*** (4.412)	0.018*** (4.422)	0.018*** (4.458)	0.013*** (2.978)	0.013*** (2.968)	0.013*** (2.982)	0.013*** (3.015)
Debt _{i,t-1}	-0.072*** (-13.264)	-0.072*** (-13.274)	-0.072*** (-13.229)	-0.071*** (-13.076)	-0.071*** (-10.599)	-0.071*** (-10.615)	-0.071*** (-10.561)	-0.071*** (-10.467)
Size _{i,t-1}	-0.020*** (-11.134)	-0.020*** (-11.113)	-0.020*** (-11.171)	-0.021*** (-11.427)	-0.020*** (-7.827)	-0.020*** (-7.801)	-0.020*** (-7.871)	-0.020*** (-8.082)
Sales _{i,t-1}	-0.001 (-1.191)	-0.001 (-1.170)	-0.001 (-1.189)	-0.001 (-1.235)	0.002** (2.391)	0.002** (2.391)	0.002** (2.386)	0.002** (2.288)
Pl _{i,t-1}	0.003 (0.594)	0.003 (0.575)	0.003 (0.692)	0.002 (0.499)	0.003 (0.537)	0.003 (0.564)	0.003 (0.651)	0.002 (0.462)
Index _{i,t-1}	0.002 (0.757)	0.002 (0.732)	0.002 (0.789)	0.002 (0.661)	0.002 (0.904)	0.002 (0.881)	0.002 (0.935)	0.002 (0.815)
Observations	32,706	32,706	32,706	32,528	20,154	20,154	20,154	20,007
Adj. R ²	0.147	0.147	0.147	0.148	0.124	0.124	0.125	0.126
Number of id	6,306	6,306	6,306	6,299	3,883	3,883	3,883	3,876
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Country-Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: The investment ratio is the capital expenditure scaled by lagged total assets. *t*-statistics from robust standard errors are in parentheses. Appendix A provides definitions of all variables. ***, **, and * represents a level of significance lower than 1%, 5%, and 10%, respectively.

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