Do institutional investors unbind firm financial constraints? Evidence from emerging markets

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Abstract

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Using firm-level information for 11 larger emerging economies for the period -2003-2014, this article analyze the impact of firm investment ratio by the presence of institutional ownership and the effects that institutional investor heterogeneity has on firm financial constraints. Results show that the presence of institutional ownership reduces firm cash flow sensitivity for restricted samples using size and Kaplan and Zingales index. Investor heterogeneity regressions show that independent and foreign institutional investors reduces firm financial constraints explained by direct investor activism, lower monitoring costs and better corporate governance specially across small and medium-size firms.

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

JEL codes: C20, G00, G20 and G30

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1. Introduction

Institutional investors on the other hand, have become key players in financial markets over the three decades. This investors 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 the corporate property (Aggarwal *et al.* 2011) and according to the International Monetary Fund, institutional investors from around the world manage financial assets in excess of US$ 45 trillion (IMF, 2005). This pattern is also observed across emerging markets. According to OECD (2011) 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 under administration of US$ 390 billion. These funds are the most dominant institutional investors in the regional markets with the exception of Brazil where mutual fund industry is one of the largest internationally. The role of these investors might contribute to the development of capital markets by creating the need for efficient transactions, good risk evaluation, and a good corporate governance (CG) system. They can also exert direct influence on management activities through their property (shares), and indirect influence through their ability to sell their shares (Gillan & Starks 2003). As indicated by Ferreira and Matos (2008), a key factor in the global capital market is the increasing importance of institutional investors.

The relation between institutional investor's holdings and financial constraints has not been closely analyzed for the cases of developed and emerging markets. The literature suggests several advantages derived from the presence on institutional investors in the ownership structure of firms. First, their presence implies a premium of firm value (Tobin's Q) that ranges from 12% for non US companies (Ferreira & Matos 2008) or 8% in Latin America (De-La-Hoz & Pombo 2016), or up to 38% for New Zealand (Navissi & Naiker 2006). One of the explanatory factors behind those results is that institutional investors are blockholders and exert as any large shareholder direct monitoring to reduce agency costs.

Second, literature has been showed that the existence of several shareholders and especially institutional investors reduce the cost of capital and improve firms efficiency (Elyasiani & Jia 2010). For instance, Cai et al. (2015) do not analyze directly institutional investors but include the distribution of the control within firms for a sample of Chinese publicity traded firms. Their results are consistent with previous studies (Maury & Pajuste 2005; Attig et al. 2008; Laeven &

Levine 2008; Jara-Bertin et al. 2012) and suggest that more equilibrate ownership structures results in lower cost of capital. Elyasiani and Jia (2010) use a simultaneous equation model to show that institutional investors stability influence positively on corporate performance. Both arguments suggest that equilibrate ownership structures has an important effect on monitoring effectiveness. Therefore, the monitoring role is a key aspect of our paper. We rely on the institutional investors resources and skills to effectively monitoring firm's controllers (Chung *et al.* 2002), so we expect that institutional investors reduce financial constraints in emerging markets, were ownership structure is highly concentrated with the existence of higher private benefits of control, lower capital markets liquidity and investor protection (La Porta *et al.* 2000; La Porta *et al.* 2002; Leuz *et al.* 2003; Nenova 2003).

At the macroeconomic level, Li *et al.* (2006) argue that there are many environmental factors that affect the decision of institutional investors on becoming large shareholders. Using a sample of 19,883 firms across 45 countries, their results suggest that countries with strong shareholder rights, effective legal enforcement, and extensive financial disclosure tend to have a greater extent of large institutional shareholdings and hold more concentrated equity positions. This is because authors expect that a strong macro governance environment influences institutional ownership decisions by providing the necessary infrastructure to increase monitoring effectiveness and efficiency.

Specifically, in this paper we claim that the effect of institutional investors over financial constraints will depend on their investor orientation to engage in monitoring activities. In this sense, the literature has coined the terms *Independent* and *Grey investors* in order to differentiate types of institutional investors (Ferreira & Matos 2008; Elyasiani & Jia 2010). To some extent, the empirical evidence on the effect of the institutional investors is driven by the monitoring hypothesis and the results often suggest that the *Independent* investors are more prone to engage in monitoring activities and reduce informational asymmetries. On the other hand, *Grey* investors are more related to the controllers, so their effect is inconclusive.

Using a traditional investment equation and after controlling for several firm-level characteristics as ownership concentration, size, capital structure, among others, our main results reveals that the relation between institutional investors ownership and firm investment is nonlinear and present an U-shaped form. This evidence suggest a monitoring effect in which overinvestment is reduced while institutional ownership increase. However, higher levels of

institutional ownership can result on overinvestment incentives for institutions. Regarding to the effect over financial constraints, we find evidence that suggest that institutional investors reduce financial constraints in those firms that are supposed to be financially constrained. In addition, we explore heterogeneity of our results by examining different types of institutional investors. Our results are in line with the monitoring hypothesis for independent and foreign investors, which suggest that these types of investors play an active role in reduce financial constraints of those firms that are supposed to present higher levels of asymmetric information (constrained firms). We also find the opposite effect of Grey investors. In fact, this kind of investors increases the cash flow dependence to invest in those firms that are supposed to be unconstrained.

The contribution of this paper is twofold for both financial constraints and institutional investor empirical literature. First this paper fills and empirical research gap in testing the influence of institutional investor presence and heterogeneity on firms' cash flow sensitivity. It helps in understanding why some firms sustain and grow their investment plans is due the monitoring role of institutional investor activism that imply better corporate governance and less constraints on external financing. Second, this study focuses on emerging markets where there is few evidence regarding the strategic role that those type investors –institutional– have on firms investment dynamics.

The remainder of the document is structured as follows: Section 2 presents the theoretical framework and development of the working hypotheses; section 3 analyzes the data and variables included in the empirical model; section 4 presents the econometric results; and section 5 offers our conclusions.

2. Analytical Framework and hypotheses

2.1 Institutional Investors and firm investment

The relation between financial constraints and institutional investor ownership is one aspect that the literature has not been closely analyzed for the cases of developed and emerging markets. There are several benefits for firms of having institutional investors. One is that the market values its presence especially if they have a direct influence on firms' internal corporate governance mechanisms. Edmans and Manso (2011), for example, argued that the presence of multiple blockholders creates two conflicting governance effects. The first, known as the voice mechanism or shareholder activism, sees multiple blockholders serve "as a commitment device

to reward or punish the manager ex post for his actions". By contesting control, blockholders can align interest to implement either profitable projects or simply monitor the managers; however, contesting control can also reduce firm value. The second effect, known as the exit mechanism, occurs in firms with multiple blockholder structures and sees dispersed (and small) blockholders punish the largest shareholder or management by exiting the firm, i.e. by trading their shares, thus affecting firm value. This approach to corporate governance highlights that, by possessing better information about firm value, smaller blockholders can use the exit strategy as a device to discipline the behavior of the largest blockholder.

Empirical studies based on firm level panel models across countries show that institutional investment improves firm corporate governance. Aggarwal *et al.* (2011) find that positive changes of institutional ownership increases firm level governance index but the opposite case is not necessary holds. In particular, firm fixed effects regressions show that the marginal effect of the governance index to changes on institutional equity is 2% and statistically significant. This marginal effect increases to 2.3% for foreign institutional investor holdings. They conclude that institutional investors affect internal corporate governance mechanisms are in place and firm outcomes, such as corporate investment, capital structure and managerial compensation policies.

Aggarwal's findings are consistent with Gillan and Starks (2003) that highlight the special role that foreign investors play in enhancing firm corporate governance through direct monitoring because they are credit rated. Related studies at firm level, consistently show that institutional investor enhance overall firm market value (Woidtke, 2002). This would indicate that the monitoring performed by these investors optimizes administrative performance. Zeckhauser and Pound (1990) found that when a firm has someone monitoring it, future earnings and the sum of expected profits increase. Brav et al. (2008) studied the case of investment funds reporting that for US firms, the operational and financial recommendations of these investors are successful in two out of three cases confirming an active investor activism.

Firm financial dynamic investment demand models trace back Keynesian economics where the concepts of multiplier accelerator and inventory behavior of aggregate investment might generate business cycles (Samuelson 1939, Metzler, 1942). Dynamic investment models with adjustment costs, simulates an optimal investment decisions over time. A simplified set up of an investment model is the one that considers a representative firm who maximizes its profits over time subject to capital stock accumulation restriction. There is no uncertainty and capital markets

are frictionless that is, there are no financial constraints. Firm's investment demand intertemporal maximization program – discrete version – becomes

$$\underset{I_t,k_t}{Max} \sum_{t=0}^{\infty} \beta^t \pi_t \quad s.t \quad k_t = I_t + k_{t-1}(1-\delta) \qquad \text{(I)}$$

where

$$\pi_t = \pi(K_t)k_t - C(I_t) - I_t$$

$$\beta^t = \frac{1}{(1+r)^t}; \qquad \delta > 0$$

The program (I) states that firm's profits at time *t* are proportional to its capital stock, k_t, and its decreasing to industry capital stock $-K_t-$. Firms technology exhibit constant returns to scale, face increasing cost in adjusting their capital stock, $C'(I_t) > 0$, and δ counts for the economic depreciation rate.

The first order conditions of program (I) are standard en the literature of investment. Changes of the restricted maxing profit function with respect to investment demand predicts that any firm will invest optimally until the marginal adjustment cost of investment and the fixed cost of acquiring a unit of capital equals marginal Tobin's Q, that is

$$q_t = C'(I_t) + 1 \qquad (1)$$

Thus, q_t captures the shadow of firm value of an additional unit of capital at time t. The model assumes an investment adjustment cost follows a convex quadratic function of the form:

$$C(I_t, K_t) = \frac{b}{2}\left(\frac{I_t}{K_t} - \bar{C}\right)^2 \cdot K_t \rightarrow q_t = 1 + b\left(\frac{I_t}{K_t} - \bar{C}\right) \qquad (2)$$

Where $\bar{C}$ is a constant and usually represents the costless level of physical capital installation, and can take the value of zero. The condition in (2) implies an investment equation

$$\frac{I_t}{K_t} = \frac{1}{b}(q_t - 1) + \bar{C} \qquad (3)$$

Ec.3 implies that the dynamics of investment and the sock of capital function is increasing on firm's Q as well as stock capital accumulation, that is

$$\frac{\Delta k_{t+1}}{k_t} = \frac{1}{b}(q_t - 1) + \left(\bar{C} - \delta\right) \qquad (4)$$

Now since q_t captures the value of one unit of capital or the present discounted value of firm profits will capture shareholders expectation on firm payout policy. Literature in corporate governance has showed, empirically, that firm value is jointly determined by firm ownership structure where the separation between ownership and control might exert diversion of funds by controlling owners (Claessens et al. 2002, La-Porta et al. 1998), thus paying less dividends. On the other hand, studies on blockholders activism and institutional investors, as the above mentioned studies, stresses that there is a premium of firm valuation since it is expected that those investors impact firm governance best practices. Joining these arguments with the baseline optimality condition of the intertemporal investment model without uncertainty, *heuristically* we can assert that any positive driver of firm's Q has a second order positive effect on firm investment ratio. Considering firm's Q as concave function of institutional ownership (IO) given standard financial and firm idiosyncratic firm-specific controls **X**, we can state that if

$$q_t = F(IO_{t-n}, \mathbf{X}) \quad \forall \text{ n} \geq 1$$

then taking partial derivate with respect to one lag of institutional ownership, yields

$$\frac{\partial\left(I_t / K_t\right)}{\partial q_t}\frac{\partial q_t}{\partial IO_{t-1}} = \frac{1}{b}\cdot\frac{\partial q_t}{\partial IO_{t-1}} > 0 \qquad (5)$$

Thus, the above analysis leads to propose the following hypothesis:

H1: The presence and entry of institutional investors as blockholders will improve firm value and therefore raise firm investment ratio.

2.2 Investor color, firm's corporate governance and cash flow investment sensitivity

Traditionally, the literature that has focus on the institutional investors influences on corporate finance decisions has forced to deal with the problem related to institutional investors preferences that are undisclosed. Thus, *"Understanding the preferences and views of institutional investors is important for both companies trying to attract new investors and policymakers considering the regulation of governance mechanisms*" (McCahery *et al.* 2015).

Empirical evidence suggests that institutional investors are less likely to invest in firms with poor corporate governance structures (Giannetti & Simonov 2006; Leuz et al. 2009) and that

weaker investor protection is associated with lower stock returns. For Instance, Gompers and Metrick (2001) find that institutional investors privilege companies with larger market capitalization, higher liquidity and higher book-to-market ratio, compared to individual investors. Bushee *et al.* (2014) find that around 10% percent of institutional investors are governance-sensitive and exhibit strong correlations between institutional holdings or portfolio weighting and firms' governance mechanisms. They also find that firms with a high level of institutional ownership sensitive to shareholder rights, exhibit significant future improvements in shareholder rights, implying some activism by these institutions.

Aggarwal *et al.* (2005) analyzed the preferences of U.S mutual funds with investments in emerging markets. After controlling for the country's level of economic development, they found that firms in countries with stronger shareholder rights and legal framework attract more foreign capital. At the firm-level, they found that mutual funds invest in larger and well known firms and firms with a large analyst's coverage as well as firms with high returns and leverage. In addition to these firm characteristics, they found that the accounting disclosure quality was also crucial, while liquidity and float were not significant. Given that, authors concluded that the accounting standards of a firm become very important in countries without strong shareholder rights. Khorana *et al.* (2005) also show that the legal enforcement of minority rights influences aggregate mutual fund investment in equity.

Institutional investor heterogeneity implies the existence of different interests and preferences over their investment portfolios. Institutional independent investors tend to monitor more actively because they have less natural potential for business relations with the corporations. Almazán *et al.* (2005) call them "active investors" while Brickley *et al.* (1988), call them "pressure-resistant" investors. Ferreira and Matos (2008), classified institutional investors into two distinct groups: independent investors (investment funds and banks) and grey investors (bank trusts, insurance companies and pension funds). The results of this study are central in the institutional investor's preferences literature. This study works with an average sample of 4,116 large institutional investors form 24 OECD economies and 3 large emerging markets for years 2000-2005. Around 65% of institutions in the sample are US based investors. Their main findings are: i) institutional investors invest more on large firms, iii) invest more in firms with good corporate governance reputation, ii) foreign investor institutions over-value firms cross listed, especially those issuers of American Depositary Receipts (ADRs) in the US and members

of the Morgan Stanley Capital International World Index, iv) Firms that exhibit high foreign and independent institutional investors equity holdings tend to higher market valuations, better operational performance, and lowers capital expenditures.

Thus, based on those findings they conclude that "*Our findings suggest that some (but not all) institution groups are effective monitors of the firms they invest in. The presence of foreign and independent institutions enhances shareholder value. These institutions are able to exert pressure because they have fewer business relations with the firm to jeopardize, unlike domestic or grey institutions (Idem (2008), page 523)".*

Studies regarding the role of institutional investors in shaping firms' corporate governance have focused on the case of the US and the role of mutual funds voting. According to Claessens and Yurtoglu (2013), studies on the role of institutional investors in discipline management in emerging markets are scarce and there is no solid evidence on their behavior. One recent exception is the study of De-La-Hoz and Pombo (2016) who analyze the role of institutional investor heterogeneity and firm value for around 526 non Latin American real sector firms for the 1997 -2011 period. They based their analyzing on the effects of Shapley value coalitions on firm Tobin's Q. The main findings complement those of Ferreira and Matos (2008) in the sense that institutional blockholding coalitions enhance firm value by a premium of 22%. Their findings show that the presence of an investment fund has a significant positive effect on firm value. Regression shows that if the major shareholder is an independent investor, Tobin's Q is increased by 0.10. This marginal effect increases along the largest blockholder –regardless of being institutional– raises up to a maximum of 0.20.

In contrast, they find that the presence of Grey investors as blockholders is negative. The effect is statistically significant only when a pension fund or an insurance company is the largest blockholder, reducing Tobin's Q on average by -11 units. However, this finding is not general across countries. In particular, they report for the case of Chile that the presence of pension funds as the largest shareholder represents a premium of 0.32 units on firm value, meaning that if a given firm has a Tobin's Q around one, and the book value of assets is 10 million dollars, the market value would be 13 million if the firm has a grey investor. Thus, they conclude that the need for more financial deepening through new IPOs and allowing more flexibility regarding higher caps for equity portfolios positions by financial regulation might offer institutional investors to achieve more efficiency gains for pension funds administrators.

The expected activism of institutional investors as blockholders is an empirical issue. Theory regarding blockholder behavior is supported by the model of rent extraction originally developed by La Porta et al. (2002), who modeled managerial rent extraction, and by Maury and Pajuste (2005) who extended the baseline model to reveal contestability behavior more explicitly among multiple large shareholders. The presence of multiple blockholders and their effect on firm performance has been empirically documented in several international studies following the approach of Maury and Pajuste (Laeven & Levine 2008; Attig et al. 2009; Konjin et al. 2011). These studies consistently showed that a less dispersed distribution of votes among large blockholders had a positive effect on firm value, that value is enhanced when there are multiple blockholders, and that the presence of a second blockholder reduces rent extraction. Based on the above results on institutional investor preferences and heterogeneity lead us to the next working hypotheses regarding firm financial constraints:

H2a. The presence of independent investors as blockholders improve overall firm governance standards, and therefore it reduces firm financial constraints.

H2b. The presence of grey investors as blockholders neither does nor improves firm corporate governance standards and therefore it has no impact or even increases firm financial constraints.

The next section turns attention to the data sample construction, characteristics and the empirical study design.

3. Data and methodology

3.1 Sample construction

The dataset used in this study includes firm-level information from *Thomson Reuters Eikon* and *S&P Capital IQ*. Our raw data sample consists of 4,379 firms and 33,535 observations of annual financial information from 2003 to 2014. **Table 1** displays the sample construction that took several steps. First, the working sample excludes all firms that belong to Thomson Reuters Business Classification: Banking and Investment Services, Uranium, Insurance and Real State, since we focus only on nonfinancial firms (Love 2003; Ratti *et al.* 2008). Second, we drop 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), the sample excludes observations with ratios of investment to assets above 2.0 and sales to assets above 4.5.

Fourth, the working sample excludes China into our analysis because country's institutional framework, state ownership and economic control makes this emerging economy different in terms of property rights, investor protection and firms' corporate governance, in contrasts to other large emerging markets. For instance, partial privatization in China took place in 1990s through IPOs of former SOEs were the government retained companies' control. Security pricing were subject to specific pricing regulation linked to past and forecasted accounting performance and not subject to underwriting valuation by market conditions. IPOs were also subject to economic penalties for firms that on the IPO year underperformed in terms of earning per share to what were forecasted in the original prospectus. Pricing regulation based on accounting earnings induced to IPOs firm to overestimate their earnings in order to increase IPO proceeds (Kao et. al., 2009). Another example is that China has showed important discounts −over 50%− of block shares transfers held by the government and institutional investors explained by trade restrictions in open market transactions (Huang and Zu, 2009). This finding result is opposite to the observed positive premiums in other countries usually associated with blockholders' private benefits of control (Dyck and Zingales, 2004).[1] We drop records from Colombia and Hungary because these countries present a few number observations (56 and 84, respectively).

Fifth and last, we merge the financial data from Capital IQ with ownership data obtained from *Thomson Eikon* and drop outliers in the top and bottom 1% of each variable. The final resulting sample is an unbalanced panel of 16,595 observations from 3,185 quoted nonfinancial firms from emerging economies as Brazil (829), Chile (572), Greece (772), Indonesia (1,201), Malaysia (3,033), Mexico (418), Peru (194), Poland (1,376), Republic of Korea (5,578), South Africa (1,061) and Thailand (1,561).

***** Table 1 here *****

3.2 Dependent, control and explanatory variables

[1] There are other important reasons that support the exclusion of China. One is that institutional investors face a fixed quota to invest in Chinese companies that are subject to *Qualified Foreign Institutional Investors* (QFII) schemes (Bredind and Liu, 2011). Other authors still skeptical about market disclosure and transparency standards, within Shanghai's Stock Exchange despite of the progress made toward economic liberalization in the last 25 years. Naughton (2007) highlights that insider control from SOEs managers and regulators' manipulation is one of the characteristics at Chinese stock market.

Firm Financial constraints are proxied through the investment-cash flow sensitivity relationship. **Table 2** shows the variables under analysis. *Investment* ratio is defined by capital expenditure at year *t* to total assets at the beginning of year$(t-1)$. *Operating Cash flow ratio* is firm net income adjusted by depreciation, changes in inventories and changes in account receivables to total assets. Operating cash flow reflects whether the firm is able to generate enough cash to keep operations or it may require external financing. We used this measure of cash flow in contrast to the income based measures (e.g., Net Income plus Accruals) used in previous studies (Pindado *et al.* 2011), which are susceptible to accounting adjustments that possibly hide or smooth the true performance (Leuz *et al.* 2003; Dechow *et al.* 2010).

The set of control variables includes the common ones used in previous studies (Almeida & Campello 2007; Kuo & Hung 2012; Claessens *et al.* 2014; Andrén & Jankensgård 2015) as firm Tobin's Q, firm size, debt ratio, , debt maturity ratio, cash and short term investments scaled total assets, sales ratio, and ownership concentration indices. The dataset includes a set of industry and year-country dummies.

The set of explanatory variables are the ones related to institutional investor heterogeneity since the main objective of this study is to analyze the marginal effect of institutional investors over investment and firm financial constraints. Several measures of institutional ownership are defined. First, total institutional investor ownership is the sum of all ownership participation holds by any institutional investor. When institutional investors do not held any stock we compute the institutional variable to zero (Gompers & Metrick 2001). Second, following Ferreira and Matos (2008) we explore investor heterogeneity in order to compute their business orientation and propensity to establish business ties to managers or controllers of the company. In this way, we define as *grey investor ownership* as the sum of all equity holdings by institution classified as grey – i.e. banking, insurance companies, pension funds, endowments– presents higher monitoring costs so they could be more prone to take decisions more closer to managers (controlling shareholder) and not protecting shareholders (minority shareholders). On the other hand, we define *independent investor Ownership* as the sum of all ownership participations hold by classified as mutual fund managers or investment firms. Those firms are likely to spend more resources in monitoring activities or have fewer potential business relationships with the corporations they invest in. Investor geographical origin also captures investor heterogeneity. In that sense, we define the *domestic institutional ownership* as the sum of holdings that belongs to

institution addressed in the same country of the firm and *foreign institutional ownership* as the sum of the holdings stakes by foreign institutions.

Financial constraints literature recognizes that the effect of investment cash flow sensitivity could be more pronounced on restricted firms (Whited & Wu 2006; Andrén & Jankensgård 2015). We proxy financially constrained firms thought two measures: i) the firm's size criteria (Fazzari *et al.* 1988) and ii) KZ-Index (Kaplan & Zingales 1997; Hadlock & Pierce 2010). **Appendix A.1** list the definitions of all variables included in the empirical analysis.

Table 2 displays the descriptive statistics by institutional investor presence and type. Four main comments are worth mentioning. First, institutional investors hold participations on one half of the sample and represent around 10% of equity holdings. Independent investors hold 8% of firm equity and the remaining 2% is allocated within grey investors. Second, firms with independent institutional investor show greater valuation than other cases. The mean of Tobin's Q is 1.32 for firms with presence of independent investors, while is ratio is 1.23 for firms with grey investors presence and 1.08 within firms without institutional ownership. Those statistics are consistent to what is expected since independent investors tend to exert more direct monitoring and control. Third, consistent with the business relationship argument, we can observe that firms with presence of independent investors they on average have greater block shares (9.4%) that other institutional shareholders (1.6%). The same happens with the sample of firms that there is presence of grey investors. They show greater block shares (9.6%) on average than independent investors (5.1%). Forth, regarding other firm characteristics we observe that firms with independent investors in average are bigger, invest more and present high cash flow ratios. These firms also are less concentrated in terms of ownership structure and the debt structure is more long term oriented.

Descriptive statistics across countries (**Appendix A.2**) exhibit similar patterns. In particular, independent institutions are more relevant in countries that present more development capital markets of the sample as South Africa, Brazil and Chile as expected since they can manage more diversified portfolios.

***** Table 2 here*****

3.3 Method

This study uses Fazzari et al. (1988) cash flow sensitivity specification as proxy for financial constraints. Under ideal conditions, the only determinant of investment is the Tobin's Q as proxy

for investment opportunities. However, empirical literature has shown that cash flow is a good predictor of investment assuming the existence of a wedge in financing costs between internal and external sources of funds. Hence, the higher the wedge of funding costs is, the more financially constrained firms are and the internal cash flow will explain more investment decisions. As consequence, dependence on internal funds can lead firms to invest sub-optimally[2].

Kaplan and Zingales (1997) cast doubts about the usefulness of the investment-cash flow model. They use dividend payments to identify a financially constrained subsample. In contradiction with Fazzari *et al.*, they find no monotonically positive relation between investment and cash flow. Specifically, they find that the subsample of distressed firms have lower levels of investment–cash flow sensitivity and conclude that this coefficient is not a good proxy for financial constraints. This finding opened a strong and as yet unconcluded debate regarding the usefulness of some metrics for capturing financial constraints (Fazzari et al. 2000; Kaplan & Zingales 2000; Huang 2002; Allayannis & Mozumdar 2004)

Despite the above, the investment–cash flow sensitivity specification has been widely used in corporate finance literature (Pindado *et al.* 2011). To capture the specific effect of institutional investor presence on the investment–cash flow sensitivity coefficient, the cash flow variable is interacted with institutional ownership heterogeneity by expected investor activism – independent versus grey– and by geographical origin – i.e. local versus foreign–. This interaction term is the main variable of interest because it captures whether higher investor monitoring involvement relaxes or increases financial constraints.

Following Aguiar (2005) and Laeven (2003), the maximization conditions of the Euler investment equation is used to derivate empirical investment ratio equation that includes its lag value to capture the model dynamics.

The empirical baseline regression equations follow a general two-way error component model with a matrix dimension of $(i \times t)$:

[2] For instance, the overinvestment problem described by Jensen (1986) or the underinvestment problem described by Myers (1977) and Myers and Majluf (1984).

$$Inv_{i,t} = \alpha_i + \beta_1 Inv_{i,t-1} + \beta_2 CF_{i,t} + \beta_3 CF_{i,t} \times IO_{i,t} + \beta_4 IO_{i,t} + \beta_5 IO_{i,t}^2 + \delta_k^{'} \mathbf{X}_{i,t} + \varphi_k^{'} \mathbf{D}_{C,I} + \varepsilon_{i,t} \quad (6a)$$

$$Inv_{i,t} = \alpha_i + \beta_1 Inv_{i,t-1} + \beta_2 CF_{i,t} + \beta_3 CF_{i,t} \times GreIO_{i,t} + \beta_4 CF_{i,t} \times IndepIO_{i,t} + \beta_5 GreIO_{i,t} + \\ + \beta_6 GreyIO_{i,t}^2 + \beta_7 IndepIO_{i,t} + \beta_8 IndepIO_{i,t}^2 + \delta_k^{'} \mathbf{X}_{i,t} + \varphi_k^{'} \mathbf{D}_{C,I} + \varepsilon_{i,t} \quad (6b)$$

$$Inv_{i,t} = \alpha_i + \beta_1 Inv_{i,t-1} + \beta_2 CF_{i,t} + \beta_3 CF_{i,t} \times ForIO_{i,t} + \beta_4 CF_{i,t} \times LocIO_{i,t} + \beta_5 ForIO_{i,t} + \\ + \beta_6 ForIO_{i,t}^2 + \beta_7 LocIO_{i,t} + \beta_8 LocIO_{i,t}^2 + \delta_k^{'} \mathbf{X}_{i,t} + \varphi_k^{'} \mathbf{D}_{C,I} + \varepsilon_{i,t} \quad (6c)$$

Where subscripts *i* stand for firm *i*; I for industry; and C for country. Explanatory variables Inv_{it}, is the capital investment ratio of firm *i* in year *t*; CF_{it} is the cash flow ratio of firm *i* in year *t*; $IO_{i,t}$ is the percentage of total institutional equity ownership, $GreyIO_{c,t}$ is the percentage of total institutional participations in hands of grey investors, $IndepIO_{c,t}$ is the percentage of total institutional participations in hands of independent investors, $ForIO_{c,t}$ is the percentage of total institutional ownership participations in hands of foreign investors, and $LocIO_{c,t}$ is the percentage of total institutional ownership participations holdings for local. The vector **X** includes the set of control variables. The vector **D** is the set of dummy variables that take into account different aggregation levels for control for unobservable and time-variant and time-invariant fixed effects, such as country – year and industry fixed effects. Regression coefficient α_i stands for firm fixed-effects. **Appendix A1** displays all definitions of the control an explanatory included in the empirical model.

The sign of cash flow (β_2) is expected to be positive in all the specifications according to prior literature above mentioned in revise sections. In the presence of financial constraints, an increase in cash flow should increase investment. More important is that institutional investors could shape financial constraints by alleviating or increasing asymmetric information thought incentives to monitoring controllers and managers, an interaction variable is introduced between cash flow and the institutional investor ownership variable.

There are two of competing hypotheses about the relation between institutional investor's type and financial constraints. The more traditional view argues that institutional investors are not oriented enough to engage in monitoring firm's financial policies decisions because they has preferences for liquidity, stock prices and returns, and due to the monitoring cost are to higher when institutions hold portfolios very diversified (Coffee 1991; Gompers & Metrick 2001).

However, this point of view could be prejudicial or detrimental in regards financial constraints. On the one hand, lack of monitoring suggest that insiders could engage value destruction decisions such as overinvestment or underinvestment, increasing financial constraints, so β_3 should be positive (β_3 in equation 6a and β_3 and β_4 in equation 6b and 6c). On the other hand, according to Ferreira and Matos (2008) in the last decades Institutional Investors provide largest amount of resources to the equity and bond market, so provide significant shocks of resources of several firms in order to seek prices and returns, alleviating in certain way financial constraints, so β_3 should be negative.

In contrast, studies that focus on the monitoring hypothesis has highlighted the beneficial influence of institutional investors on firm value (Gillan & Starks 2003; Elyasiani et al. 2010; Hartzell et al. 2014);. The beneficial effect depends exclusively on the orientation of the institutional investors in which they can attenuate asymmetric information issues or successfully influencing controllers or managers in order to take value creation decisions (Almazán *et al.* 2005). If institutional investors effectively engage in monitoring activities, we expect that firms should present lower levels of financial constraints, so β_3 should be negative. On the other hand, some institutional investors as grey investors (banks, pension funds, among others) could present a lower orientation to monitoring because they tend to maintain a long term relation with managers and also they could become controllers (Ferreira & Matos 2008). For instance, Ruiz-Mallorquí and Santana-Martín (2011) find for a sample of Spanish firms that the a negative relationship between the percentage of ownership in hands of dominant institutional investors and the firm value, in which these relationship is more pronounced when the institutional shareholder is a bank (grey institutional). Similarly, 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 show as the largest blockholder[3]. These arguments suggest that some institutional shareholders could report that whether a grey investor is the largest blockholder take non-value maximizing decision, indicating that β_3 could potentially be positive or non-significant regression coefficient. In sum, in line with our Hypothesis, β_3 is negative (positive) if

[3] Nonetheless this effect is opposite within the sample of Chilean firms reporting a premium of 0.32 on Tobin's Q, explained by two main reasons. One is the lees restriction on stocks caps that local financial regulation imposes on pension fund portfolios. Second, is the relative development of private capitalization pension funds industry and the degree of Chile's financial deepening relative to other Latin American economies.

institutional independent (grey), foreign (local) investors mitigates (increases) financial constraints.

The baseline equations recognize the existence of non-lineal effects of institutional ownership holdings. Literature of blockholder contestability has stressed that the type of the second blockholder in central in understanding firm value (Jara- Bertin et al., 2008; Sacristan Navarro et al., 2011, 2015). In that sense, whether institutional holdings surpasses a certain given threshold and imply less blockholder diversity this fact will offset the original effect that institutional ownership may have in firm investment ratios and financial constraints. Thus, if non-linear effects are important then we expect that coefficient β_5 in Eq. 6a or coefficients β_7, β_8 in equations. 6b and 6c be statistically significant.

Due to endogeneity problems in dynamic panel data, ordinary least squares estimators can provide coefficients that are biased. Thus, Blundell and Bond's (1998) generalized method of moments (GMM) system estimator is used. The GMM system estimator deals with the endogeneity issues in the relation between investment and cash, among others. In general, all of the right-hand variables are potentially endogenous (Pindado *et al.* 2011). As the estimating equations show, even though all these variables are exogenous, the introduction of a lagged explanatory variable introduces endogeneity. The GMM system estimator presents some advantages over others dynamic panel models that are regularly used in corporate finance research (Ratti *et al.* 2008; Pindado *et al.* 2011; Flannery & Hankins 2013).

The consistency of the estimates depends critically on the absence of second-order serial autocorrelation in the residuals and on the validity of the instruments (Arellano & Bond 1991). Accordingly, *p*-values of the first and second order autocorrelation test are reported. To test the validity of the instruments, the Hansen test of over-identifying constraints is used, which tests for the absence of correlation between the instruments and the error term and, therefore, checks the validity of the selected instruments.

4. Econometric analysis

4.1 Total Institutional Ownership

The analysis begins by testing whether total institutional ownership participation influences firms' financial constraints and investment decision for the entire sample and two splitting sample criteria according to classify financially constrained and unconstrained firms.

Traditionally, corporate finance literature has shown that some firms are more prone to be financially constrained than others (Fazzari *et al.* 1988; Almeida *et al.* 2004; Almeida & Campello 2007; Hovakimian 2009; Lima-Crisóstomo *et al.* 2014). Recent evidence has showed that the most suitable proxy for financial constraints is by using subsamples according to firms size (Devereux & Schiantarelli 1990; Kadapakkam *et al.* 1998; Arslan *et al.* 2006; Hadlock & Pierce 2010) and the size-age index suggested by Hadlock & Pierce (2010). We do not include the size age index since information of the firm age is not available for the entire sample in this study's data set. However, giving that condition we use two criteria to split the sample and provide separate regressions: firm size and the KZ-Index of Kaplan and Zingales (1997).

Although relevant differences on financial constraints may exist across firm age because younger firms are more likely to be excluded from financial markets (Brown *et al.* 2009), information of firm age is not available in this study's data set. Therefore, to shed light on heterogeneity in financial constraints, two criteria are used to split the sample and provide separate regressions: firm size and industry asset tangibility.

The basic idea is that financial constraints are more relevant for small firms or for those that present higher levels of KZ-Index[4]. However, despite the skepticism in regard to the KZ index useful to measure financial constraints, we introduce firm size in order to check the robustness of our results. In addition, the size criterion is related to the absence of collateral and more opaqueness, which increase the information asymmetries in financial markets. Small firms are defined as those whose size (measured by assets) is lower than the median size of the corresponding country, industry, and year. KZ restricted firms are those whose KZ index is over than the median of KZ index of the corresponding country, industry and year. In difference to previous literature, we are unable to split the sample into more subsamples criteria's since emerging markets the number of firms-industry-year is too small.

Table 3 reports the estimates of the baseline regression Eq. 6a. Col. 1 shows the results of the basic estimations using only the variables of *total institutional ownership*. Regression in Col. 2 introduces the interacted term between *cash flow* and total *institutional ownership* in order to test whether institutional investors affect the internal funds dependence on investment. To look the existence of heterogeneous response of cash flow and the interacted term, in Col. 3 and 5 we

[4] By construction, the KZ Index of constraints is calculated as −1.002 (Cash Flow/K) + 0.283 (Qtob) + 3.139 (Debt/Capital) − 39.368 (Dividends/K) − 1.315(Cash/K). where: Cash Flow is calculated in earning basis Cash is the cash and short term investment; Dividends are current paid dividends and K is firm property, plant and equipment at the beginning of the period.

estimate for the restricted subsample according the size and KZ index criteria, respectively. In the same way, in Col. 4 and 6 we estimate Eq.6a for the unrestricted subsample according both criteria.[5]

Regression results in **that table** show across specifications that cash flow is positively related to investment, in consistency with the existence of financial constraints. In particular, the marginal effect of cash flow to investment ration is 0.17 (Col.1) meaning that a change in one standard deviation in the cash flow ratio [0.09] will rise firm investment ratio by 1.53%. Corporate finance literature has shown that constrained firms depends more from internal funds to invest because is more costly to raise externally, the estimated coefficient for restricted firms should be higher than unrestricted. Regressions Col. 3 and 4 show that size restricted firms present a higher *cash flow* coefficient (0.207 vs 0.155, respectively), and therefore higher levels of cash flow sensitivity. Similar finding results are associated if one contrast the KZ restricted versus unrestricted samples [Col.5 and 6]. Cash flow sensitivity ratio is 0.05 units higher (0.168 vs 0.115) for the unrestricted sample. Cash flow regression coefficients are in all cases significant at size of 1%.

The influence of institutional ownership on firm investment ratio and cash flow sensitivity is a central question for our analysis. The regression estimates (Table 3) show three main results worth to highlight. First, concerns with the fact that the presence of institutional investors affects firm investment decisions. Regressions results in Col.1 and 2 show a non-linear relationship between firm investment ratio and institutional ownership. For the total sample the marginal effect evaluated means of institutional ownership [0.107] and cash flow ratio [0.076] is on average -0.02. The marginal effect turns positive when institutional holdings are greater than 16.9% of firm equity.[6]

… Table 3 here….

This finding suggests that the institutional investor's incentives to engage in monitoring activities are moderating by their holdings. Specifically, this relation is saying that lower levels of institutional ownership negatively affect firm investment. This outcome is consistent with the

[5] As indicated by Kaplan and Zingales (1997), the cash flow–investment sensitivity may be less pronounced by financially distressed firm. We follow Hadlock and Pierce (2010) and incorporate the WW index (Whited & Wu 2006) of financial distress as a control variable of our model. In general, our results also hold.

[6] For instance, the marginal effect of institutional ownership in regression Col.1 is:
$dInv_t / dIO = -0.076 + 0.448 \times \overline{IO} = -0.02$ where $\overline{IO} = 0.107$; *and* $dInv_t / dIO = 0 \rightarrow IO^* = 0.076 / 0.448 = 0.169$

Ferreira and Matos (2008) arguments about that the negative relation could indicate a quite good monitoring to overinvestment behavior. On the contrary, lower levels of total institutional investor's ownership could indicates lower incentives to engage in monitoring activities. Lack of monitoring could lead to underinvestment problems. This result validates H1, which states that the prescense of institutional owneship will rise firm investment ratio.

Second, consistent with the first hypothesis, we consider whether total institutional ownership influences the dependence of internal cash flow to invest. Col.3 and 5 (Table 3) show that the parameter for the interaction Cash Flow × Institutional ownership is negative and statistically significant (−0.603, t = 2.35 and −0.428, t = 1.77, respectively) for both subsamples of restricted firms (Size and KZ criteria). This result suggest that the existence of institutional investors on restricted firms is beneficial in order to alleviate the financial constraints. The quantitative relevance of the existence of institutional investors and of the total institutional ownership is large in the subsamples of restricted firms. Using the estimation in Col.3 for size restricted firms we observe that institutional holdings in ownership reduce the internal cash flow dependence from invest from 0.207 to 0.182.[7] At firm level, an increase on total institutional ownership is especial relevant since only the 35% of the size-restricted sample do not present any institutional investor participation, so the reduction in terms on financial constraints is especially important. For instance, percentile 90 of institutional ownership in restricted sample is around 13%, hence an increment from the sample mean to the percentile 90 means that the internal dependence on internal funds to invest decrease from 0.182 to 0.129 (t-stat 3.51). At a country level we do have the same size effects. If institutional investors increases from the markets with lower presence of institutional ownership in the restricted sample (Thailand) to higher presence (Brazil) the marginal effect decreases from 0.204 to 0.123.[8]

These finding results support the monitoring hypothesis, which argues that institutional investors has the skills and spend resources to engage in monitoring activities (Chung *et al.* 2002; Hartzell *et al.* 2014), alleviating asymmetric information problems and hence, financial constraints in smaller firms that are supposed to present higher opaqueness (Ratti *et al.* 2008). In addition, the financial constraints alleviating effect is consistent with Boone and White (2015)

[7] More specific: $dInv_t / dCF = 0.207 - 0.603 \times \overline{IO} = 0.1823$ where $\overline{IO} = 0.041$

[8] The mean of institutional ownership for the sample for Thailand is 0.17% while in Brazil is 14%.

arguments that show that at higher levels of institutional ownership (in this case for restricted firms) results in lower levels of information asymmetry.

Third, institutional ownership does not have a clear impact for within the unrestricted firms using the KZ index splitting rule. Those firms for instance that are low dividend oriented, less leveraged and with high market valuations, investment ratio is sensitive to cash flow ratio but non-significant to institutional investor presence (Col. 6). On the other hand, within the large firms sample relative to country and industry means, the effect of institutional investment increases financial constraints. This relation is non-linear (Col.4). The parameter for the interaction of cash flow times institutional ownership is positive and statistically significant (0.465, t = 1.68). This result that is opposite to previous cases (i.e. restricted samples) might be related with overinvestment problems. Large firms have more access to corporate bonds and credit markets. This fact might ease investors' activism allowing top management be more discretionary on company's investment policy. Building empire behavior and investment opportunities from mergers of acquisitions deals can explain the observed increasing cash flow sensitivity associated with the presence of institutional investors.[9]

4.2 Institutional investor heterogeneity

This section analyses the effect of institutional investor heterogeneity on firm investment and financial constraints and classify institutional investors into two groups according to investor monitoring incentives. In specific, regression Eq. 6b tests the difference on incentives between independent and grey investors (Ferreira & Matos 2008).

Table 4 reports the core results of the investment equations and institutional investor heterogeneity. Regressions in Col. 1 to 6 replicate the estimations for the size restricted and unrestricted subsamples of the previous section. Four main comments are worth mentioning. First, independent investor ownership reduces firm cash flow sensitivity for size restricted firms. The iterated parameter of *cash flow* times independent investors, is negative and statistically significant (−0.563, t = 2.02 and −0.550, t = 2.13, respectively) while the parameter for the interaction of *cash flow* times *grey investors* is not significant for the size-restricted subsample. These finding results indicate that independent investors exert real activism and monitoring on

[9] See Tirole (2006, Cap 5) for a formal discussion on firm liquidity and risk management. Firm over- investment is usually related with moral hazard and free cash flow problem. .

firm investment projects because the lesser incentives they have to engage in business relations with firm management (controllers). Independent institutional holdings in ownership reduce the internal cash flow dependence to invest from 0.203 to 0.184 (Col. 4). Marginal effects are evaluated at sample means.[10] In the same vein that the analysis in the previous section, firm financial constraints are even more reduced for size restricted sample with equity holdings by independent investors. Cash flow sensitivity reduces to 0.146 (t-stat 3.96).

At a country level, an increase from the markets with lower presence of independent institutional investors in the restricted sample (Thailand) to higher presence of independent investors (Brazil and South Africa), the marginal effect decreases from 0.201 (t-stat 5.11) to 0.135 (t-stat 3.54).[11] These results are consistent with the (Boone & White (2015)) monitoring arguments, and suggest that independent institutions are "active investors" that play an effective monitoring role of the firms they invest in, especially those firms called to be more opaque (restricted ones). Hence, these results support hypotheses H2a, which state that independent investor activism reduces firm's financial constraints through better monitoring and corporate governance practices.

The interacted coefficient for grey investors although negative is not statistically significant (−0.59, t= 0.6) for size restricted firms (Col. 4). For unrestricted firms regression equations in Col. 5 and 6 show that the parameter for the interactions of cash flow times grey institutional ownership is positive and significant at size of 5% (1.118, t = 2.26 and 1.065, t = 2.16, respectively). Using the estimation Col. 6, grey investors increase investment cash flow sensitivity from 0.159 to 0.180 evaluated at sample (unrestricted) means.[12] These results suggest that grey investors presence results in suboptimal investment policies since grey investor such as insurance companies and bank trust establish long term relationship with the firms the invest and tend to have less incentives to undertake direct monitoring[13]. Monitoring costs are higher for grey investors (Almazan et. al, 2005). Hence the above results, validades our hypothesis H2b,

[10] More specific: $dInv_t / dCF = 0.203 - 0.55 \times \overline{IIO} = 0.1854$; where; $\overline{IIO} = 0.032$

[11] The mean of institutional independent ownership for the size restricted samples in Thailand is 0.2% while in Brazil and South Africa is 12.1%.

[12] The estimation of the marginal effect is $dInv_t / dCF = 0.159 + 1.065 \times \overline{GreyIO} = 0.18$; where: $\overline{GreyIO} = 0.0197$

[13] Almazan et al. (2005) show that passive institutional investors (i.e. bank trusts and insurance companies) has lower pay-for-performance sensitivity of managerial compensation.

which states that grey investors ownership do not have an expected sign and significant effect on firm financial constraints.

A second exercise on investor heterogeneity consisted in estimating regression Eq. 6c that captures the specific influence of the investor origin (i.e. local or foreign) on firm investment and financial constraints. The results are in accordance to investor colors in coefficients signs and size. In particular, foreign institutional ownership relaxes financial constrains for the size restricted firms. The interacted terms of cash flow with foreign institutional investors is negative and statistically significant whether there are or not there are non-lineal effects (-1.98, $t = 1.74$; -1.94, $t = 1.73$). In contrast, the marginal effects of the interacted term of cash times local institutional investors are smaller in size but they the keep the sign and significance (-0.455, $t = 1.77$; -0.475, $t = 1.81$) for the cases of presence or not of non-lineal effects on this type of institutional ownership. These results reinforces the previous ones and they are consistent with the institutional investor literature, in the sense that foreign institutional investors are more pressure sensitive to management policies than the local ones (Brickley et. al., 1988). Regression results are displayed in appendix A3.

***** Table 5 here *****

4.3 Robustness: Nearest Neighbor Matching

This section estimates three nearest-neighbor matching analysis. In the first analysis, the "treatment" is "the existence of institutional investors in the ownership structure of the firm". The second treatment is the existence of grey institutional investors. Finally, the last treatment is the existence of independent institutional investors on firms. We use *investment ratio* as dependent variable and we control the match for cash flow, and all control variables included in the baseline regression equations (Appendix A1). The matching considers as well industry, country and year.

Table 6 shows the main statistics and mean difference test of the main variables included into the match[14]. Group of columns (1) show the descriptive statistics of the first matching criteria while groups (2) and (3) show the statistics for the second and third treatment criteria, respectively. As we observe in group of columns (1), the main results indicates that two firms (one with the presence of institutional investors) similar in size, cash flow realizations, debt structure, and ownership concentration, that belongs to the same country and industry, the total

[14] We employ a bias treatment using the Rosenbaun and Rubin (1983) standardized bias method.

institutional ownership present on average higher levels of investment (see treatment 1). In that sense, complementing this results with those observed on regression analysis, our results indicates that total institutional ownership, on average, influence investment decisions and also indicate financials constraint moderation effect. In the group of columns (2), display the mean's difference test for matching variables according to the second treatment criteria. The results observed indicates that firms with Grey institutional investors tend to invest less than its comparable firms do. One possible explanation is that those firms could engage in underinvestment since in the regression analysis we observe that the grey presence on unrestricted firms increment financial constraints on bigger firms (note that size for the grey investors group is higher than other groups). The last groups of columns reports the descriptive statistics and mean difference test for the third treatment. The results observed show that firms with independent institutional investors tends to invest more on average than their comparable. This is consistent with the intuition that some external blockholders demand for investment, alleviating financial constraints. This assumption is consistent with the monitoring hypothesis and the efficient resource allocation.

***** Table 5 here *****

Figure 1 plots the kernel density and cumulative distributions for each one of the treatments to complement the analysis of the matching average effects. In column (a) (total institutional), one can distinguish that the majority of the cases the estimated effect is nearest to zero around a few basis points of difference on assets. The results of the NN-matching seem to suggest that the existence of a difference in investment intensity is nearest to zero but with presence of significant difference on some intervals of the accumulated distribution. In particular, we observe in the cumulative density function of firm investment ratios for the case of institutional investor presence there is a stochastic dominance on both directions. That is, with probability of 40% firms with (without) institutional holdings would exhibit investment ratios of 4 % (5%). This probability changes to for investment ratios within the range of 10% to 20%. Firm with (without) institutional ownership holdings would have with probability of 80% an investment ratio of 12% (10%). This fact explains the non-linear effect of institutional ownership on investment ratio reported in the GMM regressions.

For the case of grey investors there is no clear stochastic dominance opposite to what is observed for independent investors. The latter group shows a stochastic dominance in investment spending ratios within firms that they are shareholders.

***** Figure 1 here *****

5. Conclusions

The purpose of this study was to determine how the presence and type of institutional investors affects firm investment cash flow sensitivity as proxy for financial constraints. We conducted an analysis for the aggregate of institutional investors, and for the two typologies of investor heterogeneity we defined: independent and grey institutional investors. We found that the direction of the relaxing firm financial constraints depends on the direction of how institutional investors engage in direct monitoring activities. In particular, when firms have institutional independent investors –i.e. trust and mutual funds, investment firms- the reduces cash flow sensitivity from 0.20 to 0.18 evaluated at sample means, while the marginal effect firms with presence of grey investors – i.e. pension funds and insurance companies – do not show a statistically significant effect on cash flow sensitivity on restricted size firms.

On the other hand, within unrestricted firms the presence of grey investors increases firm cash flow sensitivity in 200 basis points –i.e. marginal effect raises from 0.16 to 0.18–, reflecting an over investment problem within this sample of firms. Investment regression equations and propensity score matching analysis support empirically that the presence of independent institutional ownership will raise investment ratios, by improving internal corporate governance mechanisms in controlling the quality of investment projects for the sample of small and medium size firms. For large size firms the effect of institutional ownership on cash flow sensitivity is not statistically significant using Kaplan-Zingales sample criteria. This result suggests that institutional investors cannot prevent suboptimal investment behavior within financially unrestricted firms.

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Table 1
Construction of the sample

Description	Firms.	Obs.
Total Raw data Eikon database for 16 emerging economies	4,379	33,535
Removing firms from Banking and Investment Services, Uranium, Insurance and Real State	4,257	32,417
Removing Firms with missing values on ownership, capital expenditures, sales, assets, debt, cash flow, and stock prices	3,844	20,192
Removing observations with ratios of investment to assets above 2.0 and sales to assets above 4.5	3,597	18,753
Removing firms with less than three years coverage	3,347	16,815
Drop firms from small sample countries (Colombia, Hungary, Saudi Arabia, United Arab Emirates)	3,185	16,595
Final Sample	**3,185**	**16,595**

Notes: Data are from Thomson Eikon and S&P Capital IQ. Variables are defined in the appendix (Table A1).

Table 2 Descriptive statistics by institutional investor presence and color

	Institutional ownership > 0						*Institutional ownership = 0*					
Variable	**N**	**mean**	**p50**	**std**	**min**	**max**	**N**	**mean**	**p50**	**std**	**min**	**max**
Investmet ratio	8,469	0.071	0.050	0.068	0.000	0.425	8,239	0.059	0.038	0.064	0.000	0.426
Institutional Ownership	10,234	**0.107**	0.080	0.107	0.010	0.880	10,139	...	...	...	...	...
Grey Investors Ownership	10,234	0.026	0.000	0.062	0.000	0.870	10,139	...	...	...	...	...
Independent Investors Ownership	10,234	0.081	0.050	0.097	0.000	0.880	10,139	...	...	...	...	...
Foreign Institutional Ownership	10,234	0.024	0.000	0.047	0.000	0.560	10,139	...	...	...	...	...
Local Institutional Ownership	10,234	0.083	0.050	0.106	0.000	0.880	10,139	...	...	...	...	...
Cash flow ratio	8,538	0.076	0.068	0.091	-0.258	0.444	8,277	0.054	0.047	0.085	-0.256	0.438
Tobin's Q	10,212	1.300	1.097	0.689	0.429	7.857	10,107	1.085	0.936	0.541	0.429	7.849
Size	10,234	19.9	19.8	1.7	16.1	26.5	10,139	18.6	18.4	1.3	16.2	24.7
Debt Ratio	10,172	0.259	0.247	0.161	0.000	0.773	10,021	0.278	0.267	0.168	0.000	0.773
Long Term Debt ratio	10,234	0.495	0.515	0.280	0.000	1.000	10,139	0.377	0.333	0.276	0.000	1.000
Sales ratio	10,045	0.942	0.842	0.553	0.061	3.333	9,977	0.926	0.852	0.515	0.061	3.333
Cash ratio	10,140	0.109	0.081	0.096	0.002	0.699	10,011	0.100	0.068	0.098	0.002	0.714
Ownership Concentration	10,234	0.409	0.420	0.256	0.010	1.000	10,139	0.483	0.470	0.201	0.010	1.000
	Independent Institutional ownership > 0						*Grey Institutional ownership > 0*					
	N	**mean**	**p50**	**std**	**min**	**max**	**N**	**mean**	**p50**	**std**	**min**	**max**
Investmet ratio	7,497	0.073	0.052	0.069	0.000	0.425	16,708	0.065	0.044	0.066	0.000	0.426
Institutional Ownership	9,088	0.106	0.070	0.107	0.010	0.880	20,373	0.054	0.010	0.093	0.000	0.880
Grey Investors Ownership	9,088	0.015	0.000	0.041	0.000	0.560	20,373	0.013	0.000	0.046	0.000	0.870
Independent Investors Ownership	9,088	0.091	0.060	0.098	0.010	0.880	20,373	0.041	0.000	0.080	0.000	0.880
Foreign Institutional Ownership	9,088	0.025	0.000	0.048	0.000	0.560	20,373	0.012	0.000	0.035	0.000	0.560
Local Institutional Ownership	9,088	0.080	0.050	0.105	0.000	0.880	20,373	0.042	0.000	0.086	0.000	0.880
Cash flow ratio	7,565	0.076	0.069	0.092	-0.258	0.444	16,815	0.065	0.058	0.089	-0.258	0.444
Tobin's Q	9,067	1.317	1.105	0.706	0.429	7.857	20,319	1.193	1.007	0.629	0.429	7.857
Size	9,088	20.0	19.8	1.7	16.1	26.5	20,373	19.3	19.1	1.6	16.1	26.5
Debt Ratio	9,034	0.258	0.246	0.160	0.000	0.773	20,193	0.269	0.257	0.165	0.000	0.773
Long Term Debt ratio	9,088	0.500	0.520	0.280	0.000	1.000	20,373	0.436	0.425	0.284	0.000	1.000
Sales ratio	8,931	0.932	0.833	0.545	0.061	3.333	20,022	0.934	0.846	0.534	0.061	3.333
Cash ratio	9,001	0.110	0.081	0.097	0.002	0.699	20,151	0.104	0.075	0.097	0.002	0.714
Ownership Concentration	9,088	0.396	0.410	0.259	0.010	1.000	20,373	0.446	0.450	0.233	0.010	1.000

Notes: Data are from Thomson Eikon and S&P Capital IQ. Variables are defined in the appendix- Table A1.

Table 3 - Institutional Investor Ownership and Investment

Dependent variable: Investment ratio (Fixed Effects-GMM Regressions)

VARIABLES	(1) Total	(2) Total	(3) Size Restricted	(4) Size Unrestricted	(5) KZ-Index Restricted	(6) KZ-Index Unrestricted
Investment ratio (lagged)	0.322***	0.321***	0.315***	0.371***	0.291***	0.345***
	(14.018)	(13.939)	(9.740)	(15.269)	(8.066)	(11.612)
Cash flow ratio	0.174***	0.162***	0.207***	0.155***	0.168***	0.115***
	(5.181)	(4.358)	(5.270)	(4.440)	(5.150)	(2.680)
Institutional Ownership x Cash Flow		0.151	-0.603**	0.465*	-0.428*	0.397
		(0.605)	(-2.357)	(1.682)	(-1.773)	(1.519)
Institutional Ownership	-0.076*	-0.085*	0.049	-0.098**	0.002	0.061
	(-1.742)	(-1.831)	(1.079)	(-2.126)	(0.031)	(1.171)
Institutional Ownership (squared)	0.229**	0.227**	-0.039	0.175	0.119	-0.101
	(2.046)	(2.026)	(-0.474)	(1.584)	(0.910)	(-0.785)
Tobin's Q	0.012***	0.012***	0.017***	0.011***	0.021***	0.010***
	(3.823)	(3.794)	(3.723)	(3.487)	(3.579)	(2.614)
Size	0.001	0.001	0.002	0.002*	-0.000	-0.001
	(0.921)	(1.006)	(0.661)	(1.743)	(-0.065)	(-0.459)
Debt/Assets	-0.020**	-0.021**	-0.009	-0.008	0.000	-0.023*
	(-2.012)	(-2.083)	(-0.635)	(-0.705)	(0.023)	(-1.663)
Long Term Debt	0.012**	0.012**	0.021**	0.003	0.015*	0.009
	(1.980)	(1.994)	(2.487)	(0.433)	(1.948)	(0.944)
Sales ratio	-0.004	-0.004	0.002	-0.005	-0.004	-0.001
	(-1.243)	(-1.247)	(0.459)	(-1.601)	(-0.982)	(-0.164)
Cash ratio	-0.033*	-0.034*	-0.016	-0.026	-0.051**	0.016
	(-1.795)	(-1.859)	(-0.772)	(-1.263)	(-2.547)	(0.401)
Ownership Concentration	-0.012	-0.013	-0.021*	-0.022**	-0.027**	0.003
	(-1.533)	(-1.629)	(-1.760)	(-2.563)	(-2.522)	(0.289)
Observations	11,848	11,848	5,244	6,604	6,202	5,646
Number of id	2,699	2,699	1,447	1,252	1,411	1,288
Country-Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
F-Test	26.3	24.69	12.72	29.87	11.56	27.7
Auto(1)	0	0	0	0	0	0
Auto(2)	0.474	0.441	0.749	0.485	0.449	0.718
Hansen p-value	0.265	0.249	0.287	0.598	0.312	0.359
$Marg.Effect$	-	0.170***	0.183***	0.190***	0.142***	0.139***
(dInv/dCF)	-	(5.151)	(5.228)	(6.551)	(4.99)	(3.88)

Notes: *Investment ratio* is capital expenditures scaled by lagged total assets. *Firm cash flow ratio* is the income based cash flow over lagged total assets. $Instown_{i,t}$ represents the percentage ownership participation in hands of institutional investors. $\mathbf{X}_{i,t}$ is a set of firm-level control variables defined in Table ;. α_i is the firm-specific effect, d_t *and* d_c denotes the year and country dummies; and $u_{i,t}$ represents the individual error term. Auto(2) is a test of second order serial autocorrelation of the residuals under the null hypothesis of no serial correlation. 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. ***, **, and * represents a level of significance lower than 1%, 5%, and 10%, respectively.

Table 4 Colors of Institutional Investor Ownership and Investment

Dependent variable: Investment ratio (Fixed Effects-GMM Regressions)

VARIABLES	(1) Total	(2) Total	(3) Size Restricted	(4) Size Restricted	(5) KZ Index Restricted	(6) KZ Index Unrestricted
Insvestment (Lagged)	0.319***	0.320***	0.319***	0.318***	0.367***	0.370***
	(13.848)	(13.793)	(9.763)	(9.728)	(15.227)	(15.334)
Cash Flow	0.154***	0.156***	0.204***	0.203***	0.157***	0.159***
	(4.116)	(4.092)	(5.058)	(5.109)	(4.406)	(4.413)
Cash Flow x Independent Investors Own.	-0.116	-0.081	-0.536**	-0.550**	0.295	0.182
	(-0.435)	(-0.319)	(-2.029)	(-2.132)	(0.901)	(0.544)
Cash Flow x Grey Investors Own.	1.042*	1.088	-0.705	-0.590	1.118**	1.065**
	(1.669)	(1.642)	(-0.753)	(-0.606)	(2.264)	(2.169)
Independent Investors Ownership	0.018	-0.043	0.004	0.031	-0.020	-0.085*
	(0.678)	(-0.798)	(0.156)	(0.530)	(-0.597)	(-1.676)
Independent Investors Own. (squared)		0.164		-0.048		0.217*
		(1.308)		(-0.527)		(1.719)
Grey Investors Ownership	-0.047	-0.178*	0.135	0.083	-0.076	-0.099
	(-0.818)	(-1.661)	(1.572)	(0.593)	(-1.615)	(-1.189)
Grey Investors Ownership (squared)		0.477		0.147		0.054
		(1.375)		(0.363)		(0.207)
Tobin's Q	0.012***	0.012***	0.017***	0.017***	0.010***	0.011***
	(3.961)	(3.858)	(3.655)	(3.675)	(3.225)	(3.364)
Size	0.000	0.001	0.002	0.002	0.002	0.003*
	(0.119)	(0.727)	(0.640)	(0.635)	(1.588)	(1.836)
Debt/Assets	-0.015	-0.017*	-0.009	-0.008	-0.001	-0.004
	(-1.566)	(-1.727)	(-0.646)	(-0.554)	(-0.097)	(-0.313)
Long Term Debt	0.012**	0.013**	0.019**	0.019**	0.002	0.001
	(1.971)	(2.074)	(2.187)	(2.218)	(0.292)	(0.189)
Sales ratio	-0.003	-0.003	0.001	0.002	-0.006*	-0.006*
	(-0.904)	(-0.943)	(0.341)	(0.394)	(-1.772)	(-1.672)
Cash ratio	-0.035*	-0.036**	-0.021	-0.020	-0.025	-0.022
	(-1.922)	(-1.978)	(-1.021)	(-0.937)	(-1.190)	(-1.020)
Ownership Concentration	-0.011	-0.011	-0.021*	-0.020*	-0.020**	-0.021**
	(-1.381)	(-1.363)	(-1.916)	(-1.706)	(-2.333)	(-2.466)
Observations	11,848	11,848	5,244	5,244	6,604	6,604
Number of id	2,699	2,699	1,447	1,447	1,252	1,252
Country-Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
F-Test	239.2	224.6	126.2	11.92	28.49	169.8
Auto(1)	0	0	0	0	0	0
Auto(2)	0.404	0.420	0.736	0.734	0.410	0.466
Hansen p-value	0.232	0.274	0.198	0.207	0.574	0.512
Marginal Effect						
(dInv/dCF)	0.164***	0.168***	0.180***	0.179***	0.196***	0.190***
	(4.88)	(5.00)	(5.03)	(5.12)	(6.42)	(6.27)
(dInv/dCF) only IndepIO>0	0.148***	0.152***	0.186***	0.184***	0.173***	0.168***
	(4.24)	(4.29)	(4.99)	(5.02)	(5.48)	(5.39)
(dInv/dCF) only GreyIO>0	0.169***	0.172***	0.198***	0.197***	0.180***	0.180***
	(4.74)	(4.76)	(5.09)	(5.20)	(5.26)	(5.22)

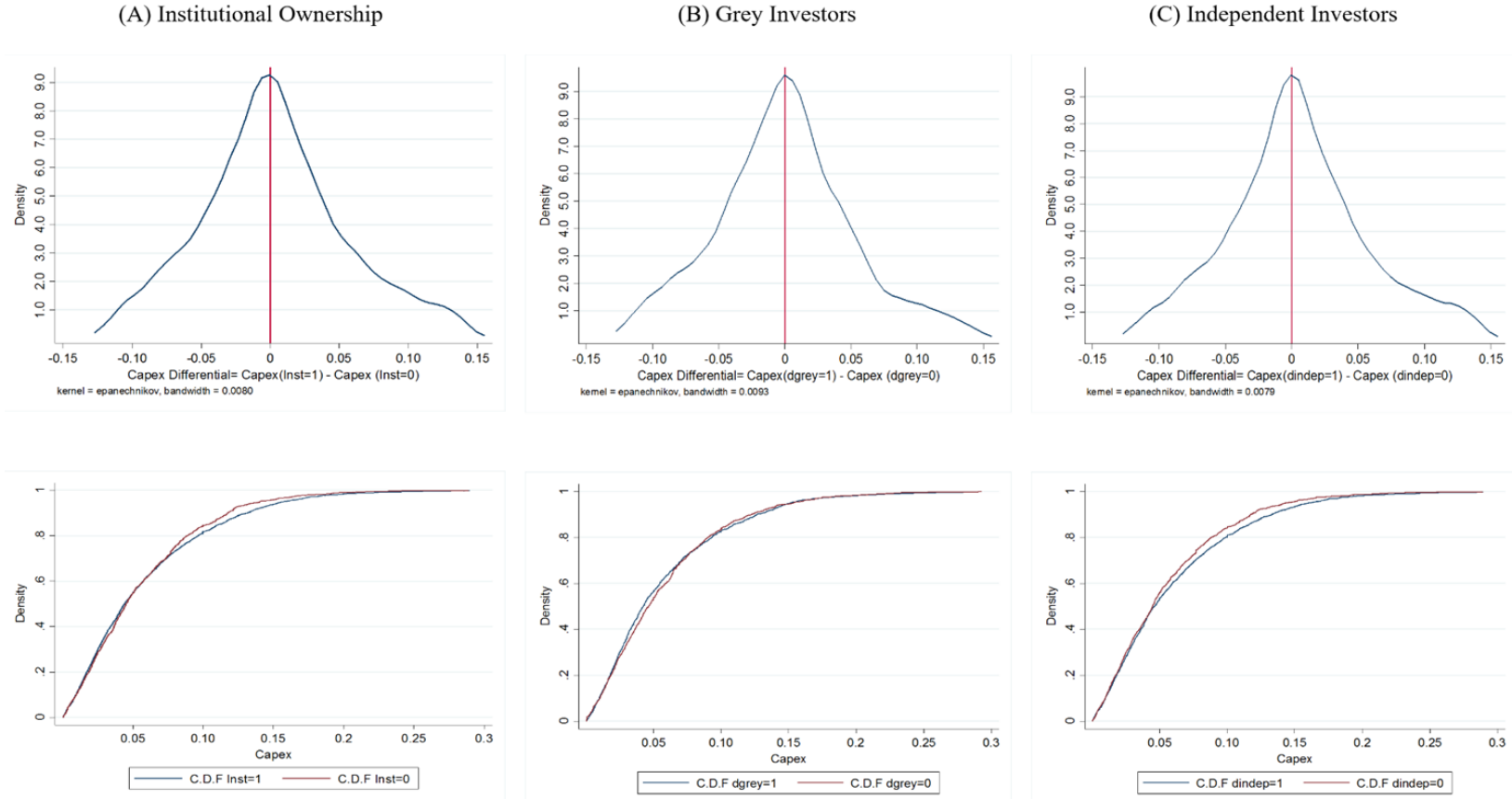
Notes: Investment ratio is capital expenditures scaled by lagged total assets. Cash Flow is the income based cash flow over lagged total assets. IndepIO represents the percentage ownership participation in hands of indpendent institutional investors. GreyIO_(i,t) represents the percentage ownership participation in hands of greyl institutional investors. $\mathbf{X}_{i,t}$ is a vector of firm-level control variables defined in Table 1 ;. α_i is the firm-specific effect, d_t and d_c denotes the year and country and year dummies; and μ_{it} represents the individual error term. Auto(2) is a test of second order serial autocorrelation of the residuals under the null hypothesis of no serial correlation. 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. ***, **, and * represents a level of significance lower than 1%, 5%, and 10%, respectively.

Table 5: Descriptive statistics and mean's difference test of the NN Matching

Variables	(1) Treatment 1				(2) Treatment 2				(3) Treatment 3			
	Obs	Tinsti=1	Tinsti=0	mean diff. (t-stat)	Obs.	Tgrey=1	Tgrey=0	mean diff (t-stat)	Obs.	Tindep=1	Tindep=0	mean diff. (t-stat)
Investment ratio	4314	0.065	0.063	2.12**	1665	0.063	0.067	-1.91*	4013	0.068	0.063	3.47***
		(0.064)	(0.057)			(0.061)	(0.062)			(0.065)	(0.060)	
Cash Flow	4314	0.063	0.063	-1.14	1665	0.068	0.069	-0.55	4013	0.065	0.066	-1.65
		(0.075)	(0.070)			(0.076)	(0.073)			(0.077)	(0.072)	
Cash ratio	4314	0.989	0.0983	0.35	1665	0.100	0.098	1.00	4013	0.101	0.104	-1.63
		(0.080)	(0.087)			(0.084)	(0.082)			(0.082)	(0.091)	
Tobin's Q	4314	1.078	1.081	-1.12	1665	1.129	1.128	0.23	4013	1.103	1.104	-0.44
		(0.402)	(0.417)			(0.432)	(0.437)			(0.431)	(0.447)	
Size	4314	19.844	19.845	-0.10	1665	20.249	20.237	1.24	4013	19.90	19.91	-1.18
		(1.604)	(1.637)			(1.782)	(1.780)			(1.624)	(1.645)	
Debt ratio	4314	0.269	0.269(	-0.18	1665	0.267	0.266	0.38	4013	0.266	0.265	0.597
		(0.153)	0.147)			(0.153)	(0.148)			(0.154)	(0.149)	
Long Term Debt	4314	0.466	0.464	1.49	1665	0.486	0.484	0.94	4013	0.476	0.476	-0.507
		(0.272)	(0.273)			(0.267)	(0.264)			(0.274)	(0.274)	
Ownership Concentration	4314	0.467	0.469	-1.13	1665	0.481	0.478	1.38	4013	0.471	0.471	-0.175
		(0.218)	(0.196)			(0.199)	(0.200)			(0.217)	(0.197)	

Notes: Treatment 1 = existence of institutional investors in the ownership structure; Treatment 2 = existence of grey institutional investors; Treatment 3 = the existence of independent institutional investors on firms.

Figure 1 Kernel Density estimate for Investment ratios differential between Firms with Institutional Investors and Comparable.



Notes: After performing the nearest-neighbor matching between the treatment criteria controlled by the model controls (exact matching in year, country and industry), the matched samples were bounded to Investment ratio differential between -15% and 15% resulting in a paired sample of 4314, 1665 and 4013 for total institutional investors, grey institutional investors and independent institutional investors, respectively. Epanechnikov kernel function was used to estimate the density function. Two-sample Kolmogorov-Smirnov test for equality of distribution functions was performed for each treatment; the result for total institutional investors indicates that the biggest difference between the firms with institutional investors (c.d.f Inst=1) and without institutional investors (c.d.f inst=0) is 0.0326 (p-value 0.010), the biggest difference between the Inst=0 c.d.f and the Inst=1 c.d.f is -0.0322 (p-value 0.011) and the combined test have a p-value of 0.02. The results for grey institutional ownership treatment indicates that the biggest difference between the firms with grey investors (c.d.f dgrey=1) and without grey investors (c.d.f dgrey=0) is 0.0138 (p-value 0.728), the biggest difference between the dindep=0 c.d.f and the dindep=1 c.d.f is -0.0553 (p-value 0.006) and the combined test have a p-value of 0.012. Finally, the results for independent institutional ownership treatment indicates that the biggest difference between the firms with independent investors (c.d.f dindep=1) and without independent investors (c.d.f dindep=0) is 0.0344 (p-value 0.009), the biggest difference between the dindep=0 c.d.f and the dindep=1 c.d.f is -0.0083 (p-value 0.761) and the combined test have a p-value of 0.018.

Appendix A1: Variable Definition

Abbreviation	Variable	Definition
Investment variable		
$Inv_{i,t}$	Investment	Capital expenditures of the year t over total assets at the beginning of the period (t–1).
Hypothesis explanatory variables		
$CF_{i,t}$	Cash flow	Operating Cash Flow of the year t over total assets at the beginning of the period (t–1)
$Instown$	Institutional Ownership	Proportion of shares owned by institutional investors
$ForIO$	Foreign Institutional Ownership	Proportion of shares owned by foreign institutional investors
$LocIO$	Local Institutional Ownership	Proportion of shares owned by local institutional investors
$IndepIO$	Independent Investors Ownership	Proportion of shares owned by investors classified as Independent.
$GreyIO$	Grey Investors Ownership	Proportion of shares owned by investors classified as Grey.
$Inst$	Dummy institutional investor	Takes value 1 if institutional ownership is major than zero, and zero otherwise
$dindep$	Dummy independent investor	Takes value 1 if independent institutional ownership is major than zero, and zero otherwise
$dgrey$	Dummy grey investor	Takes value 1 if grey institutional ownership is major than zero, and zero otherwise
NN-Matching Dummy Variables		
$Inst$	Institutional Ownership dummy	Takes value 1 if institutional ownership is major than zero, and zero otherwise.
$dgrey$	Grey Institutional Ownership dummy	Takes value 1 if the grey institutional ownership is major than zero, and zero otherwise.
$dindep$	Independent Institutional Ownership dummy	Takes value 1 if the independent institutional ownership is major than zero, and zero otherwise.
Moderating Variables		
$Size\ Restricted$	*Sub-sample Low Size*	Belong to this group when average firm size is under the country-industry median of size.
$Size\ Unrestricted$	*Sub-sample High Size*	Belong to this group when average firm size is over the country-industry median of size.
KZ-Index Restricted	*Sub-sample High* level of KZ-Index	Belong to this group when average KZ-Index is over the country-industry median of KZ-Index.
KZ-Index Unrestricted	*Sub-sample Low* level of KZ-Index	Belong to this group when average KZ-Index is under the country-industry median of KZ-Index.
Firm-Level Control variables		
Qtob	Tobin's Q	(Market capitalization + Total debt)/Total asset's replacement value
Ln(Assets)	Size	Natural logarithm of total assets
Debt	Debt ratio	Total debt to total assets
LT Debt	Long-term debt	Long-term debt to total debt
Cash	Cash ratio	Cash and equivalents over total assets
Sales	Sales ratio	Net Sales to total assets
C3	Ownership Concentration	Ownership participation of the three largest shareholders
Country, Industry and year		
Year-country	Year-country fixed effects	Set of year-country dummies
Industry	Industrial code	Set of Thomson Reuters TRBC Business classification industrial code

Appendix A2 – Descriptive statistics by country

Variable	Brazil		Chile		Greece		Indonesia		Malaysia		Mexico	
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.
Investmet ratio	0.069	0.065	0.066	0.058	0.047	0.063	0.076	0.073	0.053	0.060	0.060	0.052
Institutional Ownership	0.130	0.152	0.066	0.079	0.036	0.053	0.024	0.049	0.027	0.053	0.072	0.080
Grey Investors Ownership	0.025	0.074	0.010	0.025	0.001	0.011	0.007	0.035	0.004	0.017	0.000	0.003
Independent Investors Ownership	0.105	0.137	0.056	0.075	0.035	0.051	0.017	0.036	0.023	0.049	0.071	0.080
Local Institutional Ownership	0.097	0.142	0.061	0.074	0.013	0.027	0.004	0.022	0.020	0.047	0.047	0.079
Foreign Institutional Ownership	0.033	0.057	0.005	0.028	0.022	0.048	0.020	0.046	0.007	0.024	0.025	0.040
Cash flow	0.077	0.091	0.075	0.089	0.039	0.074	0.076	0.094	0.060	0.081	0.091	0.085
Tobin's Q	1.357	0.636	1.292	0.583	1.032	0.453	1.466	0.855	1.048	0.565	1.407	0.550
Size	20.993	1.692	20.228	1.599	19.555	1.273	19.456	1.502	18.669	1.441	21.182	1.473
Debt Ratio	0.316	0.160	0.258	0.126	0.369	0.172	0.302	0.169	0.228	0.155	0.261	0.151
Long Term Debt ratio	0.608	0.237	0.653	0.256	0.485	0.275	0.504	0.303	0.421	0.283	0.724	0.250
Sales ratio	0.806	0.480	0.787	0.476	0.670	0.429	0.939	0.598	0.775	0.480	0.755	0.375
Cash ratio	0.136	0.100	0.081	0.086	0.074	0.074	0.104	0.098	0.114	0.097	0.082	0.066
Ownership Concentration	0.489	0.238	0.638	0.200	0.431	0.291	0.619	0.229	0.432	0.223	0.408	0.297
Obs.	829		572		772		1,201		3,033		418	

Variable	Peru		Poland		Rep. of Korea		South Africa		Thailand	
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.
Investmet ratio	0.078	0.066	0.059	0.063	0.070	0.068	0.081	0.068	0.068	0.070
Institutional Ownership	0.058	0.105	0.122	0.111	0.042	0.070	0.162	0.157	0.016	0.037
Grey Investors Ownership	0.030	0.065	0.058	0.083	0.015	0.047	0.001	0.007	0.005	0.019
Independent Investors Ownership	0.028	0.053	0.064	0.084	0.027	0.049	0.161	0.157	0.011	0.032
Local Institutional Ownership	0.048	0.099	0.115	0.109	0.031	0.063	0.147	0.153	0.010	0.031
Foreign Institutional Ownership	0.010	0.029	0.006	0.028	0.011	0.033	0.015	0.043	0.006	0.022
Cash flow	0.106	0.106	0.067	0.088	0.052	0.083	0.088	0.095	0.085	0.102
Tobin's Q	1.344	0.974	1.214	0.596	1.033	0.429	1.584	0.864	1.332	0.597
Size	19.985	1.210	18.667	1.436	19.528	1.516	19.783	1.730	18.866	1.559
Debt Ratio	0.231	0.142	0.200	0.132	0.291	0.162	0.192	0.135	0.288	0.183
Long Term Debt	0.546	0.259	0.427	0.271	0.340	0.240	0.549	0.273	0.410	0.300
Sales ratio	0.732	0.425	1.119	0.592	0.996	0.477	1.198	0.626	1.032	0.583
Cash ratio	0.065	0.066	0.076	0.081	0.113	0.098	0.113	0.104	0.088	0.093
Ownership Concentration	0.601	0.284	0.554	0.204	0.406	0.166	0.420	0.210	0.409	0.231
Obs.	194		1,376		5,578		1,061		1,561	

Notes: Data are from Thomson Eikon and S&P Capital IQ. Variables are defined in the appendix- Table A1.

Appendix – A3 Foreign and Local Institutional Investor Ownership and Investment

Dependent variable: Investment ratio (Fixed Effects-GMM Regressions)

VARIABLES	(1) Total	(2) Total	(3) Size Restricted	(4) Size Restricted	(5) Size Unrestricted	(6) Size Unrestricted
Investment ratio (Lagged)	0.324***	0.324***	0.324***	0.322***	0.372***	0.373***
	(14.044)	(13.875)	(10.116)	(9.933)	(15.086)	(15.236)
Cash Flow	0.164***	0.164***	0.220***	0.218***	0.157***	0.162***
	(4.259)	(4.292)	(5.505)	(5.375)	(4.682)	(4.663)
Cash Flow x Foreign Institutional Investor	-0.279	-0.318	-1.978*	-1.941*	-0.245	-0.316
	(-0.357)	(-0.415)	(-1.743)	(-1.736)	(-0.364)	(-0.463)
Cash Flow x Local Institutional Investor	0.227	0.251	-0.455*	-0.475*	0.636**	0.540*
	(0.874)	(0.972)	(-1.776)	(-1.818)	(2.262)	(1.947)
Foreign Institutional Investor	-0.043	-0.014	0.205*	0.248*	-0.088	-0.088
	(-0.550)	(-0.142)	(1.793)	(1.841)	(-1.465)	(-1.158)
Foreign Institutional Investor (squared)		-0.078		-0.146		0.023
		(-0.479)		(-0.739)		(0.185)
Local Institutional Investor	0.005	0.032	0.021	-0.008	-0.031	-0.023
	(0.200)	(0.738)	(0.843)	(-0.207)	(-1.014)	(-0.447)
Local Institutional Investor (squared)		-0.051		0.055		-0.003
		(-0.858)		(1.084)		(-0.052)
Tobin's Q	0.012***	0.012***	0.016***	0.016***	0.011***	0.011***
	(3.736)	(3.584)	(3.481)	(3.357)	(3.433)	(3.541)
Size	0.001	0.001	0.002	0.002	0.003*	0.002*
	(0.622)	(0.977)	(0.846)	(0.903)	(1.758)	(1.731)
Debt/Assets	-0.019*	-0.022**	-0.008	-0.007	-0.007	-0.007
	(-1.946)	(-2.161)	(-0.589)	(-0.485)	(-0.693)	(-0.659)
Long Term Debt	0.011*	0.011*	0.020**	0.019**	0.001	0.001
	(1.780)	(1.823)	(2.395)	(2.350)	(0.132)	(0.124)
Sales rate	-0.004	-0.004	0.001	0.001	-0.007*	-0.007*
	(-1.175)	(-1.125)	(0.140)	(0.115)	(-1.937)	(-1.854)
Cash rate	-0.029	-0.029	-0.011	-0.015	-0.020	-0.020
	(-1.537)	(-1.564)	(-0.547)	(-0.721)	(-0.940)	(-0.932)
Ownership Concentration	-0.015*	-0.014*	-0.020*	-0.019*	-0.025***	-0.024***
	(-1.776)	(-1.728)	(-1.807)	(-1.791)	(-2.789)	(-2.691)
Observations	11,848	11,835	5,244	5,236	6,604	6,599
Number of id	2,699	2,697	1,447	1,445	1,252	1,252
Country-Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
F-Test	23.13	21.92	12.83	132.4	176.9	172.2
Auto(1)	0	0	0	0	0	0
Auto(2)	0.458	0.472	0.813	0.816	0.511	0.550
Hansen p-value	0.273	0.244	0.387	0.341	0.658	0.651
Marginal Effect						
(dInv/dCF)	0.171***	0.173***	0.191***	0.192***	0.189***	0.188***
	(5.03)	(5.14)	(5.35)	(5.33)	(6.71)	(6.64)
(dInv/dCF) only Infor>0	0.160***	0.162***	0.207***	0.210***	0.152***	0.152***
	(4.52)	(4.60)	(5.29)	(5.32)	(4.95)	(5.00)
(dInv/dCF) only Inloc>0	0.174***	0.178***	0.204***	0.206***	0.194***	0.193***
	(4.74)	(4.86)	(5.55)	(5.59)	(6.36)	(6.33)

Notes Investment ratio is capital expenditures scaled by lagged total assets. Cash Flow is the income based cash flow over lagged total assets. *Foreign IO* represents the percentage ownership participation in hands of foreign institutional investors. Local IO represents the percentage ownership participation in hands of local institutional investors. $\mathbf{X}_{i,t}$ is a vector of firm-level control variables defined in Table 1 ;. α_i is the firm-specific effect, d_t and d_c denotes the year and country and year dummies; and μ_{it} represents the individual error term. Auto(2) is a test of second order serial autocorrelation of the residuals under the null hypothesis of no serial correlation. 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. ***, **, and * represents a level of significance lower than 1%, 5%, and 10%, respectively.

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