

# **Institutional Investors Heterogeneity and Firm Valuation: Evidence from Latin America**

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## **Abstract**

This article analyses how the corporate valuation of Latin American firms is affected by the presence of an institutional blockholder investor. The study uses a data set of 562 firms from six Latin American countries for the period 1997 to 2011. We found that the presence of an institutional investor has a positive effect of 8% on firm value. This premium increases to 24% for the cases where there is blockholder coalition with an institutional investor. After dividing the sample by investor type, we found that the presence of a grey investor has a negative effect on firm valuation.

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## **1. Introduction**

Over the two last decades the number of institutional investors has grown substantially in developed economies such as Canada, the United States and the United Kingdom, where they control more than half of the property (Aggarwal, 2011). Chong and Lopez-de-Silanes (2007) found that as the presence of large and multiple institutional investors in Latin America became widespread, so did the need for better corporate governance in firms and better investor protection standards in countries. According to the International Monetary Fund, institutional investors from around the world manage financial assets in excess of 45 trillion dollars (IMF, 2005).

In Latin America, institutional investors currently manage considerable financial assets and have a real opportunity to influence the development of the region's capital markets (Blume & Alonso, 2007). Pension funds in particular have accumulated significant assets in the Latin American countries where they have been established: Brazil and Chile account for approximately 80% of all pension assets in the region (OECD, 2000). They are also potentially the most powerful group of domestic investors with an interest in good corporate governance (OECD, 2011).

Studies regarding the role of institutional investors in shaping firms' corporate governance have been focus to the case of the US and the role of mutual funds voting. According to Claessens and Yurtoglu (2014) studies on the role of institutional investor in discipline management in emerging markets are scarce and there is no solid evidence on their behavior in markets with concentrated ownership. This study focus on Latin America, which is a market with structural ownership concentration but at the same time its capital market has deepened, and institutional ownership has risen over the last two decades. For instance, some countries in the

region have been pioneering pension fund reforms since the late 1980s, making dual regimes possible: individual savings capitalization and as-pay-as-go funding (e.g. Chile and Colombia), or the mutual fund industry, which is today in Brazil one of the largest in the world.

The presence of institutional investors in Latin American corporations has grown steadily since the 1990s. The data collected in this study show that in 1997, 97 out of 358 publicly owned real-sector firms had an institutional investor as the largest shareholder with average equity rights of 37%. Four of these shareholders were pension fund administrators. By 2011 this number had risen to 151 out of 496 listed firms, with average equity rights of 49%. In 12 firms, pension funds showed up as the largest blockholder. Looking at the second blockholder, the involvement of institutional investors has been more prevalent. In 1997, 120 out of 316 listed real-sector firms had an institutional investor as their second blockholder. By 2011, this number had increased to 171 out of 408 firms with multiple blockholders recorded. Their equity rights remained constant at 13%. In the same year, 25 pension funds showed up as the second largest shareholder.

These numbers suggest that the opportunity for institutional investors to contest control is important in direct monitoring (voice mechanism) in the region. Conversely, we might expect intervention through trading to be a less credible strategy for institutional investors due to natural liquidity constraints in emerging capital markets like Latin America. Gutierrez and Pombo (2009) examined a sample of 142 firms listed on the Colombian stock exchange and showed that contestability within the four largest shareholders and the probability of the largest blockholder forming a coalition with any of the three next-largest stakeholders (Shapley value solution) are statistically robust regressors and were inversely related to the Tobin's Q ratio of a firm, but only for high liquid stocks.

Both performance and firm valuation factors are seen as dependent on the ownership structure and control mechanisms (Sahut & Gharbi, 2010; Klapper & Love, 2004). However, we must keep in mind that heterogeneity across firms and large shareholder behavior is sometimes shaped by a country's macroeconomic environment and financial regulation. In particular, regulators have encouraged security issuers to adopt corporate best practice codes if pension funds become firms' equity holders. This has been the case in Colombia, Chile and Peru since the late 1990s. Similarly, the Sao Paolo Stock Exchange launched its segmented market—*Novo Mercado*—in 2000 to eliminate dual shares voting overpower and return to the basis of one share-one vote rule.

The aim of this study is therefore to ask whether institutional investors have had a positive influence on firm valuation across larger real-sector firms in the region. The study seeks to make a three-fold contribution to the literature of corporate finance and corporate governance in emerging markets. First, this is one of the first papers that tests institutional shareholder monitoring across larger Latin American corporations. Results show that when this type of blockholder is involved, firms' Tobin's Q ratio increases by 8%. This premium is lower than the United States, however, it confirms the fact that institutional investors diminish agency conflicts between blockholders and minority investors. Second, we look the effect that independent (investment firms) versus grey institutional investors ((pension funds and insurance companies) may have on firm valuation as a source of heterogeneity. Our results show that activism is not homogeneous between these types of institutional investors. In particular, the overall effect of grey investors is negative—result opposite to what normally has been observed for developed capital markets. The explanation of this finding is that grey investors still face several constraints caused by deepening of the capital market, and financial regulations that restrict

equity investment in their portfolio structures. The empirical test that proves this argument is that of Chile. Value regressions for Chilean firms show that grey investors have a positive effect on firm performance. In Chile, financial regulation allows higher caps for equity investments and the private pension industry in Chile started 10 years before that of any other country in Latin America.

Third we empirically modeled the behavior of institutional blockholder investors in an improved and more accurate manner, by measuring their Shapley coalitional value. Studies on blockholders and ownership structure highlight that coalitions across large shareholders increase firm cash flow diversion and tunneling. We show the opposite in the case of institutional investor coalitions. The marginal effect of institutional Shapley (i.e. a coalition between the largest institutional investor and any of the remaining top blockholders) is that the premium over Tobin's Q increases to around 24%.

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. Theoretical framework and hypotheses**

### *2.1. Institutional investor heterogeneity and firm value*

Institutional investors can 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 (Starks, 2002). As

indicated by Ferreira and Matos (2008), a key factor in the global capital market is the increasing importance of institutional investors, suggesting that their presence is vital in economic development.

Studies in the literature have frequently found that large shareholders with a high concentration of company ownership tend to have incentives to monitor and discipline company management. This is known as the "Incentive Effect" and leads to reduced agency costs (Shailer, 2013; Laeven & Levine, 2008; Shleifer & Vishny, 1986). Gillan and Starks (2003) argued that large institutional shareholders have incentives to actively monitor the companies in which they hold shares because stock prices would fall if they sold their shares, causing them losses. Liquidity constraints could be another reason that institutional investors do not usually follow an exit strategy in these markets, and prefer using voice activism to ensure larger investment returns (Maug, 1998). Some examples of active monitoring from institutional investors in Latin America include active voting with shares, nominating board members, demanding additional information about the company, alerting markets when negative CG practices are detected, and requiring companies to develop good corporate practices (Blume & Alonso, 2007).

Several studies, most based on US data, have found that firms with large institutional shareholders are associated with higher performance and higher value (Woidtke, 2002; Del Guercio & Hawkins, 1999; Navissi & Naiker, 2006; Qi, 2000; Xu, 1999;). 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. The latter confirms the hypothesis of McConnell (1990), who suggested that corporate value is a function of ownership structure. Meanwhile, Brav et al. (2008) studied the case of investment funds (a form of institutional investors) and

their effect on firm value. They found that for US firms, the operational and financial recommendations of these investors are successful in two out of three cases.<sup>2</sup>

Not all institutional investors have the same interests or the same *modus operandi*. Accordingly, 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). We expect institutional independent investors to monitor more actively, and expect investment advisers and investment companies (independent investors) to have more skilled employees, collect more information, face less regulatory and legal restrictions on their investments, and have less natural potential for business relations with the corporations. Almazan, Hartzell, and Starks (2005) call them “active investors” while Brickley, Lease, and Smith (1988) call them “pressure-resistant.”

Grey investors, meanwhile, are those with a more natural potential for business relations, such as insurance companies. Ferreira and Matos (2008) expect this group to be more loyal to corporate management and thus to hold shares without reacting to management actions that are not in line with the interests of shareholders. Brickley, Lease, and Smith (1988) refer to these investors as “pressure-sensitive”.

The act of monitoring is considered to be less costly for independent investors than for grey investors, since the latter have a disadvantage when putting pressure on management to make changes: it can damage their business relationships with the firm (Chen, Harford, & Li, 2007). This is something that grey investors prefer to avoid. Based on differences in monitoring costs, Almazan, Hartzell, and Starks (2005) classified institutional investors into the two types mentioned, active and passive, with the former having lower monitoring costs. On the empirical

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<sup>2</sup> Complementary finding results show that institutional ownership is associated with increases in spending on research and development, subsequently increasing firm value. For more details see Baysinger and Butler (1985), Jarrell and Lehn (1985), and Hansen and Hill (1991).

side, Ruiz and Santana-Martin (2011) disentangled the effects of banking institutions and investment funds on firm value for a sample of 111 non-financial Spanish firms. They found that institutional ownership by (independent) investment funds had a positive influence on firm value. Where the dominant investors were banking institutions (grey), however, the influence was negative. This brings us to the second hypothesis:

***H1.** It is expected that independent ownership by institutional investors is associated with higher firm value since these investors monitor the financial and administrative activities of the firm more actively.*

### *2.3. Institutional Investors and blockholders contesting control*

Several studies have focused on institutional investors' preferences due to their increasing role as active shareholders, particularly in developed markets. One specific area studied has been their relationship with firms' best CG practices. As argued in the previous section, investor activism through voice or trade intervention may lead to improved CG practices through greater management accountability, information disclosure and conflict resolution between stakeholders. Also, when designing their portfolios, institutional investors search for specific governance structures that may reflect high dividend stock holdings. Institutional investors usually make large and long-term investments, and firms with a better CG structure generally have a higher percentage of institutional investors than firms with weaker governance structure. Black, Jang, and Kim (2006) found that these investors tend to place more value on better governed firms when the level of expected profits is the same. The presence of multiple blockholders and their effect on firm value, profitability and dividends has been empirically documented in several international studies over the last 10 years (Maury & Pajuste, 2005; López-de-Foronda et al., 2007; Laeven & Levine, 2008; Attig et al., 2009; Gutierrez & Pombo, 2009a; and Konijn 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. This contradicts the traditional agency theory that dispersed ownership and strong management, or the existence of absolute control of the largest voting block, increases the risk of minority ownership being expropriated by the large shareholders.

The theoretical model of control contestability was 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 model has two main assumptions: that the existence of multiple large shareholders can reduce profit diversion (i.e., that control contestability is value-enhancing), and that diversion of profits by the controlling coalition is costly. It can be shown that the dominant coalition maximizes its value function, which is the sum of cash flows diverted from firm projects and the benefits of rent extraction<sup>3</sup>. That is,

$$\text{Max}_s V^C = \alpha \cdot [(1-s) \cdot \bar{r}] \cdot I + s(\bar{r} \cdot I) - c(v, s)(\bar{r} \cdot I) \quad (1)$$

where:  $\alpha$  is the dominant coalition's fraction of equity rights;  $s$  denotes the share diversion, that is, the control variable of the program;  $\bar{r}$  is the equilibrium return of firm  $i$  equity,  $I$  denotes the amount invested in new projects;  $v$  is the value of the coalition's voting power;  $c(\cdot)$  is the cost function of tunneling from the dominant blockholders' coalition; the term  $\alpha \cdot [\bar{r}(1-s)]I$  denotes the dominant coalition's cash flow after profit diversion from firm  $i$ 's project; and  $s(\bar{r} \cdot I)$  represents the return of diverted funds.

The first order condition of (1) is given by

$$c_s(s, v) = 1 - \alpha . \quad (2)$$

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<sup>3</sup> A complete development of this blockholder rent diversion model can be found in Gutierrez and Pombo (2009a).

Equation (2) states that the optimal share diversion  $s^*$  is defined when the marginal cost of profit diversion equals the outside coalition votes. The higher the dominant coalition's cash flow rights, the lower the marginal cost of rent diversion, and therefore the lower  $s^*$ . Maury and Pajuste (2005) extended this result and modeled control contestability more explicitly by including a conditional probability that large shareholders outside the dominant coalition can recover part of the extracted profits, that is:  $\text{Prob}(\text{recover}/s) = k$ . It follows that the first order condition becomes:

$$c_s(s, v) = (1 - \alpha) \cdot (1 - k) \quad (3)$$

From (3) the comparative statics of the model follows:

$$\frac{\partial s^*}{\partial \alpha} = \frac{-(1 - k)}{c_{ss}} < 0 \quad \text{and} \quad \frac{\partial s^*}{\partial k} = \frac{-(1 - \alpha)}{c_{ss}} < 0. \quad (4)$$

Thus, optimal share diversion  $s^*$  decreases when contestability from outside blockholders increases,  $k > 0$ , and when their own cash flow rights increase because they have fewer rents to extract. The above arguments and results from the blockholder model lead us to the next working hypotheses:

**H2a.** *If the probability of forming a dominant coalition increases, extraction of rents is higher, lowering firm value (performance).*

Ownership statistics within Latin American corporations show that institutional investors in most cases represent the second, third and subsequent voting blocks. If they can form a coalition to contest the largest blockholder, then

**H2b.** *If the probability of forming a coalitional block among institutional investors increases, their voting power is greater, diminishing rent extraction and improving firm value (performance).*

### 3. Data and methodology

#### 3.1. Sample construction and ownership variables

This study used a longitudinal database (1997-2011) consisting of 562 non-financial firms from Latin America (Argentina, Brazil, Chile, Colombia, Mexico and Peru) and a maximum of 8,355 firm-year observations. The main source of the dataset was Reuter's Thomson ONE platform of financial information on firms and blockholders. To complement this, we also consulted databases of financial regulators in each country sampled, as well as annual reports of each firm. In particular, we obtained information from shareholder signatures in Chile, Peru and Brazil from the *Economática* database and respective local regulatory agencies<sup>4</sup>.

**Table 1** summarizes the construction of the sample. Between 2003 and 2011, an average of 4,809 firms had coded mnemonic records in the Thomson datastream. We then applied four filters to remove non-active firms with incomplete ownership or stock price information, firms with non-equity instruments commercial banks and financial institutions, and firms with incomplete ownership information that were less than three years old. This left 562 companies in the working sample. The sample is representative because it comprises more than 80% of Latin America's equity capital and the selected firms are representative in their respective countries.

... **Insert Table 1 here** ...

In **Table 2**, Panel A reports the ownership and control contestability variables broken down by multiple blockholder structure and the presence of institutional investors. We collected information on the four largest shareholders' cash flow rights, their legal person type, and whether they were institutional investors or not. We were also able to identify whether the institutional investor was a pension fund / insurance company or a bank / investment fund. An

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<sup>4</sup> Superintendencia de Valores y Seguros (Chile), Superintendencia del Mercado de Valores (Peru), Comissao de Valores Mobiliarios (Brazil), Superintendencia Financiera (Colombia). Comisión Nacional Bancaria y de Valores (Mexico), and Comisión Nacional de Valores (Argentina).

institutional investor was identified as such if the shareholder was a pension fund, insurance company, mutual fund, investment fund or bank (foreign or local). In Argentina, Chile and Peru, pension funds were the most prevalent institutional investors while in Brazil, mutual funds were the most prevalent, and in Colombia and Mexico both types of investors were present in equal measure (Blume & Alonso, 2007).

In terms of ownership data, we measured the yearly mean and median of several ownership and contestability indicators that are commonly found in empirical studies on multiple blockholders and firm value (Jara-Betin et al., 2008; Laeven & Levine, 2008; Maury & Pajuste, 2005). The first of these is the Herfindahl index, a standard indicator for ownership concentration. Herfindahl differences, meanwhile, measures blockholder power dispersion. This index tends towards zero as long as blockholders' equity shares are more equally distributed. Similar indicators are the contestability indices that measure the voting shares of the second and/or third largest blockholders relative to the largest voting block. These variables capture the actual contest for corporate control that the largest blockholder faces when unable to control the company directly.

One central variable is the Shapley value that measures the probability of the largest shareholder forming a coalition with either of the two next largest shareholders. This indicator is the solution for cooperative games. We followed the definition of oceanic finite games to compute power indices proposed by Leech (2002). The Shapley value measures the probability of the largest shareholder forming a coalition with either of the two next largest shareholders. Institutional Shapley value was included as well, which indicates the likelihood of a coalition forming between the largest institutional investor shareholder (if any) in a three-voting game.

The Shapley value is 1 for all firms where the largest shareholder has more than 50% of the firm's equity rights.

In countries with weaker shareholder protection, the presence of a controlling shareholder (who's not an institution) can block the activism of institutional owners and hurt firm value, due to higher agency costs – this is especially the case of controlling shareholders that accumulate more voting rights than cash flow rights through pyramidal or cross-ownership structures, or dual class shares. Those firms tend to be closely held, which imposes natural constraints to institutional investors. Separation between cash flow rights and voting rights of the controlling shareholders constitute the main source of firms' rent diversion or tunneling. Thus, from empirical perspective, the analysis of blockholder contestability and the impact of a possible coalition between an institutional investor and any other blockholder on firm value must be conditional on the degree of asymmetry between ownership and control –wedge– of the major blockholders. The literature corporate control (most of it using European or East Asian firms) has shown how such asymmetries can create entrenched shareholders. Claessens et al. (2002) show that a 10 percent increase in the wedge between control and equity rights of the largest shareholder diminishes firm's market to book ratio by 20 units.

There are different ways of measuring separation between ownership and control. . One is following Claessens et al. (2002), Faccio & Lang (2002), Villalonga & Amit (2010) and similar studies where wedge is the percentage of votes controlled by the firm's largest shareholder minus the percentage of cash-flow rights owned by the firm's largest shareholder. This definition implies to measure with observed data a shareholder's voting rights through the weakest link within the ownership chain. A second approach is just the ratio Shapley value to cash flow rights as proxy of wedge when data on cross-ownership and pyramidal structures are incomplete.

[(Guedes & Loureiro, 2006; Eckbo & Verma, 1994]. We followed the second and indirect approach because of data availability.

It is worth highlighting three major points from Table 4 panel A. First, approximately half of the firms in the sample exhibit multiple blockholder structure, that is, a large shareholder that has more than 10% and less than 50% of equity rights. In most of the remaining firms, at least 50% of the company equity is controlled by a single shareholder. Around 16 companies, or 3% of the sample, are widely held. This ownership distribution is similar to that reported by Leaven and Levine in their study of 1,657 European firms.

Second, institutional investors show up as blockholders in 56% of the firms in the sample. The probability of the largest blockholder forming a dominant coalition with one of the following blocks is 40% within firms that exhibit multiple voting blocks. Institutional Shapley probability is lower (34%), and this parameter is lower still within non-multiple blockholder ownership structures (24%). Third, the ratio of Shapley value to cash flow rights of the largest shareholder is 1.4 meaning that a voting block needs 36% of equity rights to get absolute control.<sup>5</sup> Differences in means (medians) by blockholder structure are significant at 5% level in most cases.

**... Insert Table 2 here...**

### *3.2. Performance and control variables*

In line with empirical research on firm value and institutional investors (Chung & Zang, 2011), we introduced several variables to measure firm performance and to control for firm characteristics. At firm level we used Tobin's Q and return on assets (ROA). The first indicator is the primary measure of firm value, and was calculated according to Black et al., (2006) who defined the variable as the ratio between the market value and book value of assets. Market value

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<sup>5</sup> That is  $CFRs/VRs = 1/1.4 = 0.7142$  and  $0.51 \times 0.7142 = 0.3643$

is the sum of the market value of common stock and preferred stocks (if any), plus the book value of long-term liability and minority interest. ROA is the net income to total assets ratio. ROA is one proxy for firm performance, especially when there is no market data and because it is independent from a firm's capital structure, unlike alternative financial performance indicators such as return on equity (ROE).

At firm level, we included the control variables of size, financial leverage, sales growth and asset tangibility. Firm size is measured by the natural logarithm of total assets (log assets). As in most studies, we expected a negative relationship between size and performance measures, since size also proxies for firm age, and older firms are less dynamic. Firm size also controls for the possibility of moral hazard on the part of management, since monitoring costs increase as firms become larger. Leverage is the book value of total liabilities divided by total assets (debt ratio). There is no established expected relationship between these variables and firm valuation or performance since empirical evidence suggests that leverage can have either a positive disciplinary effect over management's free use of cash flow, or a negative effect if it increases the probability of bankruptcy and a firm's aggregate financial risk (Gertler & Hubbard, 1993).

To measure investment opportunities, we used past growth in sales, measured by previous real annual percentage growth in operating income. We expect firms with better growth opportunities to grow faster, so sales growth should be positively related to valuation and performance measures. Asset tangibility, meanwhile, was calculated as plant, property and equipment valuation relative to the total assets ratio. Lower asset tangibility is a signal that a firm's cash flows are presumably generated by intangibles (know-how, branding) and hence implies high firm market value. The expected correlation is negative. Panel B in **Table 2** displays the mean (medians) values of these indicators broken down by blockholder ownership structure and

presence of institutional investors. The test on means (medians) of the control variables suggests non-significant differences between the selected sub-samples in most cases. One cannot expect ex-ante that larger or more indebted firms are preferred by institutional investors, or that firms with multiple blockholders are smaller, less tangible and have higher rates in growth opportunities. Firm performance, on the other hand, shows that firms with a single controlling blockholder and with the presence of institutional investors display higher Tobin's Q ratios. This finding is similar to the one reported in the study by Levine and Leaven (2008) for the case of multiple blockholders with highly dispersed cash flow rights. Tests on differences in means (medians) are significant at 5% level.

Country risk, macroeconomic and institutional variables were included in the empirical baseline equation, despite the fact that the countries included in this study share the same legal origin (French origin) and therefore are usually classified as having similar investor protection standards within the empirical literature of corporate governance. The medium-term patterns of several indicators that proxy for institutional quality show persistent differences. **Table 3** presents the statistics of the macro financial and economic control variables included: GDP per capita growth, annual inflation rate, bank capital ratio, domestic credit to private sector, and market capitalization value as percentage of GDP. The emerging market bond index (EMBI) is the proxy for a country's idiosyncratic risk. The variables we selected to measure countries' institutional quality were government effectiveness, corruption, financial freedom, and property rights indices. The above series was taken from The Heritage Foundation, the World Bank Development Indicators and International Country Risk Guide datasets<sup>6</sup>.

.... **Insert Table 3 here...**

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<sup>6</sup> Appendix 1 displays the correlation matrix of independent variables and appendix 2 displays the list of variables, definitions and methodology included in the econometric analysis.



## 4. Econometric analysis

This section analyzes how the presence and the type of institutional investors affect firm performance. The estimating equation explicitly models the marginal effects of institutional ownership on firm value, controlling by the ownership structure and financial characteristics of the firm, and the institutional and macroeconomic variables of its country. Regressions follow a general two-way error component model with a matrix dimension of  $i \times t$ :

$$Q_{it} = \beta_0 + \beta_k' \mathbf{II}_{it} + \gamma_k' \mathbf{OWN}_{it} + \phi_k' \mathbf{X}_{it} + \delta_k' \mathbf{MACRO}_{it} + (\mu_i + \varepsilon_{it}) \quad (5)$$

where:  $Q_{it}$  is the performance variable Tobin's Q;  $\mathbf{II}$  is the vector with institutional ownership dummies;  $\mathbf{OWN}$  is the vector of contestability indices and wedge variables,  $\mathbf{X}$  is the vector with the standard financial and firm idiosyncratic controls; and  $\mathbf{MACRO}$  is the vector that maps to the macroeconomic, financial, and institutional indicators of firm  $i$ 's country.

The estimating equation allows fixed effects. A fixed effects regression estimates the effects of constant and permanent unobserved changes over time and provides unbiased and efficient coefficients. In this way we controlled for unobserved heterogeneity between firms.

Following the investor classification proposed by Ferreira and Matos (2008) and Chen, Harford, and Li (2007), we divided the sample of institutional investors into two groups: i) Independent Investor: investment fund or bank, and ii) Grey Investor: pension fund or insurance company. We also identified whether these investors were the first, second or third largest shareholders for each firm.

### 4.1. Finding results

#### 4.1.1 Presence of an institutional investor as a blockholder

This section highlights the econometric results of the baseline equation (5) and assesses each of the working hypotheses. **Table 4** shows the core results relating to the effect that the presence of an institutional investor as a blockholder has on firm valuation.

Columns 1 to 4 show the fixed effects regressions concerning the presence of an institutional investor among the three largest blockholders. Market liquidity—proxied by the stock turnover percentile 75 dummy—and blockholder contestability behavior were included as controls interacting with institutional ownership. The average marginal effect of the institutional investor variable is 8 units, meaning that firms with institutional ownership have a market premium that raises Tobin's Q from an average of 1.22 to 1.30 according to overall sample data. This premium becomes non-significant if estimates do not control for stock liquidity. That is, the presence of institutional blockholders is value enhancing only for high liquid stocks. This outcome proves the conjecture that a blockholders exit mechanism as discipline device is difficult to implement.

In contrast to the results found by McConnell (1990), where the institutional ownership had a positive effect on Tobin's Q of 0.86, or the results found by Ferreira and Matos (2008), where there was a positive effect on Tobin's Q of 0.12, we can state that institutional investors in developed countries still have more influence on firm management than those in Latin America.

These regression equations control for blockholder contestability using the Shapley value and the *Herfindahl* differences. The first indicates the solution of cooperative games and in this case represents the probability of blockholders forming a dominant coalition (Maury & Pajuste, 2005). Its expected relation is negative. If the probability of forming a dominant coalition increases, higher is cash flow diversion by controlling shareholder. A *Herfindahl* difference captures blockholders' power dispersion. Its expected value is positive on firm value since lower dispersion implies higher control to the largest one by any of the next large shareholders. This

minimizes cash flow tunneling and increases the quality of firms' investment projects. Regression coefficients are non-significant for both cases, and only the *Herfindahl* differences show the expected direction [Eq.2 and 3].

Regressions Eq.3 and 4 control for the wedge between control and equity rights. The regression coefficients although show the expected sign (negative) are not statistically significant. This outcome implies that there is not enough evidence for entrenchment behavior by the controlling shareholder. One factor that is driving this result is that separation between ownership and control rights is low for top blockholders due to high ownership concentration. As noted before, one half of the sample the largest shareholder exhibits absolute control, therefore there is no need to further leverage his voting power.

Regression equation in column 5 estimates the effects of Institutional Shareholder Power on Tobin's Q within the sub-sample of firms with institutional owners. The marginal effect of the Institutional Shareholder Power (the marginal effect of a coalition between the institutional investor and the following two blockholders) is 0.24 and significant at 5% level. That positive effect indicates that coalitions with institutional investors are value enhancing; there is less rent diversion, and better corporate governance in the firm. This result confirms the monitoring role that some institutional investors have, whether or not they are pressure-insensitive (Almazan et al., 2005). From an empirical viewpoint, our ownership data reveals that in most cases, institutional blockholders are not the largest ones. Therefore, as long as an institutional coalition increases, the greater the control that investor has on the largest owner. Hence, these findings validate H2b that states a positive causal relation between coalition power of institutional investors and firm value. However, H2a that states positive effects of blockholder contestability is not validated conditional to the presence of institutional investors.

**...Insert Table 4 here ....**

Firm-level controls show that Tobin's Q decreases with firm size and first-lag of asset tangibility, controlling by the presence of institutional investors. These outcomes are consistent with the results in empirical studies on corporate governance and firm value. Large firms tend to have lower expectations about growth opportunities, thus lowering their investment returns. Intangible assets might increase a firm's cash flows and asset returns (Maury & Pajuste, 2006). The regression coefficients indicate that one standard deviation change [0.25] in the tangibility ratio reduces Tobin's Q by 0.092 units. Firm leverage shows the expected sign (positive) outweighing the negative effect of operational risk that is usually associated with higher fixed costs and a firm's plant, property and equipment investments. A one standard deviation change in the leverage ratio [0.21] raises Tobin's Q by 5.9 units.

Country institutional variables are important for corporate value in the case of Latin America, similar to the results in cross-country studies on corporate governance (La-Porta et al., 1997, 1998; Faccio et al., 2001). In general these are robust variables in the estimating equations. Two things are worth highlighting. First, the EMBI (Emerging Markets Bond Index) variable coefficient is robust and significant. Results indicate that a higher country risk is associated with lower firm value. Investors, especially foreign ones, take this spread into account in discounting investment projects. Second, macroeconomic variables are robust and significant, showing that corporate value not only depends on firm characteristics, but also on the economic and financial environment of each country. At the same time, these variables are a reference for investors when investing, since they indicate countries' economic trends.

#### *4.1.2. Independent and grey investors*

Following the investors classification proposed by Ferreira and Matos (2008), we analyzed the effects of institutional investor type on firm performance. Investors' behavior might be more or less pressure-insensitive with regards to managerial policies. In the first instance we examined independent investors (investment firms and banks), and in the second, grey investor institutions (pension funds and insurance companies).

**Table 5** depicts the econometric and central finding results. Overall, the regressions show that the presence of an investment fund has a significant positive effect on firm value. Regression in Col.1 shows that if the major shareholder is an independent investor, Tobin's Q is increased by 0.10 units. This result is similar to the findings of Almazan, Hartzell, and Starks (2005), Chen, Harford, and Li (2007), and Brickley, Lease, and Smith (1988). However, Ferreira and Matos (2008) found larger effects on Tobin's Q, close to 20 units. Regression in Col.2 underlines the effect of institutional ownership. The marginal effect evaluated at the mean of the largest shareholder equity rights (0.48) is around 10 units. If institutional ownership increases and this investor becomes the largest blockholder, it would reach a maximum of 0.21 units. That effect is partially offset when ownership concentration increases and the largest blockholder obtains absolute control. This is consistent with McConnell's (1990) hypothesis that corporate value is a function of ownership structure. The above results indicate that investment funds and banks would indeed be exercising a monitoring role in firms, thereby improving their performance and confirming our H1 that expects a large institutional investor shareholder to have a positive effect.

Regressions in Cols. 3 and 4 analyze the effect of the presence of grey investors (pension funds and insurance companies). The striking result is that the presence of such 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 -12 units. This finding is new and contrary to previous results found in the literature, mainly using data from developed markets<sup>7</sup>. Two factors might be driving this outcome.

The first is financial deepening. Capital markets are not diverse enough in terms of variable income securities and stock liquidity, and the high concentration of ownership restricts competition among institutional investors. Furthermore, grey investors are subject to financial regulation in regions that impose caps on stocks, corporate bonds and foreign securities asset investments. In the US or the UK, there are no limits on their portfolio design, whereas Mexico has a cap of on stock allocations of 15%, Argentina and Brazil 50%, and Colombia 40% (OECD, 2011). Therefore, pension funds have oriented their portfolios towards government bonds and corporate debt and have focused less on monitoring the performance of the firms in which they own shares (Blume & Alonso, 2007).

**...Insert table 5 here.....**

The second reason, at least for the non-significance of grey investors when they are the second or third largest blockholder, is related to managerial entrenchment. If managers are supported by non-institutional controlling shareholders, this might exacerbate tunneling and rent diversion, especially in emerging markets where control enhancing mechanisms are supported by the existence of pyramid ownership structures, disproportionate board representation, and the issuance of non-voting shares (Lins, 2003). A natural question that follows is whether or not there is a country effect driving this result. Col. 5 displays the regression for the case of Chile where the presence of pension funds as the largest shareholder represents a premium of 0.30 units on firm value, meaning that if a given firm has a Tobin's Q around one, and the book value

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<sup>7</sup> For more details see Chen, Harford, and Li (2007), McConnell (1990), Pound, (1988), and Shleifer and Vishny (1986).

of assets is 10 million dollars, the market value would be 13 million if the firm has a grey investor. The remainder of the control variables at firm, macroeconomic and institutional levels retain their sign, size and significance. This does not happen in any other country analyzed individually in the sample. The result confirms that in Chile—the country with fewer restrictions regarding the legal limits for pension fund portfolio management and a regime most similar to the US and the UK—blockholder monitoring is enhanced and hence institutional ownership has a positive impact on firm market value<sup>8</sup>.

## *4.2. Robustness tests*

### *4.2.1. Endogeneity of Institutional Ownership*

This section presents an instrumental variable analysis to control for endogeneity and double causality among the independent variables. Empirical literature in corporate governance stresses the potential endogeneity between corporate governance fundamentals and firm managerial choices, such as those regarding capital structure, investment or dividend policies. We tackled endogeneity issues in the empirical model by including robustness checks based on instrumental variable estimations. Two variables—institutional ownership and firm leverage—are considered to have a circular relationship with firm value. The discussion that follows focuses on the endogeneity between firm value and institutional ownership. The presence of institutional investors as blockholders can influence a firm's investment decisions, thus affecting asset returns; additionally, investors may be influenced by the valuation of a firm in deciding whether or not to invest in it (Millon et al., 2007; Woidtke, 2002)

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<sup>8</sup> The difference in the results also may be due to institutional and economic development: Chile is the first country in the region to become part of the OECD, and has the greatest degree of protection of property rights in the region—approximately 40% higher than the average index of the rest of the countries. Chile has been ranked by Forbes as a country with strong financial institutions, allowing it to have the best sovereign bonds rating in Latin America.

Himmelberg et al. (1999) state that the source of this endogeneity is due to unobserved firm heterogeneity. Some unobserved determinants that explain firm performance are also determinants for institutional investor portfolio allocations. One such determinant is the scope for managerial discretion. Intangible assets are one source of managerial discretion because they are harder to monitor and higher would be institutional ownership required to monitor rent diversion and managerial perk consumption. Nonetheless, we do not count for a good proxy that captures firm cash flow correlated with intangibles. Another determinant for institutional ownership is risk aversion. All other things being equal, the higher a firm's cash flow volatility (a proxy for firm idiosyncratic risk), the less likely it is that institutional ownership will be present. We complemented cash flow volatility as instrument that comes from firm heterogeneity with the lag of institutional ownership, defined as the sum of the equity share of the top three blockholders when they are institutional.

We used an IV linear system formed by structural and reduced form equations:

$$y_{1i} = \beta_0 + \beta_1 y_{2i} + \mathbf{B}_k \mathbf{X}_i + u_i \quad (6a)$$

$$y_{2i} = \pi_0 + \pi_k \mathbf{Z}_i + \pi_j \mathbf{X}_i + v_i \quad (6b)$$

The endogenous variable  $y_{2i}$  is explicitly a function of the  $Z$  vector of  $m$  instruments, the  $X$  vector that includes the corporate governance and financial controls. Regression residuals are normally distributed and non-correlated [i.e.  $E(u_i / v_j) = 0$ ].

**Table 6** presents the main results. Regression Eq.1 replicates the full fixed effects model considering institutional ownership as an exogenous variable. Equations 2 to 4 display the linear IV perfect-identified and the over-identified models 2SLS and GMM estimators. There are several points worth highlighting here. First, when institutional investors are among the top three blockholders, Tobin's Q increases by 10 percentage points, moving from 8% to 18% on average.



This number is close to that reported from the US, underlining the importance of those investors for overall firm performance. Second, the Shapley value becomes positive and significant. A one standard deviation change [0.35] increases firm value by 5.7%. This result reinforces the monitoring role that blockholder coalitions might have on marginal effects when institutional investors are present. Third, firm financial and country institutional regression coefficients keep their sign, size, and significance. Most of these regressors gained in efficiency, reporting lower standard deviations. Fourth, instrumental variables regressions are controlled for time dummy variables keeping the main results hold in terms of coefficient size and significance<sup>9</sup>. Fifth, regression equations report the Durbin-Hu-Wald test of endogeneity on the specific regressor institutional investor dummy rejecting for all cases the null that institutional ownership is an exogenous variable. Sixth, with regards to the consistency of the chosen instruments, the tests on instrument weakness, under-identification, exogeneity and relevance in our empirical model show that the lag of institutional ownership and operating income volatility are together solid instruments. Hence, overall instrumental variables regression results are robust.

.....Insert Table 6 here....

#### 4.2.2 Treatment and simultaneous equation regressions

The above IV system can be explicitly extended by accounting for the binary nature of the endogenous variable, *presence of institutional investors as blockholders*. In this case, the first stage model follows an observed latent-variable that takes positive values, that is:

$$y_{2i} = \begin{cases} 1 & \text{if } y_{2i}^* > 0 \\ 0 & \end{cases} \quad (6c)$$

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<sup>9</sup> We disregarded the fixed-effects IV estimates since the endogenous regressor—the presence of an institutional investor as a blockholder—is a dichotomous variable, which does not follow the structure of a typical time varying control variable.

where residuals  $(u_i, v_i)$  are assumed to be correlated bivariate normal<sup>10</sup>.

Regression Eq.5 displays the treatment regression that takes into account the two instruments used in the over-identified linear models. The key output shows that the size and significance of regression coefficients holds in most cases. When institutional investors are present, firm Tobin's Q falls from 0.18 to 0.14, a midpoint between the FE estimates with all exogenous variables and the IV linear estimates that considers institutional investment as an endogenous regressor. The correlation test between the errors of the system is rejected (i.e.  $\rho = 0$ ), thus institutional investment is an endogenous variable.

Testing the relation between institutional ownership and firm value might also be simultaneously determined. Institutional investors tend to prefer larger firms, firms with better corporate governance standards, firms that stocks are dividend yield, or less concentrated firms. Regression Eq.6 displays the three-stage least squares results from a simultaneous equation model. Institutional ownership presence is modeled as function of Tobin's Q, the discussed instruments (firm's cash flow volatility and the lag of institutional ownership) and whether the largest shareholder is a family or the state. The estimating results show that the premium for the institutional investor presence is 0.17 almost equal to the value of that parameter under IV estimates. The Shapley value regression coefficient keeps its size and significance as well as all the controls for firm financial and country macro and institutional variables. Hence, the empirical model holds when firm value and institutional ownership are simultaneously determined.

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<sup>10</sup> In particular, errors in the IV system are assumed to be correlated bivariate normal with known variance:  $Var(u_i) = \sigma^2$ ;  $Var(v_i) = 1$ ; and covariance term equal to  $Cov(u_i, v_i) = \rho\sigma^2$ . For more details, see Cameron and Trivedi (2010, Cap. IV).

#### 4.2.3. *Alternative specifications*

We complemented the previous exercise with two additional robustness tests. First, we replicated the principal regressions, this time following Navissi and Naiker (2006), who found that active institutional investors have a quadratic influence on the value of the firm. The main result –not shown– indicates that the presence of an institutional investor has a marginal effect on firm valuation, around 0.25 units, and remains significant at 5% level. That equation includes an interacting term of having institutional investors as blockholders times the equity share of the largest shareholder ( $sh1$ ) and its square ( $sh1^2$ ), both evaluated at means, cancel out the monitoring effect of institutional ownership to around 100 basis points. This outcome predicts that the lower the direct control of the largest shareholder, the larger the effect of institutional investment on firm value. Second, we estimated the model using ROA (return on assets) as the dependent variable. The econometric results –not shown– indicate that the presence of an institutional investor as a major shareholder has a positive and significant effect, increasing firm ROA by an average of 2.3%. In summary, the alternative specifications confirm the direction and causality that institutional investors have on firm value.<sup>11</sup>

## 5. Conclusions

The purpose of this study was to determine how the presence of an institutional investor as one of the major shareholders of a firm affects corporate valuation. We conducted the analysis for the aggregate of institutional investors as well as for the two typologies of investors heterogeneity we defined: independent and grey investors. We found that the presence of an institutional investor had a positive and significant effect on firm valuation in Latin America for the period

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<sup>11</sup> For manuscript length constraints, we do not include those regression equations. Results are available under request.

1997-2011. This confirms the statement made by Gillan and Starks (2003) who argued that institutional investors have increased their importance as a mechanism of corporate control.

Additionally, we found that a coalition that involves an institutional investor among the major shareholders also has a positive effect on firm valuation. This not only reflects the monitoring that these investors perform, but the importance they can have as one of the factors promoting development in the region. As for grey investors, we found evidence showing that the presence of these investors as major shareholders has a negative effect on firm valuation. These results are important because they call attention to the incentives that are being given to pension funds and insurance companies to monitor the firms in which they invest, as well as agency problems that exist within these entities and that could explain these results.

The finding results of this study indicate that the presence of institutional investors in Latin America is of great and growing importance. As liquidity increases in Latin America's capital markets, the magnitudes and the marginal effect of institutional ownership on firm value can be expected to increase. However, there are still some barriers to institutional investors playing a more active role in promoting better governance practices in the companies in which they invest. Some of these barriers are legal, and others are limitations of the market.

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**Table 1**  
Sample Construction and Representativeness

**Panel A. Sample Construction. Number of firms in the Sample**

<b>Total Number of firms (Averages 2003-2011)</b>	
Average Reported Datastream Mnemonics	4809
Removing non-active firms	1552
Removing firms with non-equity instruments	1154
Removing banks and financial firms	937
Removing firms with insufficient ownership information	604
<b>Total Sample</b>	<b>562</b>

**Panel B. Sample Representativeness (Averages 2000-2011)**

	<b>Total Assets/GDP</b>	<b>Corporate value - sample /GDP</b>	<b>Corporate value - sample /Market Capitalization (World Bank)</b>
Argentina	0.170	0.144	0.705
Brazil	0.062	0.048	0.091
Chile	1.132	0.778	0.777
Colombia	0.248	0.187	0.482
México	0.115	0.092	0.326
Peru	0.071	0.091	0.211

*Source:* Own estimates based on Reuters' Thomson-one – World Scope platform and World Bank Development Indicators

**Table 2**

Descriptive statistics - Ownership, performance and control variables  
by institutional investor status and Blockholder structure

**Panel A - Ownership and control contestability variables - means and medians (1997-2011)**

Variable	Blockholder structure			Institutional Investors witin LSHs		Blockholder Structure		Institutional Investors witin LSHs	
	Total Sample	Multiple Blockholders	Non Multiple Blockholders	Have	Does not Have	T-Stat Mean	Ranksum Median	T-Stat Mean	Ranksum Median
	Observations	7422	3292	3603	4216	3206			
Shareholder 1 (%)	47.9 [48.2]	29.9 [29.5]	65.1 [63.6]	45.7 [46.7]	50.7 [50.5]	88.99 ***	64.14 ***	9.13 ***	7.83 ***
Shareholder 2 (%)	13.6 [11.3]	15.5 [13.8]	11.7 [7.7]	13.7 [11.7]	13.5 [10.6]	-15.42 ***	-23.83 ***	-1.62	-4.11 ***
Shareholder 3 (%)	6.1 [5.1]	8.6 [8.0]	3.7 [2.5]	6.5 [5.7]	5.6 [4.0]	-47.27 ***	-43.38 ***	-7.62 ***	-10.36 ***
Herfindal Index	33.9 [28.6]	15.0 [13.7]	51.1 [47.6]	30.5 [26.8]	38.2 [32.4]	81.26 ***	61.8 ***	12.26 ***	8.96 ***
Herfindal differences	0.23 [0.13]	0.05 [0.03]	0.39 [0.3]	0.19 [0.12]	0.27 [0.15]	70.73 ***	61.9 ***	12.16 ***	6.84 ***
Shapley Value	0.69 [0.96]	0.40 [0.33]	0.95 [1.00]	0.68 [0.84]	0.70 [1.00]	103.93 ***	67.9 ***	3.64 ***	4.24 ***
Institutional Shapley	0.30 [0.13]	0.34 [0.00]	0.24 [0.19]	0.30 [0.13]	...	6.62 ***	-7.53 ***	...	...
Wedge	1.39 [1.31]	1.28 [1.22]	1.48 [1.48]	1.41 [1.36]	1.35 [1.25]	26.07 ***	22.623 ***	-7.54 ***	-8.53 ***
Contestability Index 1	0.40 [0.33]	0.57 [0.58]	0.24 [0.13]	0.40 [0.32]	0.40 [0.34]	-51.02 ***	-45.14 ***	-1.91 *	-3.71 ***
Contestability Index 2	0.62 [0.49]	0.91 [0.89]	0.33 [0.19]	0.63 [0.50]	0.61 [0.46]	-56.64 ***	-49.72 ***	-2.41 **	-4.82 ***

**Panel B - Performance and control variables - means and medians**

Tobin's Q	1.22 [1.04]	1.16 [1.01]	1.27 [1.07]	1.25 [1.06]	1.16 [1.00]	5.8 ***	6.14 ***	-4.14 ***	-5.7 ***
ROA	0.12 [0.11]	0.10 [0.10]	0.13 [0.11]	0.11 [0.10]	0.12 [0.11]	9.34 ***	9.96 ***	2.71 ***	1.48
Leverage	0.47 [0.48]	0.48 [0.49]	0.47 [0.47]	0.47 [0.47]	0.47 [0.47]	-3.5 ***	-3.73 ***	0.39	-0.09
Sales_Growth	0.03 [0.02]	0.02 [0.02]	0.05 [0.02]	0.03 [0.02]	0 [0.00]	-0.21	0.69	-0.57	-0.55
Tangibility	0.41 [0.40]	0.38 [0.37]	0.43 [0.43]	0.40 [0.40]	0.41 [0.41]	7.9 ***	7.79 ***	0.46	0.21
Firm Size	5.93 [5.90]	5.94 [5.96]	5.92 [5.85]	6.1 [6.07]	5.71 [5.68]	-0.45	-0.93	-7.8 ***	-7.93 ***

**Notes:** Table Panel-A reports the means and medians of firms' ownership variables. Samples are broken by multiple blockholder status and presence of institutional ownership within the top-three blockholders. Ownership characteristics of each firm for the period 1997-2011 are shown. Participation of the first, second and third shareholder refers to the percentage of shares they own from the firm respectively. The Shapley value is the solution to the cooperative game among four players (the first four shareholders). The Shapley value for Institutional Ownership is the solution to the cooperative game between three players (the first three shareholders among which is at least one institutional investor) it refers to the likelihood of coalition between institutional investor and the other two shareholders. Finally, the Herfindahl concentration index is equal to the sum of the square of the participation of the first four shareholders. Panel-B reports the means and medians of firms' financial and performance indicators. Samples are broken by multiple blockholder status and presence of institutional ownership within top-three blockholders. Tobin's Q is the proxy for valuation of the firm, measured as the ratio between the market value and the value of assets in books, according to Black et al. (2006). ROA (Return on Assets) is an alternative measure of return equal to the ratio of net income to total assets. Sales growth is the percentage of sales growth year to year. Firm Size is equal to the natural logarithm of total assets. Tangibility is equal to the ratio between the total property (plant and equipment) and total assets. Finally, Leverage equals the ratio of total debt to total assets.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1,

**Sources:** Own estimates based on Thomson-one; Economica, Firms Annual Reports, and Countries' Financial Regulators



**Table 3**

Descriptive Statistics Country's Risk, Macroeconomic, and Institutional Variables  
Means and Medians 1997-2011

	Argentina	Brazil	Chile	Colombia	Mexico	Peru	Total Obs
EMBI	1,813.5 [722.0]	564.15 [442.1]	145.43 [138.0]	557.96 [611.4]	282.44 [234.8]	368.25 [294.1]	7847
GDP percapita growth	1.78 [4.74]	1.91 [1.83]	2.73 [3.22]	1.85 [2.29]	1.55 [2.21]	3.59 [3.71]	8180
Inflation rate	7.21 [8.59]	7.85 [7.65]	5.47 [4.27]	9.38 [6.83]	9.24 [6.69]	3.76 [3.66]	8355
Bank Capital ratio	12.56 [12.9]	10.44 [10.6]	7.12 [7.10]	12.19 [12.3]	10.25 [9.75]	9.35 [9.50]	6524
Domestic Credit to GDP	16.66 [14.62]	39.31 [31.66]	73.87 [72.25]	32.82 [33.36]	20.41 [20.38]	22.97 [24.22]	8355
Market Capitalization ratio	34.66 [30.04]	48.10 [42.46]	100.00 [107.6]	30.34 [21.54]	28.85 28.17	40.84 29.69	8355
Control of Corruption	-0.42 [-0.44]	-0.01 [0.00]	1.43 [1.40]	-0.25 [-0.23]	-0.28 [-0.25]	-0.27 [-0.25]	6684
Property Rights	41.33 [30.0]	50.00 [50.0]	89.33 [90.0]	40.67 [40.0]	50.00 [50.0]	41.33 [40.0]	8355
Financial Freedom	48.00 [40.0]	48.67 [50.0]	63.33 [70.0]	66.67 [70.0]	54.67 [60.0]	66.67 [70.0]	8355
Corruption Index	2.43 [2.5]	2.67 [2.91]	4.02 [4.0]	2.47 [2.58]	2.32 [2.0]	2.69 [2.50]	7798

**Notes**

This table reports descriptive statistics for the macroeconomic variables of each country. Mean, 50th percentile, standard deviation, minimum and maximum value are reported. The EMBI (Emerging Markets Bond Index) is a country risk indicator; At higher values, the greater the risk. GDP per capita growth equals annual growth rate of GDP per capita compared to the previous year. Annual Inflation is the percentage measure of change in the consumer's price index. Property Rights Index is an index of 0-10, where 10 indicates a good protection for property rights in each country. Corruption is an index of 0-6; A score of 6 indicates that corruption in the country is minimal and a score of 0 indicates a high level of corruption. Market capitalization, is equal to the product between the stock price and number of shares outstanding. Total observations are firm-year dimension.

**Sources:** own estimation from Thomson-Datastream, World Scope, World Bank Development Indicators.

**Table 4**

## Firm value and Institutional Investors

Dependent Variable: Tobin's Q - Fixed-Effects Regressions

VARIABLES	Eq.1	Eq.2	Eq.3	Eq. 4	Eq. 5
<b>Ownership</b>					
Institutional Investor	0.0796 ** [0.040]	0.0823 ** [0.040]	0.0835 ** [0.040]	0.0806 ** [0.040]	...
Institutional Shapley	...	...	...	...	0.2397 ** [0.107]
Shapley value	0.008 [0.0781]	...	...	...	...
Herfindal Index - Differences	...	0.069 [0.108]	0.0639 [0.111]	...	...
Wedge	...	...	-0.0214 [0.055]	-0.0323 [0.055]	-0.0820 [0.090]
<b>Firm Financial indicators</b>					
Size (Assets)	-0.1135 *** [0.036]	-0.1123 *** [0.037]	-0.1119 *** [0.037]	-0.1128 *** [0.037]	...
Sales (Growth)	0.0038 [0.003]	0.0037 [0.003]	0.0037 [0.004]	0.0038 [0.004]	-0.0092 ** [0.004]
Leverage	0.2868 *** [0.106]	0.2872 *** [0.108]	0.2897 *** [0.108]	0.2865 *** [0.107]	0.1696 [0.187]
Firm Beta	...	...	...	...	0.0106 [0.029]
Lag FCF-ratio	...	...	...	...	0.1228 * [0.064]
Lag Tangibility	-0.368 *** [0.101]	-0.3654 *** [0.102]	-0.3665 *** [0.101]	-0.3700 *** [0.103]	-0.2444 [0.225]
Dummy year 2009	0.1588 [0.047] ***	0.1567 [0.047] ***	0.1571 *** [0.047]	0.1588 *** [0.048]	0.0839 [0.064]
<b>Country Economic, Finance and Institutional</b>					
EMBI	-1.41E-04 *** [1.9E-05]	-1.40E-04 *** [2.0E-05]	-0.0001 *** [2.02E-05]	-0.0001 *** [1.99E-05]	-0.0001 *** 0.0000
Lag Dom. credit priv. sector	0.0043 ** [0.002]	0.0041 ** [0.002]	0.0041 ** [0.002]	0.0043 ** [0.002]	...
GDP per capita growth	0.024 *** [0.004]	0.024 *** [0.005]	0.0238 *** [0.005]	0.0239 *** [0.005]	0.0135 *** [0.004]
Annual Inflation	-0.1131 *** [0.002]	-0.1138 *** [0.002]	-0.0114 *** [0.002]	-0.0113 *** [0.002]	-0.0066 ** [0.003]
Bank capital ratio	-0.0352 *** [0.009]	-0.0356 *** [0.009]	-0.0354 *** [0.009]	-0.0353 *** [0.009]	...
Lag Financial freedom	0.0034 *** [0.001]	0.0034 *** [0.001]	0.0034 *** [0.001]	0.0035 *** [0.001]	0.0016 [0.002]
Lag Market Cap (GDP %)	0.0054 *** [6.0E-03]	0.0053 *** [5.9E-03]	0.0054 *** [0.001]	0.0054 *** [0.001]	0.0056 *** [0.001]

**Table 4 (Cont.)**

Firm value, Institutional Investors, Blockholders Contestability

Dependent Variable: Tobin's Q - Fixed-Effects Regressions

VARIABLES	Eq.1	Eq.2	Eq.3	Eq. 4	Eq. 5
<b>Turnover dummy and Interactions</b>					
Turnover_p75_dummy	0.0403 [0.056]	0.0139 [0.036]	0.0142 [0.037]	0.0212 [0.031]	...
Turnover_p75_dum x Shapley	-0.0294 [0.073]	...	...	...	...
Turnover_p75_dum x Shapley_II	...	...	...	...	-0.1137 0.1032
Turnover_p75_dum x h.i_diff.	...	0.0393 [0.139]	0.0418 [0.140]	...	...
Constant	1.6056 ***	1.6012 ***	1.6258 ***	1.6523 ***	0.9505 ***
<b>Regression Statistics</b>					
Observations	5434	5437	5434	5434	1716
Number of firms	544	544	544	544	253
Robust SE	Yes	Yes	Yes	Yes	Yes
F-Test	24.10 *** [0.000]	24.13 *** [0.000]	22.62 *** [0.000]	25.49 *** [0.000]	8.17 *** [0.000]
R2 within	0.1304	0.131	0.1309	0.1305	0.1163
R2 between	0.0006	0.0005	0.0005	0.0006	0.0468
R2 overall	0.0074	0.0079	0.0079	0.0073	0.0808
<b>Specification Tests</b>					
F-Test for all u_i = 0	15.27 *** [0.000]	15.3 *** [0.000]	15.24 *** [0.000]	15.36 *** [0.000]	9.86 *** [0.000]
Hausman Test FE vs RE	120.66 *** [0.000]	116.18 *** [0.000]	117.3 *** [0.000]	120.81 *** [0.000]	47.1 *** [0.000]

**Notes:**

This table reports the results of the panel regressions with fixed effects and robust standard errors of the effect variables of institutional ownership have on firm value measured by Tobin's Q. Regressions are controlled by firm specific characteristics, stock liquidity (turnover), country institutional-specific and macroeconomic variables. Institutional investor is a dummy whether there is a presence of an institutional investor among the top three blockholders. The Shapley value is the cooperative solution of a voting game within the top four blockholders, Institutional Shapley refers to the cooperative solution for the largest institutional investor shareholder (if any) of a voting game. Contestability and the *Herfindahl* differences indices capture blockholders' controlling power. Appendix 2 displays the complete definitions of all variables. The *Lagrange* test for individual effects and *Hausman* specification test for fixed versus random effects model are reported for each regression equation.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1; p-values in brackets; coefficient's standard errors in brackets.

**Sources:** Own estimates based on Thomson-one World Scope and Datastream, Economatica, Firms Annual Reports, and Countries' Financial Regulators

**Table 5**  
**Independent, Grey Investors and Firm Value**  
**Dependent Variable: Tobin's Q - Fixed-Effects Regressions**

VARIABLES	Independent Investors		Grey Investors		
	Eq.1	Eq.2	Eq.3	Eq.4	Eq.5 (Chile)
<b>Ownership</b>					
Independent Inst. Investor	0.1017 *	...	...	...	...
	[0.054]	...	...	...	...
Independent Inst. Investor x Sh1	...	0.2151 **	...	...	...
	...	[0.102]	...	...	...
Grey Inst. Investor (SH1)	...	...	-0.1283 **	-0.1269 **	0.3231 ***
	...	...	[0.056]	[0.059]	[0.056]
Grey Inst. Investor (SH2)	...	...	...	-0.0919	...
	...	...	...	[0.068]	...
Grey Inst. Investor (SH3)	...	...	...	-0.0400	...
	...	...	...	[0.056]	...
Shareholder1 (SH1)	...	-0.3797	...	...	...
	...	[0.239]	...	...	...
Herfindal Differences	0.0460	0.3015	...	...	...
	[0.106]	[0.212]	...	...	...
<b>Firm Financial indicators</b>	...	...	...	...	...
Size (Assets)	-0.0931 **	-0.0938 **	-0.0542 *	-0.0443	-0.1271 *
	[0.041]	[0.041]	[0.030]	[0.031]	[0.071]
Sales (Growth)	...	...	-0.0018	-0.0017	-0.0034 **
	...	...	[0.001]	[0.001]	[0.001]
Leverage	...	...	...	...	...
	...	...	...	...	...
Lag - Leverage	...	...	0.1106	0.1369	-0.1732
	...	...	[0.089]	[0.091]	[0.206]
Lag - Tangibility	-0.3612 ***	-0.3644 ***	-0.3484 ***	-0.3655 ***	-0.2667
	[0.102]	[0.102]	[0.097]	[0.098]	[0.227]
Dummy year 2008	0.2738 ***	0.2762 ***	...	0.0848 ***	...
	[0.030]	[0.030]	...	[0.024]	...
Turnover_p75_dummy	...	...	0.0179	0.0194	0.0420
	...	...	[0.028]	[0.028]	[0.049]
<b>Country Economic, Finance and</b>	...	...	...	...	...
EMBI	-7.74E-05 ***	-7.82E-05 ***	-0.0001 ***	-0.0001 ***	0.0008 **
	[2.05E-05]	[2.04E-05]	[0.000]	[0.000]	[0.000]
Lag Dom. credit priv. sector	0.0046 **	0.0046 **	...	...	...
	[0.002]	[0.002]	...	...	...
GDP per capita growth	0.0241 ***	0.0241 ***	0.0039	0.0088 ***	-0.0254 **
	[0.003]	[0.003]	[0.003]	[0.002]	[0.010]
Annual Inflation	-0.0095 ***	-0.0096 ***	...	-0.0036 *	...
	[0.002]	[0.002]	...	[0.002]	...
Lag - Annual Inflation	...	...	-0.0029	...	0.0188 ***
	...	...	[0.002]	...	[0.003]
Financial Freedom	-0.0038 **	-0.0037 **	...	-0.0001	...
	[0.002]	[0.002]	...	[0.001]	...
Lag - Financial Freedom	...	...	0.0023 **	...	0.0138 ***
	...	...	[0.001]	...	[0.003]
Property Rights Index	...	...	...	-0.0016	0.0098
	...	...	...	[0.002]	[0.011]

**Table 5 (Cont.)**

Independent, Grey Investors and Firm Value

Dependent Variable: Tobin's Q - Fixed-Effects Regressions

VARIABLES	Independent Investors		Grey Investors		
	Eq.1	Eq.2	Eq.3	Eq.4	Eq.5 (Chile)
<b>Ownership</b>					
Lag - Property Rights Index	...	...	-0.0064 *** [0.002]	...	...
Mk Capitalization (GDP %)	0.0044 *** [6.26E-03]	0.0045 [6.26E-03]	...	...	...
Lag - Mk Capitalization (GDP %)	...	...	0.0062 *** [0.001]	0.0053 *** [0.001]	0.0052 *** [0.001]
Lag Bank Capital ratio	-0.0185 ** [0.008]	-0.0183 [0.009]	...	...	...
Constant	1.88 ***	2.01 ***	1.58 ***	1.42 ***	-0.19
<b>Regression Statistics</b>					
Observations	5215	5215	6323	6323	1322
Robust Standard Errors	Yes	Yes	Yes	Yes	Yes
F-stat	24.27 ***	22.51 ***	23.02 ***	20.5 ***	13.68 ***
Number of Firms	552	552	546	546	109
R2 within	0.1229	0.1243	0.1226	0.1189	0.1499
R2 between	0.0005	0.0011	0.0012	0.0002	0.0095
R2 overall	0.0072	0.0061	0.0189	0.0251	0.0149
<b>Specification Tests</b>					
F-Test for all $u_i = 0$	15.11 ***	15.22	15.61 ***	15.48 ***	14.33 ***
Hausman Test FE vs RE	74.52 ***	68.46	77.6 ***	73.16 ***	25.87 **

**Notes:**

The following table reports the results of the fixed effects regressions with robust standard errors of the effect of Independent Investors (Investment funds and Banks) and Grey Investors (Pension Funds and Insurance Companies) on firm value measured with Tobin's Q. Regressions are controlled by firm specific characteristics, country institutional-specific and macroeconomic variables. Results in Eq.5 are restricted to Chile's sample. Contestability and the *Herfindahl* differences indices capture blockholders' controlling power. Appendix 1 displays the complete definitions of all variables. The *Lagrange* test for individual effects and *Hausman* specification test for fixed versus random effects model are reported for each regression equation.

SH1 = first large shareholder; SH2 = second large shareholder; SH3 = third large shareholder; Grey Investor (Shi) = dummy variable equal 1 whether the *blockholder i* is a grey investor.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1, p-values in brackets; coefficient's standard errors in brackets.

**Sources:** Own estimates based on Thomson-one World Scope and Datastream, Economatica, Firms Annual Reports, and Countries' Financial Regulators

**Table 6**

Endogeneity between Institutional Ownership and Firm Performance  
 Instrumental variables, Two-Stage, Three-Stage, GMM and Treatment regressions

VARIABLES	FE (m = 0) Eq.1	IV (m=1) Eq.2	IV-2SLS (m=2) Eq.3	IV-GMM (m=2) Eq.4	Treatment Effects-MLE (m=2) Eq.5	Simut. Eqs 3SLE Eq. 6
<b>Ownership</b>						
Institutional Investor	0.0796 ** [0.040]	0.1817 *** [0.043]	0.1843 *** [0.045]	0.1818 *** [0.045]	0.1400 *** [0.038]	0.1751 *** 0.0416
Shapley value	0.008 [0.078]	0.1682 *** [0.035]	0.1682 *** [0.036]	0.1598 *** [0.036]	0.1653 *** [0.035]	0.1656 *** [0.035]
<b>Firm Financial indicators</b>						
Size (Assets)	-0.1135 *** [0.036]	0.0560 *** [0.006]	0.0551 *** [0.006]	0.0548 *** [0.006]	0.0558 *** [0.006]	0.0555 *** [0.006]
Sales (Growth)	0.0038 [0.003]	0.0038 [0.005]	0.0043 [0.005]	0.0039 [0.005]	0.0042 [0.005]	0.0042 [0.005]
Lag Sales (Growth)	...	...	...	...	...	...
Leverage	0.2868 *** [0.106]	0.1702 *** [0.052]	0.1981 *** [0.056]	0.1951 *** [0.056]	0.1981 *** [0.052]	0.1981 *** [0.052]
Tangibility	...	...	-0.0644 [0.043]	-0.0675 [0.043]	-0.0641 [0.045]	-0.0623 [0.045]
Lag Tangibility	-0.368 *** [0.101]	-0.0726 * 0.0420	...	...	...	...
Dummy year 2009	0.1588 [0.047] ***	0.1598 *** [0.047]	0.1547 *** [0.050]	0.1531 *** [0.050]	0.1470 *** [0.048]	0.1507 [0.048]
<b>Country Economic, Finance and Institutional</b>						
EMBI	-1.41E-04 *** [1.9E-05]	-1.00E-04 *** [1.0E-05]	-0.0001 *** [1.5E-05]	-0.0001 *** [0.000]	-0.0001 *** [0.000]	-0.0001 *** [0.000]
Lag Dom. credit priv. sector	0.0043 ** [0.002]	-0.0046 *** [0.001]	-0.0059 *** [0.001]	-0.0058 *** [0.001]	-0.0055 *** [0.001]	-0.0058 *** [0.001]
GDP per capita growth	0.024 *** [0.004]	0.0236 *** [0.006]	0.0177 *** [0.006]	0.0174 *** [0.006]	0.0172 *** [0.006]	0.0173 *** [0.006]
Annual Inflation	-0.1131 *** [0.002]	-0.0086 ** [0.003]	-0.0095 *** [0.003]	-0.0093 *** [0.003]	-0.0095 *** [0.004]	-0.0095 *** [0.004]
Bank capital ratio	-0.0352 *** [0.009]	-0.0094 [0.009]	-0.0054 [0.010]	-0.0050 [0.010]	-0.0047 [0.009]	-0.0051 [0.009]
Lag Financial freedom	0.0034 *** [0.001]	-0.0003 [0.001]	0.0007 [0.001]	0.0007 [0.001]	0.0008 [0.001]	0.0008 [0.001]
Lag Market Cap (GDP %)	0.0054 *** [6.0E-03]	0.0042 *** 7.10E-04	0.0057 *** [0.001]	0.0057 *** [0.001]	0.0056 *** [0.001]	0.0057 *** [0.001]
<b>Turnover dummy and Interactions</b>						
Turnover_p75_dummy	0.0403 [0.056]	-0.0171 [0.045]	-0.0122 [0.047]	-0.0161 [0.047]	-0.0080 [0.050]	-0.0101 [0.050]
Turnover_p75_dum x Shapley	-0.0294 [0.073]	-0.0298 [0.065]	-0.0500 [0.068]	-0.0424 [0.068]	-0.0540 [0.069]	-0.0522 [0.069]
Constant	1.61 ***	0.72 ***	0.5971 ***	0.6051 ***	0.6012 ***	0.5940 ***

**Table 6 (Cont.)**

Endogeneity between Institutional Ownership and Firm Performance  
Instrumental variables, Two-Stage, Three-Stage, GMM and Treatment regressions

VARIABLES	FE (m = 0) Eq.1	IV (m=1) Eq.2	IV-2SLS (m=2) Eq.3	IV-GMM (m=2) Eq.4	Treatment Effects-MLE (m=2) Eq.5	Simut. Eqs 3SLE Eq. 6
<b>Regression Statistics</b>						
Observations	5434	4921	4445	4445	4445	4445
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Robust SE	Yes	Yes	Yes	Yes	No	No
R2 within	0.1304	...	...	...	...	....
R2 between	0.0006	...	...	...	...	....
Centered-R2	...	0.075	0.0797	0.0799	...	0.0804
<b>Specification Tests</b>						
F-Test	24.10 *** [0.000]	27.11 *** [0.000]	25.98 *** [0.000]	25.77 *** [0.000]	...	....
Wald-test Chi2 (d.f)	...	...	...	...	411.09 *** [0.000]	414.56 *** [0.000]
LR-test of indep eqns (rho =0)	...	...	...	...	4.28 *** [0.000]	....
<b>Tests on Instruments</b>						
First stage F-stat	....	2605 *** [0.000]	212.76 *** [0.000]	...	....	....
Weak indentification Test	....	2072 ***	885.959	1220.39	....	....
Underidentification test	....	1338 *** [0.000]	1169.41 *** [0.000]	1724.74 [0.000]	....	....
Hansen J-test	....	....	3.425 * [0.0642]	29.625 *** [0.000]	....	....
DWH test for Endogeneity	....	9.14 ** [0.0025]	8.46 *** [0.0037]	8.35015 [0.0039]	....	....

**Notes:** This table reports the results of the instrumental regressions to solve the endogeneity problem through Two-Stage and Three Stage Least Squares, Generalized Momentum Method and Treatment regressions. Robust Standard errors are used except in regression Eq.6. Regressions are controlled by firm specific characteristics and country institutional-specific and macroeconomic variables. The last two columns report the alternative specifications as a complementary robustness check. Complete definition of variables is displayed on Appendix 2. The IV regressions use as main instruments the lag institutional ownership, and operating income volatility plus the other exogenous variables included in the instrumented equation (Vector Z). The test on instruments include the Weak-instruments identification test = *Cragg-Donald Wald F Statistic*; Under-identification tests = *Kleibergen-Paap rk statistic*; Hansen-J Test is reported as an over-identification test. The DHW (Durbin-Hu-Wald) test for Endogeneity determines whether endogenous regressors in the model are in fact exogenous under the null hypothesis that variables are exogenous.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1, p-values in brackets; coefficient's standard errors in brackets; m = number of exogenous instruments excluded from the structural equation.

**Sources:** Own estimates based on Thomson-one World Scope and Datastream, Economatica, Firms Annual Reports, and Countries' Financial Regulators

## Appendix 1

### Pairwise correlation matrix – independent variables

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	
[1] Institutional Investor	1																								
[2] Herfindahl Conc. Index	-0.146	1																							
[3] Herfindahl Index - Diff.	-0.145	0.944	1																						
[4] Shareholder 1	-0.109	0.968	0.914	1																					
[5] Shareholder 2	0.020	-0.158	-0.442	-0.222	1																				
[6] Shapley value	-0.044	0.763	0.669	0.875	-0.117	1																			
[7] Institutional Shapley	-0.011	0.047	-0.021	0.104	0.085	0.197	1																		
[8] Wedge	0.090	-0.054	-0.136	0.112	0.085	0.565	0.213	1																	
[9] Contestability Index 1	0.023	-0.583	-0.684	-0.719	0.686	-0.713	-0.078	-0.287	1																
[10] Contestability Index 2	0.029	-0.641	-0.688	-0.777	0.491	-0.793	-0.083	-0.347	0.950	1															
[11] Free cash flow ratio	0.015	0.010	0.003	0.008	0.020	0.017	0.047	0.020	0.010	0.003	1														
[12] Leverage	-0.005	-0.034	-0.058	-0.033	0.051	-0.029	-0.032	0.002	0.039	0.038	-0.081	1													
[13] Size (Assets)	0.091	-0.074	-0.059	-0.032	-0.044	0.032	-0.068	0.114	-0.064	-0.089	0.060	0.170	1												
[14] Sales Growth	0.000	0.000	0.000	-0.002	0.005	-0.009	0.013	-0.014	0.003	-0.001	0.036	-0.006	0.046	1											
[15] Stock turnover	-0.011	-0.020	-0.009	-0.014	-0.027	-0.002	-0.010	0.027	-0.014	-0.011	-0.003	0.025	0.075	0.005	1										
[16] Asset tangibility	-0.006	0.105	0.075	0.120	0.060	0.144	-0.144	0.087	-0.044	-0.069	0.077	0.030	0.107	-0.004	0.031	1									
[17] EMBI	-0.045	-0.015	-0.007	-0.001	-0.030	0.017	-0.098	0.026	-0.039	-0.041	-0.026	0.043	-0.008	-0.012	0.009	0.081	1								
[18] Annual Inflation	0.007	-0.097	-0.080	-0.069	-0.042	-0.026	-0.048	0.057	-0.025	-0.020	-0.037	0.033	0.084	0.006	0.017	-0.060	0.251	1							
[19] Financial freedom	-0.002	0.007	0.005	-0.014	0.027	-0.033	0.053	-0.043	0.063	0.070	0.024	-0.163	-0.167	-0.010	-0.042	-0.012	-0.244	-0.274	1						
[20] Market Cap (GDP %)	0.182	0.014	-0.005	0.023	0.040	0.037	0.133	0.049	0.010	0.015	0.031	-0.023	0.052	0.019	-0.054	0.009	-0.232	-0.162	0.152	1					
[21] GDP per capita growth	-0.005	0.091	0.078	0.073	0.023	0.042	0.019	-0.035	0.001	0.002	0.054	-0.041	-0.060	0.058	-0.032	0.004	-0.152	-0.052	-0.163	0.192	1				
[22] Bank capital ratio	-0.131	0.021	0.037	0.015	-0.063	-0.003	-0.099	-0.042	-0.042	-0.037	-0.008	0.038	0.091	0.016	0.028	-0.139	0.294	0.148	-0.413	-0.558	0.012	1			
[23] Dom. credit priv. sector	0.226	-0.048	-0.065	-0.036	0.046	-0.018	0.188	0.036	0.045	0.054	0.010	-0.033	0.087	-0.004	-0.028	-0.042	-0.333	-0.156	0.116	0.757	0.043	-0.573	1		
[24] Property rights index	0.199	-0.080	-0.085	-0.045	0.020	0.012	0.149	0.107	0.002	0.001	0.015	-0.054	0.089	-0.014	-0.017	0.068	-0.281	-0.111	0.201	0.672	-0.129	-0.726	0.844	1	

**Sources:** Own estimates based on Thomson-one World Scope and Datastream, Economatica, Firms Annual Reports, and Countries' Financial Regulators



## Appendix 2

### Definition of variables

Variables	Description	Source
<b>Ownership</b>		
Shareholder 1	Participation of the largest shareholder	Annual Reports- Thomson Reuters
Shareholder 2	Participation of the second largest shareholder	Annual Reports- Thomson Reuters
Shareholder 3	Participation of the third largest shareholder	Annual Reports- Thomson Reuters
Institutional Investor	Dummy equal to 1 if there is at least one institutional investor within the three major shareholders.	Annual Reports- Thomson Reuters
1&2 Institutional Investor	Dummy equal to 1 if the first and second major shareholders are both an institutional investor.	Annual Reports- Thomson Reuters
Pension Fund or Insurance Company #1	Dummy equal to 1 if the largest shareholder is a pension fund or insurance company.	Annual Reports- Thomson Reuters
Pension Fund or Insurance Company #2	Dummy equal to 1 if the second largest shareholder is a pension fund or insurance company.	Annual Reports- Thomson Reuters
Pension Fund or Insurance Company #3	Dummy equal to 1 if the third largest shareholder is a pension fund or insurance company.	Annual Reports- Thomson Reuters
Bank or Investment Fund #1	Dummy equal to 1 if the largest shareholder is a bank or investment fund.	Annual Reports- Thomson Reuters
Shapley Value	The Shapley value solution for the largest shareholders in a four-voting oceanic game	Annual Reports- Thomson Reuters
Institutional Shapley Value	The Shapley value solution for the largest institutional investor shareholder (if any) in a three-voting game	Annual Reports- Thomson Reuters
Herfindal Concen. Index	Herfindal Concentration Index	Annual Reports- Thomson Reuters
Herfindal Index - Differences	The sum of the squares of the differences between the first and the second shareholder stakes	Annual Reports- Thomson Reuters
Contestability Index 1	Ownership rights of the second blockholder relative to the largest blockholder $CI = Sh_2 / Sh_1$	Annual Reports- Thomson Reuters
Contestability Index 2	Ownership rights of the second and third blockholder relative to the largest blockholder $CI = (Sh_2+Sh_3) / Sh_1$	Annual Reports- Thomson Reuters
<b>Firm Performance</b>		
Tobin's Q	Market Value/Book Value: [stock market capitalization + long term liabilities + book value of preferred stocks (if any) + minority interest ] / [ book value of assets]	Annual Reports- Thomson Reuters
ROA	The ratio of net profits after tax to total assets	Annual Reports- Thomson Reuters
<b>Firm Characteristics</b>		
Firm Size	Natural Logarithm of total assets	Annual Reports- Thomson Reuters
Sales growth	Percentage of sales growth compared to previous year.	Annual Reports- Thomson Reuters
Leverage	The ratio of total liabilities to total assets	Annual Reports- Thomson Reuters
Stock Turnover	Annual average of daily Trading Volume (millions) / #Shares outstanding (millions)	Annual Reports- Thomson Reuters

## Appendix 2 (Cont.)

### Definition of variables

Variables	Description	Source
<b>Ownership</b>		
<b>Macroeconomic Variables- Country Level</b>		
EMBI	Emerging Markets Bonds Index. Measures financial risk in each country. EMBI index is expressed in basis points	Annual Reports- Thomson Reuters
GDP Growth per capita	Annual percentage growth rate of GDP per capita based on constant local currency.	The World Bank - World Development Indicators
Annual Inflation	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services	The World Bank - World Development Indicators
Property Rights Index	Is an assessment of the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state. Index from 0 to 10.	Index of Economic Freedom
Corruption	This is an assessment of corruption within the political system. Index from 0 to 6.	Index of Economic Freedom
Fiscal Freedom	Fiscal freedom is a measure of the tax burden imposed by government. Index from 0 to 10.	Index of Economic Freedom
Financial Freedom	Is a measure of banking efficiency as well as a measure of independence from government control and interference in the financial sector. Index from 0 to 10.	Index of Economic Freedom
Legal Rights Index	Measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending.	The World Bank - World Development Indicators
Bank Capital	Bank capital to assets is the ratio of bank capital and reserves to total assets.	The World Bank - World Development Indicators
Dom. Credit of Priv. Sector	Domestic credit to private sector (% of GDP): refers to financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment	The World Bank - World Development Indicators
Market Capitalization	Market capitalization (also known as market value) is the share price times the number of shares outstanding.	Standard & Poor's, Global Stock Markets Fact-book and supplemental S&P data.
<b>Instruments</b>		
Lag Institutional Ownership	The fraction of equity rights - lagged one period that institutional investors hold when they are reported within the top three blockholders	Annual Reports- Thomson Reuters
Operating Income Volatility	Proxy for firm risk as the standard deviation of the operating income for the previous three years	Annual Reports- Thomson Reuters

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