Corporate Ownership and Control Contestability
in Emerging Markets: the case of Colombia

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Abstract

This paper studies the structure of voting control and blockholders' contestability in Colombia based on a sample of 233 non-financial listed firms for the 1996-2004 period. Corporate control is characterized by high ownership concentration and blockholder power, which implies low separation ratios between cash flow rights and voting rights. On average the separation ratios for the largest voting block is 0.95 while for the fourth largest shareholder is 0.80. Corporate control is privately biased where there is a direct monitoring between controlling owners and firm management. Regression results show that a more equal distribution among large blockholders leads to a positive effect on both firm value and performance. This finding is reinforced when the probability of forming a winning coalition by the largest block decreases and when there is a fourth voting block able to contest a coalition of the largest top-three stake holders that are not able to get single majority of 51 percent on firm's equity.

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1. Introduction

Recent empirical studies about corporate governance in developing and emerging economies have addressed the relationship between ownership and control rights, with firm performance measured by either valuation or accounting measures. The study by La Porta *et. al.* (1999) for a cross-sectional sample of 23 countries found that ownership around the world was highly concentrated. Claessens, Djankov, and Lang (2000) using a sample of 2980 companies in 9 countries in East Asia also corroborated La Porta et al. results. After the studies collected in Barca and Betch (2001) for the most representative European countries also found very high levels of direct ownership concentration in all of them. Further, Holderness (2006) presents a contrarian view of a stylized fact that has pervaded the studies about the degree of ownership in the U.S. The author found that contrary to the widespread belief (and studies) U.S. ownership concentration is similar to the ownership concentration of corporations elsewhere. Gutiérrez, Pombo and Taborda (2006) carried out the first calculations on direct ownership and control rights for a sample of Colombian non-financial listed and non-listed firms. Their results shows that the stakes of the four largest shareholders in listed corporations increased from an averaged of 60% in 1996-1999 to 65.3% in 2000-2002. The mean of the ratio of cash-flow rights to voting rights also known as the separation ratio for the listed companies was 0.77, relatively high. In average, Colombian levels of ownership concentration and separation of control from ownership resemble those found in continental Europe and East Asia.

Findings about the impact of ownership and control rights over firm's performance have been mixed but frequently it has been found that a large owner may have incentive to carry out monitoring over the management what is called the *incentive effect*, but as it has been also shown theoretically, a negative effect called *tunneling* may take place in the sense that the large shareholder(s) may extract private rents in detriment of the minority shareholders. Researchers have approached empirically this second effect using some wedge measure of the difference between control rights and ownership rights or its ratio[2] . Gutiérrez and Pombo (2006) tested both effects for Colombian listed companies. Their findings give strong support to the incentive effect when taking Tobin's Q as the dependent variable. The entrenchment effect was found when using accounting variables, ROE and ROA, as the dependent variables.

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[2] See Claessens, Djankov, Fan, and Lang, 2002, and Claessens, Fan, and Lang 2006, among others

Lately, theoretical development and empirical studies in corporate governance have addressed settings where there exists more than one large blockholder, showing that some level of contestability may then emerge depending on the resulting coalition(s) that can be formed among those large blockholders[3].This type of contestability may limit the power of the largest blockholder to divert funds (tunneling) for his-own benefit. To assess the relationship between firm's performance and control contestability exerted by the other large blockholders (different from the largest one) in Colombian listed corporations, we use data for 245 non-financial listed firms with at least one large blockholder with more than or equal to 10% of direct ownership rights.

Afterwards, we proceed to measure some proxies for control contestability what allowed us to test the hypothesis already verified by Maury and Pajuste (2005) on how control contestability relates to firm's performance. Our paper tries to go further from the first steps in revealing the nature of corporate governance in Colombian listed companies. Our main hypothesis is corroborated. It means that as control contestability increases in the sense that either ownership or control rights among the largest four blockholders tend to be better distributed, then opportunities to carry out expropriation or extract private rents decrease what leads to better firm performance. This finding is dependent on the degree of liquidity of the share of listed companies. This result may help explain the positive and strong finding in Gutiérrez and Pombo (2006) where affiliation of firms to business groups was linked positively to firm value. Lastly, our findings show that regardless of the level of stock market development, and investor protection control contestability is a key corporate governance mechanism to enhance good firm performance.

This paper contributes in providing for first time evidence for a case study in Latin America, in examining the presence of multiple shareholders in listed companies with poor legal protection in the sense of Laporta *et al*. 1998 paper[4]. Empirical papers closer to ours are the one by Gutiérrez and Tribó (2004) for a large sample of Spanish closely-held corporations and the one by Maury and Pajuste (2005) for a sample of listed Finnish firms. Gutiérrez and Tribo found

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[3] For more details see the papers of Pagano and Roel (1998); Bennedsen and Wolfenzon (2000); Bloch and Hege (2001), and Gomes and Novaes (2006).

[4] In particular, LLSV (1998) measure a country investor's protection through a anti-directors rights index that takes into account elements of minority shareholders rights such as cumulative and proxy voting, preemptive rights to new security issues, percentage of votes needed for calling a extraordinary shareholder meetings, among others elements. The main result of such index is that civil law countries perform better and corporations exhibit greater market valuation and performance.

that the contestability proxy is positively related to performance, results that they interpret as *"The similarity in the stakes of the first and second shareholders is likely to enhance both the bargaining power and the monitoring incentives of the second shareholder"*. Maury and Pajuste (2005), from which we borrowed the hypothesis, constructed refined proxies of contestability and also found that as distribution of control rights is more equalitarian, (control contestability increases) the better is firm value.

This paper is organized as follows. Section 2 overviews the recent literature on control contestability and describes the baseline model that supports our testable hypothesis. Section 3 describes the data sources and sample selection of companies. Section 4 analyzes the structure and bias of corporate control for the 1996-2004 period. Section 5 evaluates how control contestability has affected firm value and performance and presents robustness checks on the basic results, and Section 6 concludes.

2.   Literature on control contestability

Ever since the publication of the work of Berle and Means (1932) there has been a view that the main corporate governance problem in listed corporation was the separation of ownership and control in the sense that management without any ownership stake or a very low stake took control of the firms given the dispersed ownership of corporations. In the 1970, the work by Jensen and Meckling (1976) modeled the main agency problem that such separation brought about. In 1980s, the theoretical research of Shleifer and Vishny (1986) and Demsetz and Lehn (1985) established that another agency problem that arises in listed corporations was between a large shareholder (different from a manager) and a widely dispersed ownership instead or in addition to the first agency problem above suggested.

The existence of a large shareholder among listed firms brought then into discussion two opposite views of how its presence may affect firm's performance and valuation. Some authors have argued that large shareholders have incentive to search for private benefits of control to expropriate minority shareholders that are summarized under the labeling of "tunneling" (Johnson et al. 2000, and particularly Barclay and Holderness, 1989, for one of the first empirical research about private extractions of rents by large shareholders). Others have stated that large blockholders may have more incentives to monitor management since being their ownership

stakes in the company high, most of the benefits of good governance will transfer to their own pockets. Therefore, monitoring costs over the management are more than compensated by the gains of better performance (Harris and Raviv; 1988, Hart, 1995; Burkart, Gromb and Panunzi, 1997 and 1998; among others).

Research on corporate governance has also focused on environments where there coexists more than one large blockholder. For instance, Bennedsen and Wolfenzon (2000) argue that control structures with multiple shareholders may be the most efficient ownership structure in environments with poor shareholder protection. Specifically, they state that "the greater the cash flow possessed by the controlling coalition, the more this coalition internalizes the costs of its actions. Hence the fewer costly private benefits it extracts" (p 115). They called it the "alignment effect". However they also model situations in which a "coalition formation" effect can dominate over the alignment effect. In this case, its effect is negative since they argue that at the time of coalition formation, many coalitions can arise and the winner (the coalition with the smallest joint cash flow stake) will take control and will have the incentive to extract private rents from a largest possible group of shareholders excluded from the coalition.

Bloch and Hege (2001, 3) contest the above insight that existence of multiple blockholders acts as a substitute for poor legal protection of dispersed ownership. These authors argue that the relevant concept of control is the contestability of the incumbent shareholder's position and that corporate control is contestable if the incumbent cannot increase the level of control rents without losing control in a control contest. In their model, the presence of two large blockholders act as a device to limit private rent extraction and so attract the votes of the minority shareholders when contesting on proposals.

Empirical studies on corporate and control, have shown that in a great deal of corporations around the world having more than one large shareholder is not uncommon and also the existence of ultimate owners is a common feature[5]. However, there are few empirical studies that tried to test how control contestability has related to firm value. For instance, Gutiérrez and Tribó (2004) evaluated empirically ownership structures with multiple large shareholders for a large sample of Spanish closely-held firms during the period 1996-1999. Specifically the authors *examine how multiple large shareholders share control and extract private benefits*". One of the facts they

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[5] For details see the studies of La-Porta et. al (1998), Claessens et al (2000), Barca and Becht (2001), Volpin (2002), Faccio and Lang (2002)and Laeven and Levine (2006)

found (p. 10) is that "*37.5% of the firms have multiple large shareholders*". Their econometric findings are that "performance improves as the control group's ownership stake increases and, for a give ownership stake, as the number of member increases." They also found that minority expropriation is more generalized among closely held corporation than in listed companies.

Recently, Maury and Pajuste (2005) studied the effect of having multiple large shareholders on firm valuation for a sample of Finnish listed firms. They developed a model that is consistent with Bennedsen and Wolfenzon (2000) insight that the marginal cost of extracting private rents can be high in the multiple blockholder case implying that "the simple presence of multiple blocks reduces private benefit extraction" meaning that higher contestability (by other large blockholders) will lead to a better firm valuation. However, the authors also derived conditions in which if one assumes that marginal costs of stealing are actually lower with multiple blockholders, then high voting power by a coalition can lead to better ways the coalition can hide diversion of funds. Their main result is that as control contestability, measured by different proxies, increases firm value also increases[6].

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2.2 The baseline model and the hypotheses on control contestability

The baseline model of control contestability is borrowed from La Porta *et al*. (2002) that was extended by Maury and Paguste (2005). The starting point in the model assumes two elements. First, the existence of multiple large shareholders can reduce profit diversion, that is, control contestability is value enhancing. Second, diversion of profits by the controlling coalition is costly. Let

$$Q = r \cdot (1 - s) \qquad (1.1)$$

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[6] Although it is beyond the scope of this paper to deal with, the existence of more than one large blockholder is intertwined with the pertaining of those large blockholders to a same business group (syndicated vote). Sometimes large blockholders of a given company are just corporations or individuals that all belong (or respond) to the same ultimate owner. In this case, one can argue that contestability is out of discussion since the different blocks are just ways the ultimate owner distributes its portfolio explained by different reasons but in no way the different blocks exert any kind of monitoring activity over each other. In other cases, one can argue that a group of listed companies may have interlock their ownership portfolios in order to protect themselves from hostile takeovers, or to create means to reduce financial transaction costs, or to overcome financial constraints. The effect of control contestability would be of course very different since in the first case, one should not expect any contestability since first, there is no coalition at all while in the second case, according to their own interests blocks would form coalitions that may (or not) increase firm valuation, hence they will have contesting power.

where Q is firm's valuation; r = rate of return; and s = share of profit's diversion.

Equation (1.1) says that if there is not a profit diversion then firm's equity value is equal to market asset pricing. If one multiplies (1.1) by an investment amount $-I-$ in new projects then what one gets is the total cash flow of firm's project. The size of I does not matter (plant scale). Now let α = be the coalition share on firm's equity and multiplying (1.1) by it we get the coalition cash flow (dividends) after profit diversion

$$\alpha \cdot (QI) = \alpha \cdot [r(1-s)]I \qquad (1.2)$$

Diversion of profits implies for the dominant coalition benefits form rent expropriation minus the cost of diversion, which is equal to

$$s \cdot (rI) - c(\mathbf{x}, s) \cdot (rI) \qquad (1.3)$$

The first term of (1.3) is the diverted dividends while the second term represents the costs of stealing where $c(s, \mathbf{x})$ is a increasing and continuous function. In particular, is assumed

$$C_S > 0 \; ; \quad C_{SS} > 0$$

that is, the marginal cost of stealing is positive and it rises as more is stolen. The vector $\mathbf{x}$ includes other variables. In LLSV (2002) this variable captures the quality of investor protection. Modeling blockholders contestability there are two opposite forces. One is formed by large shareholders outside the coalition. In this case this makes more difficult profit diversion through tunneling mechanisms such as subsidize loans to other holding companies or paying a markup to vertically integrated suppliers. But there is an opposite case when the winning coalition can increase the total voting power, making rent extraction less costly. In this case the cost of rent diversion can be rewritten as $c(v, s)$ and $C_{sv} < 0$; meaning that the marginal cost of profit diversion decreases with coalition's voting power and v denotes the coalition voting power.

Having in mind the above assumptions the dominant coalition maximizes

$$V^C = \alpha \cdot [(1-s)r] \cdot I + s(rI) - c(v,s)(rI) \quad (1.4)$$

The first order condition is given by

$$C_s(s,v) = 1 - \alpha \quad (1.5)$$

Expression (1.5) states that the optimal share diversion $s*$ is defined when the marginal cost of profit diversion equals the outside coalition votes. The higher is the coalition direct ownership the lower will be the marginal cost of rent diversion and therefore the lower will be $s*$.[7] In other words, high cash flow rights of the majority coalition less is the expropriation to minority shareholders because there is a lesser amount of rents to divert.

Maury and Pajuste (2005) extend the above result modeling control contestability more explicitly by including a conditional probability that large shareholders outside the dominant coalition recover extracted profits − Prob(recover/s) = k −. Therefore equation (1.5) becomes

$$C_s(s,v) = (1-\alpha) \cdot (1-k) \quad (1.6)$$

From (1.6) the comparative statics of the model follows, that is

$$\frac{\partial s*}{\partial \alpha} = \frac{-(1-k)}{C_{ss}} < 0 \quad \text{and} \quad \frac{\partial s*}{\partial k} = \frac{-(1-\alpha)}{C_{ss}} < 0 \quad (1.7)$$

Optimal share diversion $s*$ decreases when *contestability* of outside blockholders increases, $k > 0$; and when its own cash flow rights increase because they have less rents to extract. The first hypothesis to evaluate is

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[7] For instance if the cost-of-theft function is quadratic it can be shown that $s* = (1-\alpha)/2$

Hypothesis 1: Firm valuation and performance should increase as the contestability on the controlling coalition's power increases.

The second working hypothesis is related to the *tunneling effect* captured by the separation of equity to voting rights of large shareholders. When a controlling shareholder leverages its voting power through pyramids within a business group, it has then incentives to extract rents. In addition, an increase of the voting power of the controlling coalition allow for better coordination among its members and also may provide better knowledge that makes profits diversion less costly. Differentiating (1.6) with respect to voting power $-v-$ and assuming that share diversion $-s-$ and the probability of recovering extracted profits $-k-$ by the outsider voting block are endogenous to v, one gets

$$\frac{\partial s *}{\partial v} = \frac{-(1-\alpha)\dfrac{\partial k}{\partial v} - C_{sv}}{C_{ss}} > 0 \qquad (1.8)$$

The first term on the numerator depicts the negative effect that an increase of voting power has on less contestability. The second term captures the positive effect that voting power has on reducing the costs of diverting firm resources. The overall effect is positive, therefore this support the second hypothesis

Hypothesis 2: Larger separation between ownership rights and control rights will lead to a decrease in firm valuation.

Hypothesis 2 implies that high voting power relative to direct ownership gives more discretion for ultimate owners. Next section turns attention in describing the data characteristics and sample selection.

3.   Data and sample selection

We collect data on financial statements and ownership structures of Colombian listed companies during 1996-2004. The assembled dataset of corporate shareholders used in this study comes from two sources: 1) the Superintendence of Securities (*Superintendencia de Valores*, SVAL) and 2) the Superintendence for Commercial Societies (*Superintendencia de Sociedades*, SSOC). These two institutions are responsible for inspecting and overseeing equity-issuing corporations and larger unlisted firms, respectively. The SVAL ownership database is based on National Equity Registry Forms −*Registro Nacional de Valores e Intermediarios [RNVI]*−, which record information on a company's top 20 shareholders. This form is mandatory for all equity issuers that are under the oversight of SVAL and must be updated on a yearly basis. The form also records the names of board members, the number of outstanding shares, the number of preferred dividend shares and the nominal value for each type of shares. Corporate law in Colombia, according to the Commercial Code, forbids dual shares and any other kind of legal deviations from the one-share-one-vote rule[8].

The database on ownership and control in Colombian corporations was borrowed from the study of Gutierrez, Pombo and Taborda (2006). Having a panel dataset of ownership improves the analysis because we can capture ownership dynamics, an element not usually included in international studies of corporate control. At most, this database provides information on the first property layer. In order to complete a company's second, third, and higher ownership layers, we assembled a dataset of information on major shareholders of unlisted firms who showed up as major shareholders of a listed corporation and who were affiliated with a business group. This information came from the SSOC records of the largest stakeholders for closely held corporations, as well as from partnership distributions for limited liability and all other firm legal types. Hence, we could assemble financial and direct ownership information of 245 listed companies for the 1996-2004 period, and gather complementary ownership information for 431 unlisted firms for the 1996-2002 period. That is, we update and expand the ownership data from the Gutiérrez *et al.* (2006) paper.

Following Maury and Pajuste (2005) our interest focuses on the role of blockholders so we only include firms-years that had a blockholder with at least 10% of direct ownership rights. The

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[8] In 2005 the Superintendence of Securities and the Banking Superintendence were merged to set up today's Financial Superintendence with the purpose of centralize financial and capital markets regulation. The ownership information of listed companies is publicly available while the ownership data from SSOC for all types of closely-held companies is subject to *statistical reserve*.

RNVI does not provide information about investor's voting. Therefore, following the portfolio methodology proposed by Baldone (1997) and applied in the studies collected by Barca and Becht (2001), we estimate shareholders integrated ownership as a proxy of investors' control rights for companies affiliated to business groups under one-share-one-vote rule[9] . For the case of independent companies we followed the manual adding procedure under the 20 percent cutoff proposed in La Porta *et al*. (1999) paper. [10] The maximum number of firm-year observations that satisfy all the criteria above posed amounted to 1090 and the number of firms up to 233 but that figure changes as we use different variables of analysis[11]. Hence, the panel is unbalanced.

Table 1 summarizes the number of equity issuing companies in our working sample registered with SVAL during the 1996-2004 period. The data clearly show that delisting has been a common pattern in Colombia and in accordance to what has been observed on other Latin American markets. Firm delisting was intensive during the second half of the nineties reaching a peak during the years of 1998-1999 where the Colombian economy was in the mist of the worst recession in 80 years. Hence, listed companies in the sample dropped from 152 to 94 firms.

Delisting took place mainly within manufacturing and wholesale and retail sectors. In fact manufacturing firms has historically been the main source of stock-trading companies in the country. Companies with important listing experience and equity trade got out the market. Among them one can highlight the case of AVIANCA, the largest airline company that canceled its registry form the Superintendence of Equities in 1998. Similar were the cases of SIMESA the second largest steel-mill and ICOLLANTAS the main tire-rubber manufacturer in the country.[12]

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[9] For more details on this methodology and results for the case of Colombia, see Gutierrez et. al. (2006)

[10] We excluded all companies subject to special regulations such as public utilities, financial intermediaries, educational institutions, and livestock funds since their performance might be affected by regulation and State property participation, which makes results not comparable. In addition, we discard firm-year observations that did not have a blockholder and firms where there no confident information either on stock prices, financial statements or equity distribution. The listing status criterion refers to whether a listed firm was still listed by the end of 2004 or had canceled its equity registry and was de-listed.

[11] For instance, Tobin's Q can only be calculated if firm valuation can be assessed that in turn demands that market value of equity be known and this can only happen if the stock of the firm was traded at least once during a year.

[12] *Siderurgica de Medellin* (SIMESA) and *Industria Colombiana de Llantas* (ICOLLANTAS) were both companies founded during the 40s and 50s as mixed capital enterprises with financial support of the *Instituto de Fomento Industrial*, an official institution ascribed to the Development Ministry.

Table 1
Number of firms in the study sample by listing status and economic activity

Status/ISIC group	1996	1997	1998	1999	2000	2001	2002	2003	2004
DE-LISTED	15	29	29	22	5	14	6	3	1
LISTED	137	129	120	103	99	97	96	94	93
Agriculture, Forestry and Fishing	5	5	4	3	2	3	4	4	4
Mining and Quarrying	4	4	3	3	2	2	2	2	2
Manufacturing	78	76	68	62	56	61	54	51	48
Construction	8	9	8	6	4	4	4	3	3
Wholesale, Retail Trade, Lodging	27	23	19	13	11	10	9	7	6
Transport, Storage and Communication	10	13	16	11	8	7	8	9	9
Financing, Insurance, Real State	11	18	22	19	14	17	15	15	16
Community, Social and Personal Sevices	8	8	7	7	7	7	6	6	6
Other non-classified business activities	1	2	2	1					
Total sample	152	158	149	125	104	111	102	97	94

Notes: Delisted firms are defined and as companies that canceled its Registry Equity Form from the Superintendence of Securities during 1996 and 2004.

Source: Superintendence of Equities (Financial Superintendence) – National Equity Registry Forms

4. Corporate Control

It is well-known that corporate ownership and control is highly concentrated in Colombia. This fact has been tied to the formation of conglomerates and business groups from the 1950s to late 1970s, when vertical control provided the incentive for controlling productive chains from upstream to downstream industries. Most of these groups started as family businesses and then became corporate groups with strategic investments in their core business. Gutierrez et al. (2006) show that there are four facts regarding corporate ownership and control for the entire sample of listed companies during the 1996-2002 period:

a) Corporate ownership is highly concentrated. The top four largest shareholders have more than 51% of a firm's cash flow rights in almost all companies.

b) Ownership concentration has increased.

c) There are low separation ratios within the largest voting block, at the top-four voting blocks, and also at the ultimate owner levels. Nonetheless there are cases were there is evidence of full separation at controlling shareholders level.

d) Investment firms play a central role as controlling shareholders.

Regarding the first three elements **Table 2** summarizes the core results of the ownership and control statistics for the sample of firms that report at least one voting block. The findings are in the same direction to the above-mentioned facts and more important, the pattern is reinforced with the updated measurements that include the years of 2003 and 2004. Several comments are worth mentioning. First ownership concentration is high and has risen in time. The mean (median) of the largest blockholder stake was 36.3 (48.5) percent in the nineties. This number rose to 43.3 percent but the median was lower in around 10 the percentage points −37.1−. The same pattern follows for the top-four voting blocks stake. The mean increased from 67.9 to 72.9 percent between periods, while the median decreased from 87.1 to 76.9 percent. This result implies that corporate control is in hands of the top three or four largest shareholders, under one share-one-vote rule. **Figure 1** plots the histogram for the top four shareholders. The distribution is clearly left-skew meaning that cash flow rights are concentrated among the higher percentiles. In particular, the frequency distribution has two peaks. One says that in 17% of the firm-years observations the top four shareholders have between 0.72 to 0.82 percent of equity. Moreover, around 0.25 percent of the firm-year observations the four largest shareholders hold above 92% of companies' equity. Therefore, control contestability across voting blocks must take place among the top-four players, otherwise they must form a voting-coalition of any kind to control boards.

Table 2 also shows that the mean (median) of cash flow rights for the second, third, and fourth voting blocks decreased between periods. The above numbers imply a change in the ownership distribution among main shareholders. One can see this fact looking at the individual histograms of the cash flow rights across the main voting blocks. **Figure 2** depicts the two-way equity histograms for the first and second largest voting blocks from 1996 to 2004. For both cases, cash flow rights have become evenly distributed at percentile 10 to percentile 40. For instance, the largest voting block in 1996 has on average 10 to 20 percent of firm equity for one-

fourth of the total sample and from 20 to 30 percent of equity for one-fifth of total companies. By 2004 these numbers changed significantly. The largest shareholder has 10 to 20, 20 to 30 and 30 to 40 percent of firm equity each one in 15 percent of total companies. The largest shareholder has increased his voting power. Similar pattern shows the second largest shareholder. The histogram in 1996 has one peak where the second voting block had on average between 10 to 20 direct votes in 30 percent of firms. The distribution became uniform for the lower percentiles where the second stake holder had on average 10, 15 and 20 percent of direct ownership respectively in 20 percent each one on firms' equity.

The above trend proves that ownership distribution has changed across firms and among voting blocks. The largest shareholder has gained voting power while the second and third stake holders have redistributed their power toward a evenly voting distribution across firms. The above clearly is offset by the equity distribution of the fourth voting blocks and minority shareholders, where their voting distribution became right-skewed with lower equity shares[13]. Thus, we have evidence that control contestability or voting coalitions might take place especially between the two largest shareholders because on average the data shows that the median of direct votes for the largest shareholder has decreased for the 2000-2004 period to 37 percent in contrast to what was observed in the nineties −48 percent−. This implies that there is an incentive of forming a control coalition at least between the two largest voting blocks or at the same time there is an incentive for (to) other voting blocks to monitoring the largest one.

The analysis of corporate control bias provides further evidence regarding the existence of control contestability. The separation between ownership and control stresses how main shareholders leverage their voting power. Business groups in Colombia are complex and there are several types of structures from family-group pyramids to cross-share holdings webs. Inside those holding firms there are controlling shareholders who might or not have equity shares in a controlled firm[14]. There are at least three facts worth mentioning derived from the measures of separation ratios from table 2. First, equity to voting ratios are low, that is close to one, meaning

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[13] We do not present the histograms for the third and fourth stake holder to save space. In both cases, direct ownership distribution became right-skewed. For instance, in 1996 the fourth largest-voting block had on average 5 to 7 percent of equity in 25 percent of total companies. In 2004 direct ownership distribution shows that in 30 percent of the firms the fourth largest shareholder had on average less than 2 percent.

[14] See Gutierrez, Pombo and Taborda (2006a), and Gutierrez and Pombo (2006b) for more details on corporate ownership and ultimate owner analysis in Colombia.

Table 2
Ownership and Corporate Control Statistics

Indicator/statistic				
	1996-1999	**2000-2004**	**1996-1999**	**2000-2004**
Number of Firms	146	102	**Separation: Equity to voting ratios**	
Share largerst shareholder: CR1			Largest Voting Block	
Mean	0.3628	0.4333	0.959	0.952
Median	0.4855	0.3712	1.000	1.000
Standard deviation	0.2161	0.2467	0.102	0.118
Min	0.1027	0.1066	0.460	0.432
Max	0.9584	0.9761	1.000	1.000
Share top-four shareholders: CR4			Second Largest Voting Block	
Mean	0.6794	0.7296	0.908	0.838
Median	0.8708	0.7697	1.000	1.000
Standard deviation	0.2209	0.2198	0.200	0.277
Min	0.2127	0.2704	0.175	0.083
Max	1.0000	1.0000	1.001	1.001
Share Second Largest Voting-Block: Equity2			Third Largest Voting Block	
Mean	0.1590	0.1544	0.888	0.798
Median	0.2012	0.1335	1.000	1.000
Standard deviation	0.0901	0.0983	0.224	0.304
Min	0.0057	0.0071	0.016	0.015
Max	0.4876	0.4862	1.000	1.000
Share Third Largest Voting-Block: Equity3			Four Largest Voting Block	
Mean	0.0947	0.0867	0.853	0.754
Median	0.1221	0.0767	1.000	0.999
Standard deviation	0.0556	0.0643	0.259	0.330
Min	0.0000	0.0000	0.000	0.000
Max	0.3124	0.3066	1.000	1.000
Share Fourh Largest Voting-Block: Equity4				
Mean	0.0629	0.0552		
Median	0.0881	0.0512		
Standard deviation	0.0408	0.0419		
Min	0.0000	0.0000		
Max	0.1987	0.1749		

Source: Own estimation based on a dataset compiled from SVAL National Equities Registry Forms.

Figure 1
Histogram – Top four shareholders 1996-2004
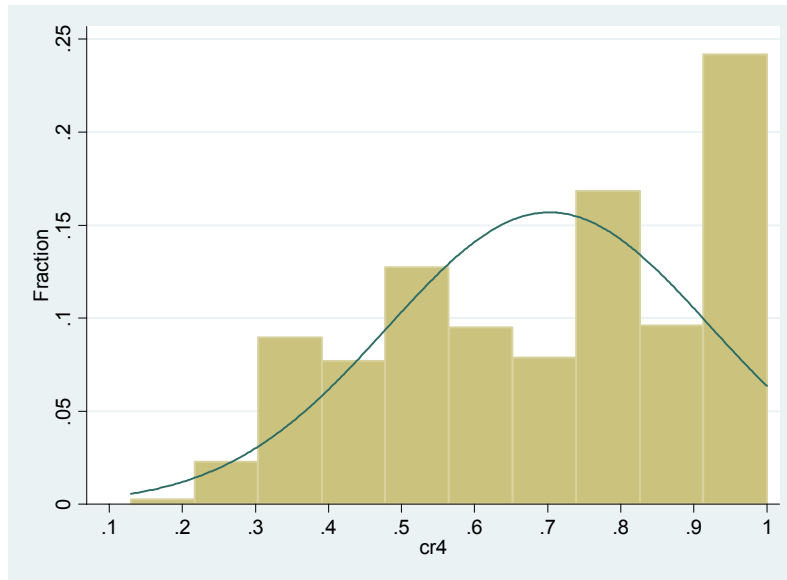
Source: Own estimation based on a dataset compiled from SVAL National Equities Registry Forms.
Notes: Total sample are 1092 firm-year observations.

Figure 2 – panel A
Histogram Evolution of the Largest Voting Block by year
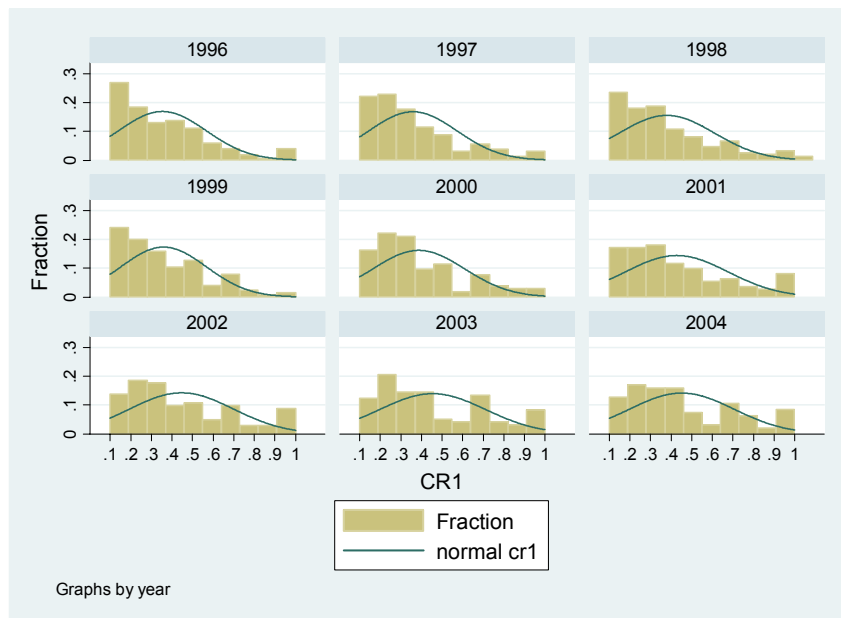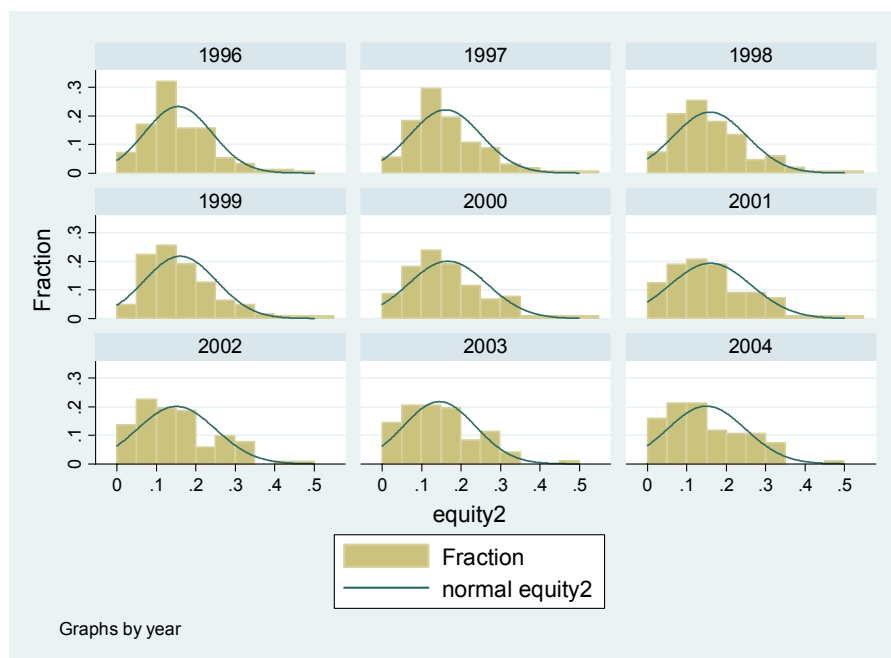

Source: Own estimation based on a dataset compiled from SVAL National Equities Registry Forms.

Figure 2 – panel B
Histogram Evolution of the Second Largest Voting Block by year

Source: Own estimation based on a dataset compiled from SVAL National Equities Registry Forms.

that major voting blocks must be exerting direct monitoring on companies' management and board policies. The mean in all cases is greater than 75 percent implying that a controlling shareholder needs at least 38.3 percent to get absolute majority −51 percent− on firm board under one-share-one-vote regime. Second, separation ratios increases as the voting blocks decrease their stakes. For instance, the mean of equity to voting ratio for the fourth voting block is ten points less than the largest block. For all cases separation is greater for the 2000-2004 period, in contrast to what was observed in the nineties. Third, there is evidence of full separation at the third and fourth largest shareholder meaning that their voting rights are fully leveraged by business group structures and there is no need of direct equity investment to become a voting block. The table shows a minimum value of zero for the fourth largest voting block and values less than 2 percent for the third largest shareholder.

The overall ratios tend to be slightly higher in Colombia (0.88, 0.87) than those found in other studies. Although here we show the SR4 ratios they do not differ significantly from the largest voting block ratio (SR1), whose means are 0.92 and 0.93 for each of the two-periods. For instance, Chapelle (2004) reports a 0.80 separation ratio for the largest voting block for 135 listed

Belgian firms in 1995. Claessens et al. (2000) report an overall ultimate controller separation ratio average of 0.74 for 2,611 publicly traded East Asian corporations for 1997, with a ratio of 0.88 for Hong Kong, 0.90 for the Philippines and 0.94 for Thailand. In addition, La Porta et al. (1999) find that in Argentina and Mexico ultimate controllers need approximately 19.6 percent and 16.5 percent of cash flow, respectively, to obtain 20 percent of voting rights. Therefore, highly equity concentration is associated with low separation ratios and induces a strong control bias toward owners, and there is no need for further voting leverage through indirect ownership investments.

Following Barca and Becht (2001) analysis of corporate control there are two types of biases. When control is in hands of dominants investors they can align incentives with managers, therefore one says that there is a *private control bias*. In this scenario direct monitoring is exerted and the agency problem between managers and shareholders is eliminated. Nonetheless, it may be that other costs arise related with minority shareholders protection and the risk of expropriation. On one hand, in widely held corporations ownership is dispersed and atomized. In this scenario shareholders cannot align their incentives with managers, they prefer to free-ride and the agency problem arise where CEOs usually have incentives to disclose good investments and at the same time to hide bad investments. This type of control is known as *management or market control bias*. The first case has been observed in many countries aside the case of United States and United Kingdom. The separation ratio and ownership concentration measures suggest an owner-control-bias at the level of the sum of the four main blocks.

To illustrate the control direction bias, we use the percentile rank functions for the largest direct voting block as well as for the top two to four direct voting blocks. The intuition behind these graphs is to find how asymmetric ownership is. Concentration measures have a maximum value of 1 representing 100 percent of a company's net worth. If the distribution is uniform with equally proportioned stakes across firms, its percentile rank function would be the 45 percent degree line. In other words there is no dispersion with respect to the distribution median. A percentile rank function below the 45% degree line indicates low ownership concentration along with low levels of block-holder power. Control declines *more than* proportional with reduction in ownership. This is the case for a market-control-bias. The opposite, a function above the 45 degree line, represents high ownership concentration and block-holder power, which is associated

with owner-private bias where control declines *less than* proportional with reduction in ownership.

Figure 3 (panel A) plots the percentile plot for the largest direct voting block (CR1) for the total sample of 1092 firm-years observations between 1996 and 2004. Control bias lies below of the straight line that represents an even distribution between firms and equity share[15].   At the 50 percent fraction of the sample, the largest voting block has 33 percent of direct votes. Only at percentiles 75 or greater the largest shareholder has more than 51 percent direct votes. These numbers are lower than those reported for continental Europe where the largest voting block on average has more than the 51 percent majority rule in Austria, Belgium, France, Germany and Italy [Barca and Becht (2001)]. Plotting the percentile rank function for the top-three voting blocks −CR3− the picture changes since the distributional plot is above for all cases the 45 degree line (panel B). In particular at the 50 percent fraction of data the three largest shareholders has around 60 percent of direct votes. The implication on control is straightforward: a coalition among the tree top stake holders guarantee firms absolute control and at the same time there is an incentive to contest the power the largest voting block by the second and third largest equity holders.

Table 3 provides description regarding the relation of block ownership with firm valuation that strengthen the results of shareholders' control bias and separation ratios. There under the heading of one, two, three and four-blocks are the medians of Tobin's Q and the corresponding number of firm-year observations. There was one blockholder in about 219 firm-year observations out of 686 (31.9%). The percentage increased to 36.4% for blocks composed of two blockholders. As expected the percentage decreased to 17.9% for the existence of three blockholders as well as the case of four blockholders where there were recorded 94 firm-year observations representing 13.7% of total sample.

The table suggests that firm valuation proxied by Tobin's Q varies with the existence of several voting blocks and whether or not they have enough voting power of getting the majority rule of 51 percent. Firm valuation is greater in firms with three or four blocks. The median of Tobin's Q moves from 75 percent to 88 percent on average in companies that have more than two voting blocks. Further, firm valuation is lower if the largest or the two largest shareholders have a

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[15] The straight line in this case is not the 45 degree line because the data-sample is truncated at the 10 percent equity level. Otherwise, the percentile plot must yield the 45 degree line to represent the set of even points in the Cartesian plane.

Figure 3- panel A
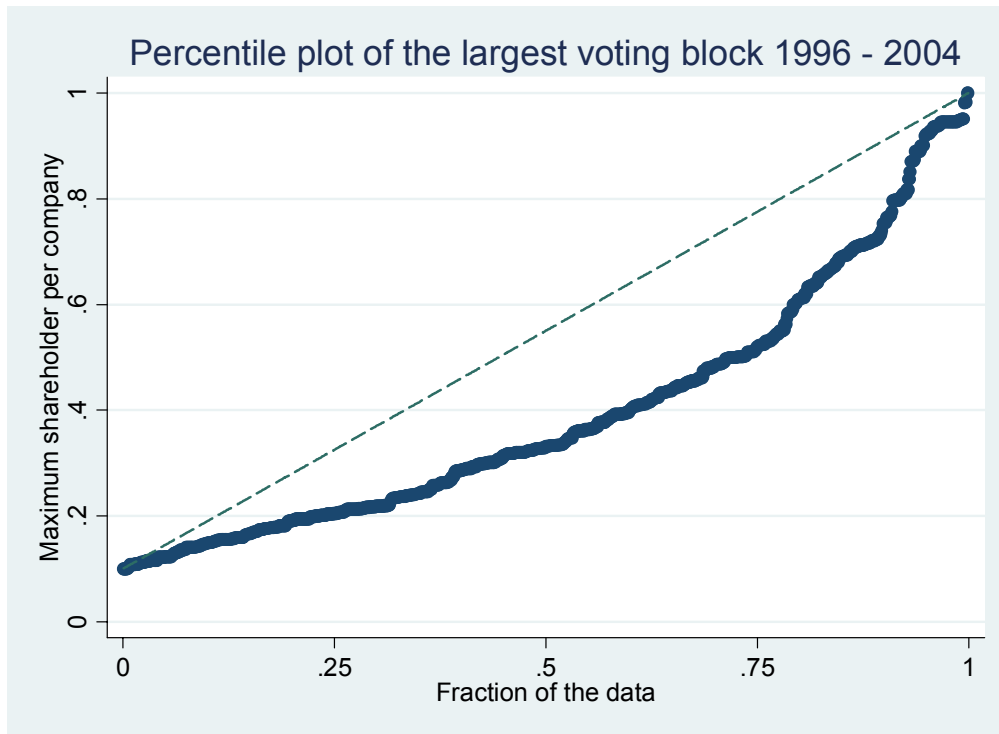
Source: Own estimations based on a assembled dataset from SVAL national Equity Registry Forms

Figure 3- panel B
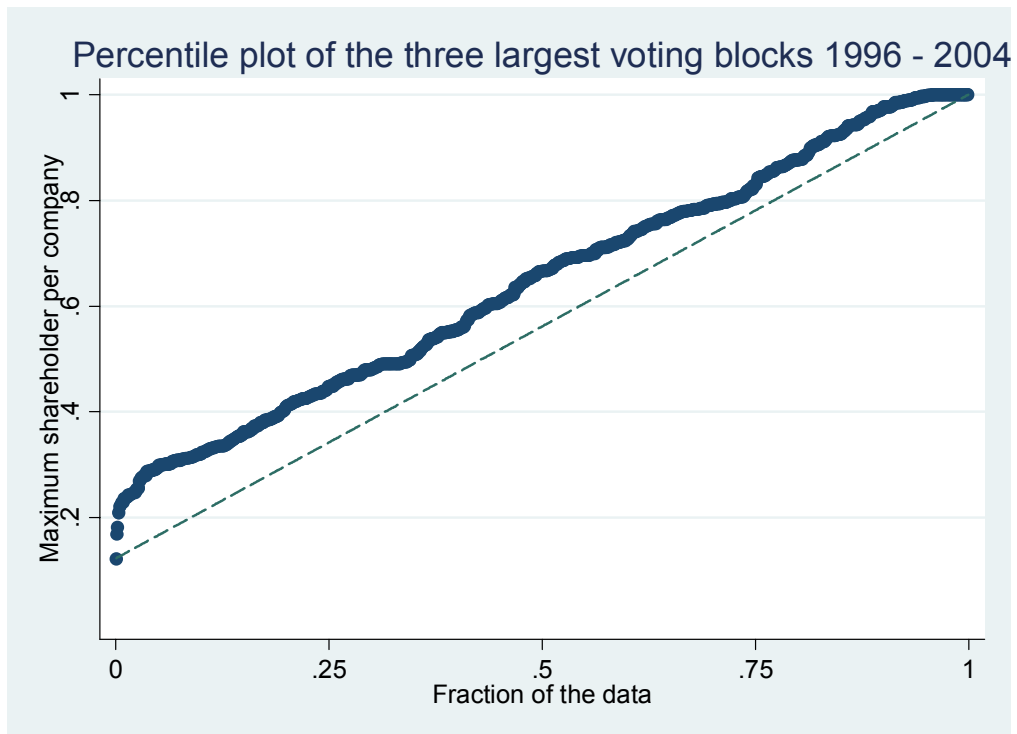
Source: Own estimations based on a assembled dataset from SVAL national Equity Registry Forms

Table 3

Blockholders and median Tobin's Qs

		One block		Two blocks		Three blocks		Four blocks		Total N
		N	Median Tobin's Q	N	Median Tobin's Q	N	Median Tobin's Q	N	Median Tobin's Q	
Panel A: Block owners and Tobin's Q values										
Equity 1 + Equity 2 + Equity 3 ≤ 50	[1]							58	1.003	
Equity 1 + Equity 2 + Equity 3 > 50	[2]							36	0.819	
Equity 1 + Equity 2 ≤ 50	[3]			153	0.753	62	0.916	27	0.847	329
Equity 1 + Equity 2 > 50	[4]			97	0.751	61	0.780	67	0.893	357
Equity 1 ≤ 50	[5]	87	0.839							
Equity 1 > 50	[6]	132	0.722							
Total		**219**	**0.761**	**250**	**0.752**	**123**	**0.894**	**94**	**0.877**	**686**
Panel B: Z-statistics for differences in medians										
Test: [1] vs. [2]									1.431	
Test: [3] vs. [4]					-0.085		1.396		**-1.809***	
Test: [5] vs. [6]			**1.844***							

The table shows the number of firm-year observations, voting power and firm valuation in each category of controlling blockholders. The total sample is formed by 233 firms that were listed and oversight by the Superintendence of Securities for the 1996-2004 period. A blockholder is defined as a shareholder that has at least 10% of cash flow rights or direct ownership.

Source: Own estimation based on a dataset assembled from SVAL National Equity Registry Forms.

majority. Median tests are significant at 10 percent. For the remainder cases, the null hypothesis of differences in firm valuation if blocks have a majority is not rejected Thus, those findings support partially our working hypothesis of control contestability as well as rent extraction and tunneling by either the controlling shareholder or voting coalition[16].

5.   Econometric Analysis

5.1 Definition of Variables

In section we present the econometric analysis of the effect of control contestability has on firm valuation and performance. The main valuation measure is Tobin's Q, which is measured following Black et al. (2006) who defined it as the ratio between market value of assets to the

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[16] To see whether using control rights (direct and indirect ownership) instead of ownership rights produced different results, we performed the same tests but none was statistically significant. This was surprising since medians of Tobin's Q were almost equal across the different number of blocks. Similar tests were performed for MTBR, MTSR, ROE and ROA.

book value of assets. Colombian accounting and tax regulations require that all firms update their book values yearly, so the use of book value of assets must be very close to replacement costs. Market value of assets was estimated as the sum of book value of debt plus book value of preferred stocks plus market value of common stock. In turn, the yearly market value of common stocks was calculated as the product of the average market price times the number of common stocks. The value of liabilities (in Colombian pesos) was taken as the book value of debts.

Researchers in the field of finance have recently suggested that for emerging economies, Tobin's Q could not be a good proxy of firm value due to measurement problems, the limited offer of stocks, the non-competitiveness of the stock market and problems with the measurement of replacement cost of assets (See Claessens et al., 2000). They have proposed further related value measures. One of this measure is the market-to-book ratio, MTBR, defined as the ratio between market value of common stock (as defined above) and book value of common stock; this latter estimated as the sum of the book value of assets minus the book value of liabilities minus the book value of preferred stock. The second one is market-to-sales ratio, MTS, market value of common stock divided by sales. The market value of equity, i.e., the yearly average, for the period 1996-2004 was provided by the Colombian Stock Exchange.

The sample includes firms whose stocks were not traded at least once during a year, and so their market value could not be obtained, hence we used returns on assets, ROA, and returns on equity, ROE as alternative performance variables. Contestability variables were constructed following Maury and Pajuste (2005) who used four proxies. The first one is the Herfindal concentration index −HI_concentration− that captures the effect voting block power. A second variable is the differences in the Herfindal indices −HI_differences− and defined as the sum of the squares of the differences between the first and second largest voting stakes, the second and the third largest voting stakes and the third and fourth largest voting stakes[17]. These variables capture the actual contestability that the largest blockholder faces when he cannot control directly the company. Both measures are transformed into logarithms to control for skewness. Their expected relation with firm value is negative because as the voting power among the four largest shareholders becomes more equalitarian more control contestability is expected so greater firm value.

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[17] The formulas are: $HI\_concentration = \sum_{i=1}^{4}(Votes_i)^2$; and $HI\_differences = \sum_{i=1}^{3}(Votes_i - Votes_{i+1})^2$

Two complementary measures of control contestability are the Shapley value and the High contestability dummy. The Shapley value is a probability value that individual blockholders (or groups of shareholders) for a winning coalition; i.e., coalition of more than fifty percent of the votes. Calculation of Shapley values is somewhat problematic since most shareholders' stakes are unknown. The stakes of those shareholders are often very low and so it is correct to assume they do not affect main voting coalitions. Then, prior to estimate Shapley value of the main blockholder in a four coalition agents, we rescaled the sum of the four largest shareholders to a 100%. If the largest blockholder held more than fifty percent of votes, the Shapley value was equal to one that is the voting power of the largest stake is treated as a winning coalition able to exert full control. If this blockholder could not hold a majority of voting, then its contestability power increased with lower Shapley values. The relationship between Shapley value of the largest blockholder and firm performance should also be negative.

Maury and Pajuste (2005) suggest a dummy variable they called "high contestability dummy" which takes a value of one if the three largest blockholders cannot form a majority, and the four largest one holds at least ten percent of the votes. The rationale of this dummy is to capture those cases where the first three main shareholders' power can be contested. Hence, one should expect that as contestability of the four largest shareholder increases, firm performance be better since the contestant will exert pressure to reduce diversion of funds, mismanagement or the like. Hence, the relation is expected to be positive.

On the other hand, many studies (Durnev and Kim, 2005, Claessens, Djankov, Fan and Lang, 2002, and Claessens, Fan, and Lang, 2006) have stressed that higher separation between voting rights and control rights in hands of the main blockholders may be associated with lower firm valuation and worse accounting performance since a negative entrenchment effect of extracting private rents can overcome the positive effects of blockholders' aligned incentives to run firms properly. We employ the stake of direct ownership by the largest shareholder, CR1, and the sum of the main four largest ones' direct ownership, CR4, to measure the incentive effect, and a wedge variable proxied by the inverse of equity to voting ratio of the largest and four largest blockholders, to account for the entrenchment effect.

There are other control variables used in the regression equations such as firm size, financial leverage, sales growth and asset tangibility. These types of variables are also used in

recent studies of corporate ownership and control[18]. Firm size is measured either by the natural logarithm of total assets, −*log assets*− or by the natural logarithm of operating income, −*log OI*−[19]. As in most studies, we expect a negative relationship between size and the performance measures since size also proxies for firm age; then, larger and older firms are supposed to be more matured and then have lesser dynamism. Leverage is proxied by two measures. The first one is the ratio of book value of long-term liabilities to book value of total assets, called itself *leverage*, and the second one is the book value of total liabilities divided by total assets, named *debt-ratio*. There is not an established expected relation of these variables with firm valuation or performance since financial literature shows that leverage can be either a positive disciplinary device over management free use of cash-flow, or be a negative effect if it increases the probability of bankruptcy.

To measure investment opportunities, we use past growth in sales measured by a moving average of the two and three previous real annual percentage growths in operating income, i.e., *growth2* and *growth3*. It is expected that firms with better growth opportunities have faster growth rates, so sale growth should be positively related to the valuation and performance measures. The last variable is *asset tangibility* equal to plant, property and equipment to total assets ratio. Lower asset tangibility is a signal that firm cash flows are presumably generated by intangibles (know-how, branding) and therefore high firm market value. Hence, the expected correlation is negative. Last, all regressions are controlled by industry dummies, SIC, to account for differences in asset structure, market competition, and other idiosyncratic aspects, which may affect firm valuation, ownership or corporate governance[20]. Regressions also include year dummies to account for time effects.

5.2 *Descriptive Statistics*

This section describes the summary of statistics of the contestability, performance and firm characteristic variables. The maximum number of firm-years observations amounts to 1090

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[18] See for example Durnev and Kim, 2005, Claessens et al 2002, Claessens et al 2006, Black, Jang and Kim, 2006a and Black, Jang and Kim 2006b

[19] Original value series are at 1998 prices.

[20] We classify industries with the 2-digit United Nations Standard Industry Classification.

corresponding to 233 firms with a presence at least of one voting-block. Table 4 shows the main statistics for the whole period of analysis. Tobin's Q was quite low with an average of 1.05 and a median of 0.79. However, clearly there was some variation year by year where one can observe that Tobin's Q reached a maximum of 1.42 in 1998 and a minimum of 075 in 2002. The performance variables ROA and ROE exhibit also low levels. The medians are 2.5 and 4.3 percent respectively. Control contestability variables by turn show an increasing trend. The mean (median) of the Herfindal index based on equity differentials for the top-four stakes is 0.14 (0.04). Moreover, this number was 0.19 in 2004. The Shapley value averaged 0.71 and was increasing, relatively high compared to the one of 0.6 reported by Maury and Pajuste for Finnish firms although their value stemmed from a three player game instead of four in our case. Thus, the above numbers also suggest that the higher the probability the largest shareholder of forming a coalition the higher is also the contestability power of the other largest blockholders.

5.3 Regression Results.

In this section, we study the relationship between firm-level contestability and firm performance. Our hypotheses test first the relationship between control contestability and valuation measures and then between ownership and control rights. The reduced form states a linear relation between valuation and contestability given by

$$Valuation_{i,t} = \alpha_{i,t} + \beta_1 Contestability_{i,t} + \sum_{k=2}^{5} \beta_k Control_{i,t} + \beta_6 Industry_i + \beta_7 Time_i + \varepsilon_{it} \qquad (1.9)$$

where: valuation can be Tobin's Q, MTSR or MTBR, and control is the vector that include leverage, sale growth (either two or three moving average), asset tangibility, and firm size.

We do the same exercise using ROA and ROE as alternative performance measures and as robustness tests. The model is estimated using pooled ordinary least squares with different sample sizes. Following Bloch and Hege (2001) or Bolton and Von-Thadden (1998) arguments they find that large blockholders value liquidity of their stocks and that the more liquid a stock is the higher the transparency and informational accuracy it conveys to investors and so better could be its valuation.

Table 4

Summary of statistics - Valuation, Contestability and performance variables

Panel A						
Variable	**Obs**	**Mean**	**Std.**	**Min**	**Max**	**P50**
Value and Performance						
TOBIN' Q	689	1.0593	1.4549	0.071	15.772	0.7906
Return on Assests	1074	-0.0093	0.6064	-18.555	0.910	0.0257
Return on Equity	1074	-0.0554	1.1095	-28.619	1.638	0.0434
Market to Book Ratio	689	2.4253	27.6810	-0.187	711.817	0.6691
Market to Sale Ratio	678	18.1232	180.3946	0.003	4376.831	0.9274
Control Contestability						
Herfindal Index_concentration	1092	0.2612	0.2311	0.0112	1.0000	0.1997
Herfindal Index_differences	1092	0.1415	0.2203	0.0000	1.0000	0.0404
High Contestability Dummy	1092	0.1703	0.3761	0.000	1.000	0.0000
Shapley Value	1092	0.7086	0.2852	0.250	1.000	0.5000
Firm Characteristics						
Log-Operating Income	1046	10.4724	2.1596	-1.292	15.350	10.9047
Log-Assets	1074	11.3774	1.8174	4.556	16.276	11.5088
Asset tangibility	1074	0.2060	0.1936	0.000	0.915	0.1609
Debt-ratio	1074	0.4001	0.5825	0.000	12.367	0.3445
Leverage	1074	0.1621	0.4780	0.000	12.367	0.0848
Growth-Sales (T-3)	708	0.2155	1.3046	-0.871	19.174	0.0363

Mean	Panel B					
	1996	**1998**	**1999**	**2000**	**2002**	**2004**
TOBIN'S Q	1.1457	1.4211	1.1387	1.1024	0.7547	0.8639
Return on Equity	-0.0082	-0.2375	-0.2611	0.0508	0.0393	0.0970
Market to Book Ratio	1.8328	9.1806	1.3184	0.8306	0.7050	0.8043
Herfindal Index_concentration	0.2176	0.2489	0.2255	0.2537	0.3108	0.3153
Herfindal Index_differences	0.1036	0.1288	0.1038	0.1286	0.1902	0.1951
Shapley Value	0.6985	0.6756	0.6833	0.6987	0.7516	0.7633

This table presents the summary of statistics (mean, standard deviation, min value, max value and median) for 233 Colombian listed non-financial firms with at least one-blockholder over the period 1996-2004. The variables are Tobin's Q, estimated as the ratio between market value of assets to the book value of assets. Market value of assets was estimated as the sum of book value of debt plus book value of preferred stocks plus market value of common stock; Market-to-book ratio, defined as the ratio between market value of common stock (as defined above) and book value of common stock; Market-to-sales ratio, market value of common stock divided by sales; Return on assets, profits after tax divided by total assets; Returns on equity, profits after tax divided by total outstanding equity; Herfindal index concentration equal to the sum of squares of the four largest cash flow rights rights; Herfindal index differences equal to of the sum of squares of the differences between the largest and second largest, the second and third largest, and the third and fourth largest equity stakes; Shapley value, which is the solution for the largest shareholder in a four voting game; High contestability dummy, equals 1 if the sum of the voting power held by the three largest shareholders does not exceed 50% and there is at least one more blockholder with at least 10% of the votes, and 0 otherwise; Debt-ratio, total liabilities divided by total assets; Growth (t-3), moving average of the three previous real annual percentage growths in operating income; Asset tangibility defined as total property, plant and equipment divided by total assets; and Log-Assets or the natural logarithm of total assets.

Source: Own estimations based on an assembled dataset from SVAL National Equity Registry Forms, companies' financial statements and stock prices.

An important feature of the Colombian stock exchange has been the lack of actual offers of stocks, and the low volume of trading (the float) that most of them have experimented in the last 20 years. The delisting pattern explained in Table 1 reflects the above corporate governance problem. Statistically what one finds is that only a small fraction of firms trade their stocks and from this small subset, a fraction of them had median or high trading volumes. Hence, Colombian stock market is very illiquid.

We argue that taking the whole sample of firm-year observations for which Tobin's Q could be estimated can be misleading. Rather, and if liquidity really matters, we suggest running equation (1) according only for those firms with some share liquidity. The estimating sample was divided in two. One includes all the firm-year observations that comply with the existence of at least on blockholder and that the (firm's) stock had been classified as of at least median liquidity. For that purpose, we take a liquidity index calculated by the Financial Superintendence as our selection device[21]. The second sample comprises all firm-years observations for which the firm's stock was classified as high liquid. Of course, the number of firm-year observations decreases as the liquidity threshold increases. Although it can be argued that there may be some sample selection, the point is that the liquidity index was created in 1991 so it is an exogenous factor that just selects a sample of firms for which control contestability really matters.

Table 5 depicts the value regressions controlling by contestability for the sample of firm-year observations according to share liquidity. Panel A reports the findings for those firm-year (148) observations with liquidity above the median threshold while panel B reports those for only firm-year observations (68) ranked as high liquidity stocks. Regressions in (1) to (3) for both cases depict the effect of control contestability on firm value. Hypothesis 1 is strongly validated since contestability variables exhibit the expected sign and regression coefficients are statistically significant at five percent level. The differences in the *Herfindal* index and the *Shapley* value of the largest block turned robust variables. As long as there exists a more equal distribution of control rights among the four largest blockholders, investors assign a better valuation since none of the main blockholders can individually exploit its control rights to extract rents. Thus, the numbers suggest that if the differences in the Herfindal indices reduce in 10% then Tobin's Q

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[21] In fact, the contestability controls turned out not significant for the full-sample regressions although they kept the expected sign. Since 1992 to present, the former Superintendence of Securities and today's Financial Superintendence ranks shares according to an index created for tax purposes. The index is known locally as the

raises on average between 0.37 to 0.68 percent. On the other hand, the Shapley value for the largest shareholder proxies of the probability that the largest blockholder forms a coalition in order to exert firm's control. If the main blockholder cannot have enough control rights to hold a majority, the contestability increases as voting rights of second, third and fourth largest blockholders increase. In particular, if the probability of forming a coalition (Shapley Value) decreases 10% percent firm value boots between 2.7 and 3.8 percent[22].

The last column in both panels reports the effect that direct ownership and control rights has on firm valuation. Equation 4 presents the results only for the joint effect of the four largest shareholders −CR4−. Clearly, when one takes just a sample of firm-year observations that include firm whose stocks are liquid, then the positive effect of the *incentive effect* that direct control and monitoring exert by the top-four largest shareholders tends to disappear. Contestability implies a conflict of interest among main investors if stock liquidity turns out relevant on investors' wealth. This power control is value enhanced in contrast to an absolute ownership concentration by a voting coalition ease in extracting rents to their own benefit. Further, the results also show that the *entrenchment effect* given by the separation ratio voting to equity ratio turned out not significant. This outcome is consequence of the low separation ratios where ultimate owners exert direct control to managers and through this way minimize the agency problem of control delegation. Hence, hypothesis 2 is no longer verified. Contestability turns out important among dominant investor when firm's equity is liquid and tradable.[23] Regression equations also show that the model explain around 50% of firm value.

Regarding standard controls the results go in the same direction to those reported in previous case studies as for example the debt to asset ratio and firm size. The former is associated to mature industries with low growth opportunities and the later with the disciplinary role of leverage. In fact leverage is used as a device to discipline incentives and retain control[24].

"*Ïndice de Bursatilidad Accionaria*" is calculated using data on the number of days that a given stock is traded, the daily volume and the monetary amount. The index ranges between zero, the lower bound and ten, the upper bound.

[22] Voting concentration turned out not significant at 10 percent but was close to that critical point. In all regressions exhibited a negative sign.

[23] If the estimating sample includes all firms with illiquid shares plus the liquid ones we get a direct and positive effect of ownership concentration on firm value. This was the result first reported in Gutierrez and Pombo (2006).

[24] For details see for example the studies of Black et al, (2006) for Korea, Claessens et al, (2002) for East Asian countries, De-Jong (2002) for Holand, and Gutierrez and Pombo (2006) for Colombia.

Table 5

Tobin's Q and control contestability regressions by shares classified as median and high liquidity

	Panel A. Median Liquidity				Panel B. High Liquidity			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log HI_differences	-0.0678				-0.0368			
	(-2.5)**				**(-1.98)***			
Log HI_concentration		-0.0925				-0.0557		
		(-1.63)				(-1.64)		
Shapley value 1			-0.2736				-0.3859	
			(-2.09)**				**(-2.85)*****	
CR4				-0.2197				-0.2314
				(-0.93)				(-1.18)
Votes CR4/Equity CR4				-0.0701				-0.0231
				(-0.60)				(-0.23)
Debt_ratio	0.6708	0.7234	0.6694	0.7180	0.5362	0.4887	0.8297	0.4989
	(4.62)***	(5.18)***	(4.56)***	(5.02)***	(3.38)***	(3.36)***	(3.53)***	(3.30)***
Growth (t-3)	-0.1136	-0.1267	-0.1070	-0.1120	-0.0932	-0.0960	-0.1364	-0.1003
	(-1.31)	(-1.37)	(-1.26)	(-1.18)	(-1.20)	(-1.21)	(-1.71)*	(-1.27)
Asset tangibility	-0.6511	-0.5574	-0.5829	-0.4908	-0.3035	-0.2630	-0.5097	-0.2299
	(-3.61)***	(-3.08)***	(-3.65)***	(-2.75)***	(-2.67)***	(-2.34)**	(-3.80)***	(-2.01)**
Log-Assets	-0.2026	-0.1865	-0.1979	-0.1825	-0.0393	-0.0240	-0.0638	-0.0186
	(-4.04)***	(-3.73)***	(-3.76)***	(-3.76)***	(-1.34)	(-0.85)	(-2.17)**	(-0.73)
Constant	4.7885	4.6415	4.6570	4.4343	1.3014	0.9002	1.2231	0.8960
	(5.73)***	(5.04)***	(5.5)***	(4.66)***	(2.99)***	(2.26)**	(3.07)***	(1.94)*
Observations	148	148	148	148	69	69	69	69
R-squared	0.533	0.504	0.503	0.489	0.496	0.476	0.566	0.471

Notes: Variable definitions are in Appendix A.1; All regressions include year dummies and industries dummies (not reported). Robust t-statistics are in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Source: Own estimations based on a assembled dataset from SVAL companies' financial statements, RNVIs, and stock prices.

5.4 Robustness Tests

One common point that is addressed on firm valuation regression is the issue of robustness and the endogeneity problem of ownership variables. Ownership affects firm value but valuation has an impact on changes in ownership structure. To tackle this problem we run instrumental-variable regressions. Table 6 depicts the two-stage least squares regressions, which all contestability variables are treated as endogenous variables. We use as instruments for those variables their own values lagged one period. Several comments are worth mentioning. First, all contestability variables keep the expected sign −*negatively related*− and the size of the regression coefficients

is similar. These effects are almost the same in contrast to the original OLS regressions. For instance, for the high liquidity sub-sample, a decrease of 10 percent on the HI-differences will raise firm value in around 0.56 percent whereas such effect is 0.37 percent without performing instrumental variables regressions. Second, standard controls exhibit the same sign and still significant at 5 percent. Hence, regressions that endogenize the proxies for control contestability confirm our first hypothesis, that is: as control contestability increases, the better is firm valuation.

Another robustness issue is how results differ to an alternative performance measures. Table 7 displays the core results of the firm performance and contestability regressions. The estimations are based on the full sample of firm-years observations. Performance accounting variables in contrast of firm value might be less sensitive to stock liquidity but be more prone to diversion. Tobin's Q may suffer from measurements problems especially when one applies in firms in emerging markets where there exist local market power and market prices might be not in equilibrium. In addition, there are three elements that the full sample captures through performance regressions. First, the full panel includes firms with a minimum stock trading. There are several firms whose stocks are at most traded one or two times per year. Second, in the panel there are observations of de-listed companies that are lost if one takes only Tobin's Q as dependent variable. Third, there are in the sample bond issuers that again are lost in the valuation regressions.

The econometric estimations use several alternative variables but the findings are best summarized by the market to sales −MTSR− and return on equity ratios −ROE−. The first important feature is that contestability results holds in these regressions. For all cases contestability variables are statistically significant at the 10 percent with the expected sign for the MTSR and two out of four cases for ROE regressions. A 10 percent reduction in the HI-differences will boost MTSR in 17 percent. Further, if ownership concentration or the Shapley value decreases in 10 percent MTSR increases in 31 and 91 percent respectively, and if the cash flow rights of the top-four shareholders decrease by 10 percent MTSR rises by 135 percent (equation 4). Regarding ROE's results only the Shapley value and the high contestability dummy −HCD− variables turned out statistically significant at 10 percent. Again if the probability of a winning coalition pursuing absolute control reduces by 10 percent then ROE ratio will rise by 0.9 percent. The last equation in ROE's regressions shows that the HCD enhances firm performance.

This dummy captures the control constestability of the fourth largest shareholder that has over the top-three voting blocks that cannot form a coalition with simple majority. Therefore, as long as the marginal voting block becomes a strategic player in a coalitional game, it implies more control on firms' cash flow extraction and tunneling financing other holding firms' operative leverage or investment capital. Last, wedge variables were dropped from the final estimations since in all cases were not robust regressors. Therefore, the separation of ownership to control does not affect firm performance due to direct monitoring that main shareholders exert on companies management. Thus, the private control bias eliminates managers' *entrenchment effect* but raises new concerns on small shareholders protection and the risk of expropriation[25].

Table 6
Tobin's Q and control contestability for shares classified as median and high liquidity
(*two stage least squares regressions*)

	Panel A. Median Liquidity			Panel B. High Liquidity		
	(1)	(2)	(3)	(1)	(2)	(3)
Log HI_differences	-0.064			-0.056		
	(-2.36)**			(-2.69)***		
Log HI_concentration		-0.071			-0.056	
		(-1.16)			(-1.5)	
Shapley value 1			-0.282			-0.571
			(-1.71)*			(-3.04)***
Debt_ratio	0.672	0.715	0.669	0.630	0.489	1.056
	(4.72)***	(4.99)***	(4.7)***	(3.78)***	(3.16)***	(4.03)***
Growth (t-3)	-0.113	-0.122	-0.107	-0.099	-0.096	-0.163
	(-1.31)	(-1.33)	(-1.26)	(-1.29)	(-1.20)	(-1.99)*
Asset tangibility	-0.640	-0.530	-0.587	-0.311	-0.263	-0.615
	(-3.84)***	(-2.96)***	(-4.14)***	(-2.68)***	(-2.36)**	(-4.34)***
Log-Assets	-0.202	-0.186	-0.198	-0.041	-0.024	-0.077
	(-4.15)***	(-3.69)***	(-4.04)***	(-1.44)	(-0.87)	(-2.88)***
Constant	4.826	4.527	4.672	0.729	1.217	1.351
	(5.96)***	(5.00)***	(6.40)***	(2.14)**	(2.83)***	(3.72)***
Observations	148	148	148	69	69	69
R-squared	0.533	0.503	0.503	0.484	0.476	0.540

Notes: Variable definitions are in Appendix A.1; All regressions include year dummies and industries dummies (not reported). Robust t-statistics are in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Source: Own estimations based on a assembled dataset from SVAL companies' financial statements, RNVIs, and stock prices.

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[25] The regression results of contestability variables on firm performance also holds for the sub-sample of medium and high stock liquidity, which are not reported for space reasons.

Table 7

Firm performance and contestability: MTSR and ROE regressions

	Market-to-Sales Ratio				Return on Equity			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Log HI_differences	-1.692				-0.013			
	(2.37)**				-0.990			
Log HI_concentration		-3.139				-0.030		
		(2.10)**				-0.860		
Shapley value 1			-9.166				-0.087	
			(1.95)*				(1.89)*	
High Contestability Dummy								-0.105
								(1.96)*
CR4				-13.593				
				(1.72)*				
Votes CR4/Equity CR4				-1.599				
				(-0.44)				
Debt Ratio	-2.006	-2.009	-2.003	-2.176	0.026	0.027	0.026	0.023
	(-1.44)	(-1.51)	(-1.40)	(-1.55)	(-1.3)	(-1.29)	(-1.30)	(-1.21)
growth (T-2)	12.342	12.377	12.467	12.416				
	(3.66)***	(3.67)***	(3.70)***	(3.68)***				
growth (T-3)					-0.006	-0.005	-0.006	-0.006
					(-0.81)	(-0.77)	(-0.92)	(-0.97)
Asset tangibility	-2.492	-0.847	-1.796	0.191	-0.061	-0.057	-0.062	-0.056
	(-0.54)	(-0.20)	(-0.42)	(-0.04)	(-0.98)	(-0.89)	(-0.96)	(-0.86)
Log-Assets	-3.998	-3.958	-3.945	-4.154	0.019	0.020	0.019	0.019
	(2.54)**	(2.54)**	(2.53)**	(2.41)**	(1.90)*	(1.89)*	(1.90)*	(1.83)*
Constant	41.477	48.335	45.252	52.307	-0.762	-0.701	-0.670	-0.705
	(2.43)**	(2.49)**	(2.47)**	(2.44)**	(1.67)*	(-1.56)	(-1.48)	(-1.56)
Observations	554	554	554	554	696	696	696	696
R-squared	0.27	0.27	0.27	0.27	0.12	0.12	0.12	0.12

Notes: Variable definitions are in Appendix A.1; All regressions include year dummies and industries dummies (not reported). Robust t-statistics are in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Source: Own estimations based on a assembled dataset from SVAL companies' financial statements, RNVIs, and stock prices.

6.   Conclusions

Control contestability has shown to be important in previous studies that relate it to firm value. In this work, we test the effect of multiple large shareholders on firm value for a sample of about 233 non-financial Colombian firms during the period 1996-2004. The results corroborate our main hypothesis. More contestability of a largest blockholder's control helps limiting *tunneling* and private extraction of rents. In other words, the voting power distribution is a market or governance mechanism that is equally effective regardless the relative development of the stock

markets. This is explained partly because control has become more equally distributed among largest blockholders, then less opportunities there will be to undertake bad corporate governance. In addition the low separation between large shareholders cash flow right to voting rights implies direct monitoring to firm's managers eliminating the moral hazard problem typically observed in widely held corporations. Our study sheds more evidence in the understanding the link between firm's control and performance for emerging countries in civil law environment where is associated with poor investor protection in the sense of La-Porta *et. al* (2002). In some way, our findings are in accordance with the theoretical predictions of Bloch and Hege (2001) who assert that regardless of the degree of legal protection, coalitions can enhance firm's performance. The policy implications are straightforward for capital market regulation. Instruments that help to democratize equity capital, or to levy personal taxes to blockholder dividends that surpass some threshold less than the absolute majority, or to set a mandatory ruling about independent board members, or to promote minorities' representation on boards, are all of them elements that will increase control contestability and better firm governance.

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APPENDIX A.1 – VARIABLE DEFINITIONS IN REGRESSION EQUATIONS

Variable	Definition	Source
Tobin's q	The ratio between market value of assets to the book value of assets. Colombian accounting and tax regulations require that all firms update their book values yearly, so the use of book value of assets must be very close to replacement costs. Market value of assets was estimated as the sum of book value of debt plus book value of preferred stocks plus market value of common stock. In turn, the yearly market value of common stocks was calculated as the product of the average market price times the number of common stocks.	FS and BVC
Return on assets ROA	The ratio of net proftis after tax to total assets	FS
Return on equity ROE	The ratio of net profits after tax to equity	FS
MTSR	Market value of common stock divided by sales	FS
MTBR	The ratio between market value of common stock (as defined above) and book value of common stock; this latter estimated as the sum of the book value of assets minus the book value of liabilities minus the book value of preferred stock.	FS
Votes 1 ,2, 3, 4	The fraction of the votes held by the first (second, third and fourth) largest shareholder.	FS
Equity 1, 2, 3, 4	The fraction of cash-flow rights held by the first (second, third, and fourth) largest shareholder, respectively.	FS
Voting CR1 / Equity CR1	The voting rights divided by equity rights of the first largest shareholder.	FS
Voting CR4 / Equity CR4	The sum of the voting rights divided by equity rights of the first four largest shareholders.	FS
HI_concentration	The sum of the squares of the four largest voting stakes, $[(\text{Votes } 1)^2 + (\text{Votes } 2)^2 + (\text{Votes } 3)^2 + (\text{Votes } 4)^2]$.	FS
HI_differences	The sum of the squares of the differences between the first and second largest voting stakes, the second and the third largest voting stakes and the third and fourth largest voting stakes, $[\text{Votes } 1 - \text{Votes } 2]^2 + [\text{Votes } 2 - \text{Votes } 3]^2 + [\text{Votes } 3 - \text{Votes } 4]^2$	FS
Shapley value 1	The Shapley value solution for the largest shareholders in a four voting game.	FS
Herfindal contestability dummy	Dummy variable that equals 1 if the sum of the voting power held by the three largest shareholders does not exceed 50%, and there is at least one more blockholder with at least 10% of the votes, and 0 otherwise.	FS
Debt_ratio	The ratio of total liabilities to total assets	FS
Growth (t-n)	The moving average of the n-previous real annual percentage growth in operating income.	FS
Asset tangibility	Total property, plants and equipments divided by total assets.	FS
Log Assets	Natural logarithm of total assets, all in 1999 Colombian pesos.	FS

Notes: FS = Financial Superintendence; BVC = Bolsa Valores de Colombia (Colombia's stock exchange)