

CORPORATE GOVERNANCE AND DIVIDEND POLICY: A PREVIOUS EVIDENCE FROM COLOMBIA

ABSTRACT

The study measures the impact of the adoption of the Corporate Governance Code (CG) over the dividend payout ratio in the non-financial firms listed in the *National Registry for Securities and Issuers* (RNVE) of the Colombian Stock Exchange (CSE) prior to the enforcement of the “Code of better Corporate Practices” (CBCP) for quoted firms established by the Colombian authority at the end of 2007. This code consists of a survey that measures the fulfillment of a group of concrete requirements that all security issuers should follow. Through the application of a non-balanced panel data model on a sample of 279 companies, from 1997 to 2008, it resulted that those companies that adopted a voluntary Code have paid, on average, higher dividends than those that did not. In addition, the impact of the adoption of the Code is amplified by its quality, meaning that higher dividend's payments are attached to better Corporate Governance quality. Hence, prior to the adoption of the CBCP good corporate governance practices led towards a higher dividends in Colombia. The current assessment of the CBCP effects should be focused in other aspects.

Key words: Corporate Governance, Divided Policy, Ownership Concentration.

JEL Code: G32 and G35

INTRODUCTION

Plenty of literature has been written about the determinants of the dividend policy and the way they interact with each other, which is why there are so many explanations to the "Dividend Puzzle" (Black, 1976), a topic that is still of interest nowadays, since it is one of the financial issues that hasn't been solved yet (Brealey & Myers, 2005). The concept of CG is not particularly recent, but it was only in the 80s that its models started to be studied to understand their effects over the dividend policy and over the evaluation of companies located in emerging markets (Carvalho-da-Silva & Leal, 2003).

When speaking about CG, there is often an implicit reference to the agency problem, analyzed by Jensen & Meckling (1976), meaning the conflicts of interest that might arise between different agents inside of the firm. Eiteman, Stonehill & Moffet (2007) define the CG such as the group of relationships according to which stockholders and managers establish and control the strategy and the results of the company. In other words, the CG is a system used to direct and control the management of a company, where decisions are balanced among the interests of different shareholders.

The CG's codes were born as the result of the efforts to create a document that collects all the guidelines to follow for the UK's companies in order to create a good environment for the investment, and the Cadbury's document of 1992 has been the answer to that need (Benavides, 2009). Since then the CG's codes have been gaining popularity worldwide and their developments have been supported by the governments as well as other private entities like: CIPE (Center for International Private Enterprise), OECD (Organization for Economic Co-operation and Development), World Bank (Global CG Forum) and the IFC (International Financial Corporation).

In Colombia the application of the CG concept is relatively recent: it began in 2001 with the publication of the "Good Governance Code" by *Confecameras*, an entity that includes the singular Chambers of Commerce at a national level. The Financial Superintendence of Colombia (FSC), which, among other functions, protects the financial consumers, established, through resolution 275/2001, that all the companies with listed assets and that receive resources from pension funds in the form of investments, should have a CG code (Benavides, 2009).

Later, in 2007, the Superintendence, through the Circular Externa 028 of 2007, published the "Code of Better Corporate Practices" that consists of a survey that measures the fulfillment of a group of concrete requirements that all security issuers should follow. These requirements are voluntary for the issuers; however, in case they not follow them, they should annually inform the Superintendence about the reasons why.

An inter-institutional committee elaborates the survey, which covers four different topics:

a) General Shareholders' Meetings (convocation, observation, approval of the main points, shareholders' rights and treatments), b) Board of Directors (size, composition, internal regulation, rights and duties of the members, functions), c) financial and non-financial information disclosure (information's requests, market information and fiscal auditing), and d) dispute resolution.

With the introduction of the Code, CG begins to play a role in the mediation of the agency conflict, which is mostly between: a) managers and shareholders, b) majority and minority shareholders, c) stakeholders and shareholders. It offers clear guidelines regarding several issues such as the composition of the management, the appropriate Board of Directors, with entities of vigilance and internal control in order to maintain an environment of clarity and transparency and the mechanisms of protection of the shareholders' rights.

The introduction of the survey as an official way to track progresses in terms of CG made by Colombian firms is supposed to encourage the adherence to the Code. This should happen even more after the introduction of the "fulfill or explain" model in 2011, according to which - although companies are still able to not adopt the Code - they must explain their reasons for not honoring each of the points expressed in the survey. Firms are, therefore, expected to have significantly improved their CG mechanisms after 2007, the year of the first Circular Externa, and then again after 2011, when Circular Externa 007 of 2011 was published.

Furthermore, since the introduction of the survey by the Superintendence, it has been common in literature to base the measures of CG on indexes that takes into account the results of the survey. For instance, Lagos and Vecino (2011) introduces the IGCCP index (*Índice de Gobierno Corporativo Código País*, whose literal translation is: Country Code Corporate Governance Index), that is based on the survey made by the Superintendence each year. The study uses a sample of 660 surveys filled by Colombian listed companies from 2007 to 2010, observing a positive trend in the adherence to CG practices since the introduction of the survey. This has also a positive effect on the investors, who feel safer investing in companies that adopt CG practices (Lagos, 2013).

However, given the assumption that the introduction of a mandatory annual survey should have improved the adoption of the principles by Colombian companies, it appears valuable to us to explore which was the situation before this particular change. Hence, this research aims to fill the current gap in literature, analyzing the situation of Colombian firms prior to the regulatory enforcement of the CG Code through the introduction of the annual survey.

In addition, up to date little effort has been made to gather theoretical explanations of the impact of the adoption and quality of the CG Codes on other managerial practices such as dividends payments that can mitigate agency costs, an issue that is explored in detail in the present research. The next section of the research lays out the introduction, while in the second section one discusses the current relevant literature. In the third section one describes the data and the variables, while the fourth and fifth sections presents the results. The last section concludes the study.

LITERATURE REVIEW

Early studies about dividends argue that this is one of the ways in which the companies communicate to the market information about its future profit and about its cash flows (Bhattacharya, 1979 and Miller & Rock, 1985). Nevertheless, when it comes to dividend policy, it is mandatory to refer to the agency conflicts theory. Berle & Means (1932) were among the first ones to introduce the agency problem theory, stating that the agency problem relates to the conflict of interests that is present between insiders and outsiders, an idea reinforced by Jensen & Meckling (1976). Basically, what this theory proposes is that insiders, which are the ones who have control over the company assets, could use their controlling position for purposes that could be against of the outsiders' interest and that is where the dividends policy starts to play a significant role.

As mentioned by Easterbrook (1984) and Jensen (1986), it can be used to relieve the agency problem between managers and shareholders because the distribution of dividends reduces free cash flow in the companies and its discretionary use. These dividends, when retained, could be used by the insiders for personal use or could be reinvested in low profit projects, even with negative present value that would only benefit the insiders.

This is known as the "Opportunist Management" theory and consists in the fact that managers of firms with weak shareholders' protection prefer to retain cash flows, instead of distributing them (Jiraporn & Ning, 2006). Improving the level of shareholder protection implies an increase in the probability of paying dividends, at least for those companies that are controlled by insiders (Esqueda, 2016). According to Battacharya (2017), CG mechanisms act as a complement to dividend policy only when the idiosyncratic risk of the company is low, avoiding overinvestment.

Likewise, an excessive unbalance between majority and minority shareholders can be reflected in a high concentration level of power of the former in the decision making process, with the risk of expropriation of the minority shareholders. Johnson & Shleifer (2001) argue that companies should pay higher dividends in order to gain a reputation of fair treatment of the minority shareholders.

Other authors that studied the role of insiders consider the impact of the shares' concentration in their analyses. In particular, they find that high concentration is associated to low levels of dividends' distributed (Jensen, Solberg & Zorn, 1992). Therefore, high concentration might increase the risk of expropriation via less dividends distributed. If the main shareholders are in control of the administration, the small shareholders are not protected from expropriation (Johnson & Shleifer, 2001).

Similarly, Rozeff (1982) finds that the dividends payout is a significantly negative function of the percentage of shares owned by the insiders. Easterbrook (1984) explained that dividends expose companies to a recurrent poll by the market because the dividend payout increases the probability that the company would have to issue common shares more frequently. This type of control, or vigilance, that the market does, helps to prevent inadequate behaviors by the administration and also to avoid projects of "not common benefit" with the company cash flows. It benefits minority shareholders and leads to a reduction of the agency cost.

Later, Gompers, Ishii & Metrick (2003) link the agency costs to the strengths of shareholders rights and these, at the same time, to the CG. La Porta, López-de-Silanes, Shleifer & Vishny (2000) affirm that managers prefer to retain profits in order to increase their own benefit or reduce the risk of human capital loss, stating that low dividend payout ratios are associated to poor government standards and poor protection for shareholders.

According to what Black (2001) discovered, the effects of the adoption of CG Codes are easier to detect in emerging economies, because they commonly have weaker regulations and present wide differences in the CG practices between different enterprises. A similar conclusion is the one of La Porta et al. (2000), according to which companies located in countries with high legal standards of protection of minority investors pay higher dividends compared to those countries where protection is weak.

Even though the scope of this research does not include the protection of the shareholders' rights, the findings above reinforce the importance of the present study since it is focused on an emerging economy with strong ownership concentration and since there is very little literature that connects the dividends policy with the Corporate Governance. This provides a wide and unexplored field of research.

Regarding the relation between the dividend policy and CG, Kowalewski, Stetsyuk & Talavera (2007) enhance that, in the case of Poland, there is a positive association between the dividends payment and the good CG practices, even after adding the control variables to the model. This latter clarification is particularly relevant because normally estimates tend to be frangible with the inclusion of control variables.

Using a sample of 65 non-financial Argentinian companies, among the years 1996-2003, Bebczuk (2005) establishes that the distribution of dividends is higher with the introduction of CG improving the company's results. Mehar (2003), observing a sample of 180 companies during 22 years, found that the CG has a statistically significant relation with the dividend policy in Pakistan. Jiraporn & Ning (2006) found evidence of a negative relationship between the CG and the dividend policy for 1500 companies, which represent close to 90% of the market capitalization in NYSE, AMEX and NASDAQ.

Gonzalez (2017) focuses on six Latin American countries from 2007 to 2014 when exploring the connection between the dividend policy and the corporate governance. Particularly, he finds out that if the ownership concentration is high and, therefore, there is a large and strong shareholder, the dividend payout ratio is lower than otherwise. Moreover, the dividend payout ratio might further decrease due to the presence of a second large shareholder.

Villalonga (2018) investigates CG and, in particular, the presence of a board for a sample of Colombian firms from 2007 to 2012 building an index based on the Superintendence's survey. According to their study, when controlling and minority shareholders have different opinions, specifically regarding dividends and capital structure, the presence of a board might increase agency conflicts.

Mongrut et al. (2017) examines the effects of the adoption of the CG Code on the dividend payout ratio for companies listed in the Lima Stock Exchange, finding that companies that adhere to the code and especially those that have a high CG quality tend to pay higher dividends. Moreover, the sector that is paying the higher dividends in Peru – pension funds – is the one in which investors are the most active.

La Porta et al. (2000) compares two agency models: the "Outcome Model" and the "Substitute Model". The former establishes that, for countries with a good legal system that protects the shareholders rights, the dividend ratios are higher, keeping everything else constant. Instead, for companies with better investment's opportunities, the dividend payout ratios are lower, since the shareholders are able to sacrifice the current cash flow in exchange of future cash flows, while their rights are very well protected by regulations.

The substitute model establishes that, in countries with minimum protection for shareholders, the companies with the best investment opportunities (and with high demand for working capital) pay higher dividends in order to maintain a good reputation in terms of shareholders' expropriation. This reputation let them easily access the financial market and obtain foreign capital, when necessary. The results were in favor of the outcome model and suggest that, in absence of growing opportunities (everything else kept constant) the dividend ratio should be higher in countries with a weaker legal protection compared to countries with a stronger one.

When analyzing the relation between the CG and the dividend policy, one could ask if the CG explains the dividend policy or if, instead, the dividends policy explains the CG. This research is developed under the assumption that the causality relation goes in the direction that states that the CG increases the probability of dividend payment, which is supported by studies such as the one of Padgett & Shabbir (2005).

Additionally, in the literature review there is no evidence that the relation goes the other way around. The theory behind this study is that dividends act as a reward for minority shareholders, which do not have the possibility to participate in corporate decisions. These decisions, in fact, are taken by managers, majority shareholders and members of the Board and they could be detrimental for minority shareholders. These considerations help us to establish a direct relation between the CG and the access of the minority shareholders to the company's cash flows (in the form of dividends) and lead to the following hypothesis:

H1: The dividend payout ratio increases when CG Code is adopted.

A combination between the agency models by La Porta et al. (2000) and the cash flows' theory by Easterbrook (1984) and Jensen (1986), under the assumption of markets with weak protection for the shareholders such as Colombia, gives birth to two possible relations between the dividends policy and CG:

1. The "Substitute Model" which, as mentioned before, states that less shareholders' rights are linked to higher dividend payments, meaning that the dividends are substitute of the shareholders' rights, which implies a negative relationship between the CG and the dividend policy.
2. The "Opportunist Management Model", according to which opportunist managers prefer to retain profits and to invest them in projects that could benefit only themselves and not the shareholders. Under this assumption, there is a positive relationship between the CG and the dividends policy because the higher the dividend payment the lower is the discretionary cash flow that managers can misuse and the better is the CG.

Given the wide differences that can be present in the CG practices between different enterprises in emerging countries (Black, 2001), our second hypothesis is that not only the adoption of the Code impacts the dividends policy, but also that the impact can differ between enterprises if the quality of that Code varies. Therefore:

H2: The quality of the CG Code is a determinant of the dividend policy, once good governance practices have been adopted.

DATA

The financial information collected for the study corresponds to a sample of 279 non-financial firms, for a period going from 1997 to 2008 that are listed in the RNVE either because they are bond issuers and/or because they are listed in the Colombian stock market (CSM). The time period was chosen because during the years 1997 and 2007 there was no survey of corporate governance practices, so this study is relevant because it shed a light during a period of a lack of information. The remaining information comes from the website of the Financial Superintendence of Colombia (FSC): financial statements, annexes, the ownership composition (up to the first 20 stockholders), dividends and all the CG information. The chosen period is before to the financial crisis in order to avoid possible biases due to a more cautious behavior of companies towards dividends.

In order to avoid self-selection bias, the total sample includes both companies that pay dividends and companies that do not, companies with CG Codes and without it. Of the 279 firms, 126 (45%) pay dividends and only 71 (34%) have adopted a CG code. In addition, the sample has been adjusted to eliminate extreme values (outliers) from the data when the profit was negative and the dividend positive. Furthermore, companies which have more than 25% of missing values during the entire period were dropped from the sample in order to avoid biased estimators (Mayorga & Muñoz, 2000). After removing these data, an unbalanced panel data model was obtained with a total of 1572 year-firm observations.

In order to conduct the statistical analysis, the total sample of 279 companies was divided following two criteria. The first was to classify between companies with and without a CG Code, to, then, distinguish between those that paid dividends and those that did not. Of the 208 companies without a code, 131 did not pay dividends, while 77 did. Of the remaining 71 companies, 49 companies paid and 22 did not. The second criteria was to first separate companies that paid dividends and companies that did not, and then companies with a CG Code and companies without it. 153 companies did not pay dividends, of which 131 did not have a CG Code against 22 that had it, and of the 126 companies that paid 79 did not have a CG Code while 49 had it.

Variables

The aim of the research is to determine if the implementation of the CG code in Colombian companies involves higher dividend payment. One assumes that the CG Code is a measure of the strength of the shareholders' rights, which is the reason why there is the need to include it as independent variable in the regression. Surveys have been submitted to each of the companies to the Superintendence and were published in the website of the company. They include four groups, for a total of 80 questions.

By reading them, one determines which answers correspond to a positive factor and, therefore, the answers were associated to a perception of improvement in the shareholders' rights. It has been assigned one (1) score for each positive answer and finally the total was divided for the total number of answered questions obtaining the final rating. Since every question is associated to a specific group, it has been possible to weight the questions based on their group category, with the aim of giving more relevance in turn to specific groups (for example, Board of Directors and Disclosure of Financial Information).

In order to obtain robust results from the model, the four categories were weighted in different ways obtaining four different CG ratings. So, results are independent from the weights of the fourth categories.

Appendix 1 shows the average rating under each of the applied weightings. As stated, the survey began in year 2007, which implies that companies that have adopted the Code before that year could not have a rating (quality).

In order to solve this problem, it has been analyzed the rating obtained for each company to establish if the changes from one year to another have been significant, finding that between 2007 and 2008 the average rating variability was 2.6%, which was not such a significant fluctuation to deter us from considering the rating constant.

To measure the adoption of the Code a dichotomous variable (Dycode) is used: it takes value one (1) since the year of adoption of the Code and zero (0) before it. The regression presents also an interaction variable between the adoption of the Code (Dycode) and the quality (Rat) called (Dum_Rat), because the objective of the study is to measure if the adoption of the CG and the quality are jointly determinants of the dividend policy so it would not be meaningful to use the quality alone.

In the literature, there are several ways to measure the dividend payout ratio, for example Dividends/Cash Flow, Dividends/Sales and Dividends/Net Profit. Authors such as La Porta et al. (2000) recommend using Dividends/Sales for two reasons: 1) it does not depend on the accounting principles, which might vary among countries and 2) it is not easily manipulated by accounting practices. However, in this study those assumptions can easily be violated, in fact: 1) it is not a cross-country research, so differences in the accounting principles do not affect results and 2) although entities such as the National Regulator of Taxes and Customs (DIAN) make efforts to avoid accounting manipulation, especially through "double accounting", they are still quite far from a solution. Furthermore, the economical interpretation of the ratio, in general, is not so clear. Because of these reasons and because it seems to be more intuitive to build dividend policies from the net profit of the period, the chosen ratio is Dividends/Net Profit or dividend payout. Furthermore, similar studies use the same ratio (Carvalho-da-Silva & Leal, 2003 and Zhang, 2005).

Taking into account the large amount of studies that relate the dividend policy to the ownership concentration, it has been included a variable to control for the degree of concentration (HER) detailed in Appendix 2. Other control variables are: profitability, measured through the Return on (Total and Financial) Assets (ROA and ROAf), the Operational Margin (EBIT), the Net Margin (PROFIT), two different measures of leverage, total (LEV) and financial (LEVf), two proxies for the size, (SIZE) and tangibles (TANG), and a macro control variable (GDP). Table No 1 contains details of each of them.

Descriptive statistics

Table No 2 offers the descriptive statistics of the total sample of 279 companies such as the ones of the subsamples of companies with and without a Code (71 and 208), and that pay dividends (126 companies). The dependent variable of the model, the dividend payout ratio, is positive for 45% of the companies of the total sample. The last group of firms had an average dividend payout ratio of 44.9% between 1997 and 2008. Companies that register dividend payments have a Code that has been implemented, on average, 4 years before.

One of the variables that explain the model is the ownership concentration, measured through the Herfindahl index (Appendix 2). In Latin America companies present high concentration levels from the first to the fifth stockholder. In particular, 53% the first one, 73% the third and 79% the fifth for all the region; while 44% for the first, 65% for the third and 73% for the fifth for Colombia (Fuenzalida, Mongrut, Nash & Benavides, 2008; Gutiérrez, Pombo & Tabora, 2005; Pombo & Gutiérrez, 2007). This study has encountered consistency in the behavior of this indicator, with a slight percentage increase for the 279 analyzed companies: 47% for the first, 67% the third and 74% the fifth.

Furthermore, there is a high ownership concentration (80.9%) for those companies that do not pay dividends, especially for those with a Code. The conclusion regarding this variable is that there is ownership concentration of around 80% both for companies with a Code and for companies that pay dividends. On the other side, among the companies without a Code, the concentration is higher for those that pay dividends, as shown by the Herfindahl index.

The CG rating is another determinant of the dividend payout ratio. This rating is exclusive for the 71 companies that presented the CG Code in 2008. These companies got an average rating of 43.6% with 14.5% as the lowest and 88.0% as the highest qualification and a volatility of 16.2%. Among these firms, there is a relevant difference in terms of dividend distribution. Companies that pay dividends had, on average, a rate that is 14.7 percentage points higher, achieving a value of 48.4%. In 2008, out of 71 firms, 31 improved their rating and only 12 kept the same one of 2007. Meanwhile, 7 companies had decreased their rating in 13.3%.

Other independent variables are: profitability over financial assets, leverage, tangible assets, sales, operating margin and net profit. The general leverage ratio is 37.1% and it is similar for companies with and without a Code. This evidence is in contrast with the one founded by Benavides (2009), who proved a strict relationship between debt and CG. This might be explained by thinking that the adoption of the Code, in Colombia, does not reflect higher leverage possibilities. However, there is an important difference between companies that pay dividends and companies that do not. The former have a leverage of 31.4% while the latter of 44.8%.

With respect to the size of the firms, those with a CG Code are 21% bigger and, regarding dividends, the ones that pay dividends are 12% bigger. In general, the growth in sales that the firms of the sample had in the period has been steady.

Finally, ROA, EBIT and profit are affected by the low involvement that Colombian companies had in 1997-2002, probably due to the economic trends of these years. However, there are still some important observations. The ROA of the firms with a CG Code is higher (3.3% against 0.3%), and firms that pay dividends follow a similar pattern (4.3% against -2.4% of firms that do not pay dividends). Moreover, the 126 companies that pay dividends have double of the EBIT of those that do not pay. Among the latter ones, there is a big difference between those with a Code (that achieve a margin of 8%) and those without (-21.0%). On the other side, companies with a Code have a lower profit than those without a Code (11.1%) and that would explain why 77 firms without a Code have been able to pay dividends.

RESULTS

Total sample (279 companies)

The main variables are the dividend payout ratio (dependent variable, D_{pay}), the ownership concentration (independent variable Her), the adoption of the CG (independent variable, D_{code}) and the quality of the code (independent variable, Dum_Rat). This section presents the evidence concerning the relationship between the adoption of the CG, its quality, and the dividend payout ratio. The following section will offer the same analysis by sub samples to validate the robustness of results and, at the same time, it will show the empirical evidence of other interesting findings regarding the determinants of dividend payment. In order to verify the first hypothesis (H1), one had run a Pooled OLS regression that assumes errors IID by default. However, since the error structure U_{it} in panel data models tend to be correlated through the time for a given individual (Cameron & Trivedi, 2009), the model was corrected specifying company's cluster for the standard errors, which produces consistent estimators when the errors are not identically distributed between the panels or there is serial correlation in it.

Afterwards, one had applied the Breusch & Pagan Lagrange multiplier test to the error component model, whose null hypothesis is that the variance is equal to zero (0) for the error component that doesn't vary across time but across individuals, i.e.: $Var(\alpha_i)=0$. The null hypothesis was strictly rejected so that the Pool OLS proxy was not appropriate and it was necessary to model for the non-observed heterogeneity.

Then, one ran the Hausman test resulting in a strong rejection of the null hypothesis of the random effects' estimators and, therefore, the fixed effect model was chosen. Then, the presence of heteroscedasticity was tested in the residuals for a fixed-effect regression through a *Modified Wald Test for Fixed-effect Models*.

The result was strict rejection of the null hypothesis, according to which the variance is equal for all the individuals. The advantage of this test is that it works well for unbalanced panels, even when the normality assumption is violated. It has been measured, as well, the impact of including time effects (dummy variable of the year) to model observable characteristics that do not vary among individuals but across time (ρt). The joint significance test of these variables has been rejected, so it was not necessary to include them in the model.

Finally, one tested for the presence of contemporary and serial correlation. Once again, it led to a strict rejection of the null hypothesis so it was necessary to correct the model for heteroscedasticity, serial correlation and contemporary correlation. There are two methodologies that help to correct for this kind of problems in panel data: Feasible Generalized Least Square (FGLS) and Panel Corrected for Standard Errors (PCSE). According to Beck and Katz (1995), since the sample is composed of 279 firms, with a maximum of 12 years, the FGLS estimators should not be used, since they are for samples with large T and little N.

In the literature, there is not a minimum amount of time periods that each cross unit should have, although the actual methodologies for panel data are made for little T and Beck (2001) recommends a T of around 10 periods, generally expressed in years. There are no restrictions regarding the minimum amount of cross units, meaning that N is not required to be big but it would not hurt if it is (Beck, 2001). Therefore, one applied PCSE regression where a good way to model for fixed effects is to include a dichotomous variable for each cross unit of the sample but, since the asymptotic properties lays over N and not T, there is a risk of incurring in the "incidental parameters" problem described by Neyman & Scott (1948), so one decided not to model for fixed effects. Other studies that did not model for fixed effects are the ones from DeAngelo & DeAngelo (1990), Fama & French (2001), Zhang (2005), Bebczuk (2005), Minguéz (2006), Pombo & Gutiérrez (2007). The way in this research to model specific characteristics of certain groups will be to analyze them into subsamples.

Given the previous considerations, the initial equation to model the impact of the adoption of the CG (Dycode) over the dividend payout ratio is the following (variables are defined in Table No 1):

$$Dpay_{it} = \alpha_0 + \beta_1 GDP_{it} + \beta_2 ROA_{it} + \beta_3 LEV_{it} + \beta_4 TANG_{it} + \beta_5 SIZE_{it} + \beta_6 Her_{it} + \beta_7 Dycode_{it} + \varepsilon_{it} \quad (1)$$

with $i = 1, \dots, N$ and $t = 1, \dots, T$

The first Panel (1) of Table No 3 shows the results of this first regression. The model corresponds to a sample of 279 companies, with data between years 1997 and 2008. The regression is highly significant and explains 23% of the cross-section variability of the dividend payout ratio. The coefficients of main variables (Her and Dycode) are statistically significant at 95%, while leverage (LEV) is significant at 90% degree of confidence; besides their signs behave as expected. The results show a positive relation between the adoption of the Code and the dividend payout, in agreement with the initial hypothesis (H1), the dividend payment increases about 6.9% since the adoption of the CG Code, meaning that an investor that wish to obtain an abnormal return over expected dividends can invest in a company that has adopted a CG Code.

Regarding the ownership concentration (Her), findings confirm the inverse relationship that exists between high concentration levels and dividend payout ratio, meaning that companies with higher concentration tend to have a lower dividend payout ratio. This relationship might be related to the expropriation risk that minority shareholders are facing in emerging economies with weak shareholders' protection. This tendency is disadvantageous for minority shareholders in highly concentrated companies because majority shareholders can get cash flows for their own benefit using means that are different from dividend distribution: this would explain why, on average, companies that do not pay dividends have lower operating and net profit than those that pay dividends (See Table No 2). The magnitude of this coefficient becomes one of the most relevant of the model, being the one of highest impact among control variables.

Another interesting result is that the profitability (ROA) is not fully significant (although it is at 90% level of confidence) starting to suggest that the Colombian dividend policy is linked to factors other than profitability. On the other side, the GDP has a negative coefficient (-44.8%), a fact that might be counterintuitive if not taking into account that, to measure the impact of the variable, it is necessary to bring the function back to levels that are comparable to the Dpay, i.e. to apply the reverse logarithm function used to calculate the GDP, after which the expected positive relation is evident.

Afterwards, in order to test the second hypothesis (H2), one ran regression (2) obtained by replacing the adoption of the Code with the quality of it (Dum_Rat). Panel (2) in Table No 3 summarizes the results.

$$Dpay_{it} = \alpha_0 + \beta_1 GDP_{it} + \beta_2 ROA_{it} + \beta_3 LEV_{it} + \beta_4 TANG_{it} + \beta_5 SIZE_{it} + \beta_6 Her_{it} + \beta_7 Dum_Rat_{it} + \varepsilon_{it} \quad (2)$$

with $i = 1, \dots, N$ and $t = 1, \dots, T$

The coefficient obtained shows that the impact of the quality, on average, is close to 10% (23% x 43%), so a company that had adopted a CG Code and has a good corporate governance practices (high rating) will increase, on average, 10% its dividend payout. Comparing this effect to the adoption of the Code (6.9%), findings are amplified in the sense that the evidence regarding the impact of the adoption of good governance practices is magnified by the quality of the Code of around 45%, i.e. 3.1 percentage points more. With respect to the other variables of the model, coefficients and signs maintain a similar behavior to the previous model.

Subsample without Corporate Governance code (208 companies)

Given the magnitude and relevance of the ownership concentration on the dividend payout ratio in the total sample, this section will analyze the subsample of companies without a Corporate Governance code, with the aim of determine if the ownership concentration variable stays the same even in case of firms without CG practices.

Panel (3) in Table No 3 offers the results of the model. As expected, the coefficients' signs are consistent with the previous regressions and most of the variables are statistically significant, with the exception of the leverage ratio (LEV). The variable of interest, the ownership concentration, is highly significant and, in contrast with the previous model, its impact over the percentage of profit that is distributed as dividend registers a slight increase. On average, managers are distributing around 6% (21% x 27.5%) less of their net income as dividends.

Panel (4) in Table No 3 reports the final model for companies without CG: it excludes the leverage variable that resulted not significant in the previous regression (Panel 3). Results are the same as the previous three regressions and the coefficients are of higher magnitude and of the same sign.

Subsample of positive dividend payout ratio (126 companies)

Finally, this section analyzes the subsample made of companies that, at least once during the period 1997-2008, have paid dividends. Panel (5) in Table No 3 offers the results of the model, which explains 27% of the cross-section variability of the dividend payout ratio.

The control variables have the same expected sign and the main variable (Dum_Rat), once again enhances a positive relationship between the CG practices and the dividend payout ratio. This proves that the results of the general model of 279 companies are robust and confirms the relevance of the impact that the adoption of CG Code has over the dividend payout ratio.

On the other side, the model is offering new evidence concerning critical variables: the ownership concentration and the profitability. Interestingly, ownership concentration loses all its statistical power so some managers seem to consider the importance of a dividend policy beyond whatever they can do with the ownership concentration they have.

In order to understand better this result, one divided the total number of companies that do not have a CG Code (208) in two samples: 131 companies that do not pay dividends and 77 companies that pay dividends. Companies, without CG, that do not pay dividends, are more concentrated than companies without a CG Code that pay dividends, meaning that the significance of the ownership concentration variable in the regression is the result of a combination between those that pay and those that do not pay dividends, but the weight goes on the ones that do not pay dividends because they are more concentrated. In other words, the group of companies over which the statistical significance of the concentration goes is the one that do not have CG and do not pay dividends.

These results lead to the conclusion that for companies with a positive dividend payout ratio what matters is the adoption of the CG and not the concentration, since the weight of this last variable is on the group of companies that do not pay dividends, but this cannot be verified through a regression because the dependent variable (Dpay) would be a vector of zeros.

In addition, if the quality's ratings are updated it is possible to find a difference of 11% between companies that pay dividends and companies that do not, implying, once again, that firms with positive dividend payout ratios have, on average, better corporate governance practices, one more reason to leave the ownership concentration on a secondary level. Accordingly, empirical evidence suggests that the expropriation risk is only present for the subsample of companies that do not pay dividends, which immediately leads to associate the statistical significance of the ownership concentration variable in the total sample (279 firms) to the weight of companies that do not pay dividends (55%).

Panel (6) in Table No 3 (6) offers the final regression for the 126 companies, excluding the variables that were not significant in the previous regression. Comparing to the previous model, the final regression has a higher explanatory level and the interaction variable, Dum_Rat is more statistically significant.

CONCLUSION

The main objective of this research was to measure the impact of the adoption of the Corporate Governance Code and its quality over the dividend payout ratio. Results have shown that both variables are statistically significant and positively related to the dividend payout ratio.

These findings are in line with the results of other authors such as Kowalewski, Stetsyuk & Talavera (2007), Bebczuk (2005) and La Porta et.al (2000). Moreover, results are robust, as it has been verified using different weights of the measures of the quality of the Code and also through different subsamples. Likewise, results confirm the expected relationship between different control variables that have been applied in the literature such as size and GDP, offering new evidence concerning the impacts of the ownership concentration, leverage and profitability.

One has established that ownership concentration is the variable with the highest impact in the dividend payout ratio, but its most important role is whenever companies do not adopt a CG Code because in this situation ownership concentration acts as a proxy of bad governance practices and this increases the risk of expropriation from majority to minority investors. It is also quite interesting to note that for companies that do distribute dividends ownership concentration does not matter because it matters only in the total sample whenever a company does not distribute dividends at all.

The variables GDP and Size are not related to the adoption and quality of the CG Code but are general conditions of the environment and the company that will foster or not a higher dividend payout. Something similar happens with variable profitability that is truly a determinant on whether the company has or not the means to distribute dividends regardless on its adoption of the CG Code and its quality. The variable leverage it is also a truly determinant of the company dividend policy regardless on the adoption of the CG Code, but once adopted, it seem to depend upon its quality. There are many open avenues of research, for instance it would be interesting to find out up to which extent the company leverage is subordinated to the adoption of the CG Code and quality, probably at a certain level of debt it would become a truly determinant of the company dividend policy as the profitability regardless on the corporate governance. It is intriguing to identify the conditions upon which certain traditional determinants of the dividend policy start to become subordinated factors to the corporate governance practices of the company.

REFERENCES

- Bhattacharya, D., W.H. Li and S. Ghon Rhee, (2016), Does Better Corporate Governance Encourage Higher Payout?: Risk, Agency Cost, and Dividend Policy, No HIAS-E-20, Discussion paper series, Hitotsubashi Institute for Advanced Study, Hitotsubashi University.
- Bebczuk, R. (2005) Corporate Governance and Ownership: Measurement and Impact on Corporate Performance and Dividend Policies in Argentina, *Working Paper*, Center for Financial Stability
- Beck, N. (2001) Time-Series Cross-Section Data: What Have We Learned in the Last Few Years?, *Revised version of a paper presented at a conference on the Analysis of Repeated Cross Section, Nijmegen, The Netherlands*
- Beck, N. and J. N. Katz (1995) What to do (and not to do) with Time-series Cross-section Data, *American Political Science Review*, Vol. 89, 634-647
- Benavides, J (2009) Governance Codes: Facts or Fictions? A Study of Governance Codes in Colombia, *Working Paper*, Universidad ICESI
- Berle, A. and G. Means (1932) *The Modern Corporation and Private Property*, ISBN 0887388876, New York: MacMillan
- Bhattacharya, S. (1979) Imperfect Information, Dividend Policy, and "The Bird in the Hand" Fallacy." *Bell Journal of Economics*, Vol. 10, 259-270
- Black, B. (2001) The Corporate Governance Behavior and Market Value of Russian Firms, *Emerging Markets Review*, Vol. 2, 89-108
- Black, F. (1976) The Dividend Puzzle, *Journal of Portfolio Management*, Vol. 2, 5-8
- Brealey, R. and S. Myers (2005) *Principles of Corporate Finance*, 8th edition, London: McGraw-Hill
- Cameron and Trivedi (2009) *Stata Bookstore: Microeconometrics Using Stata*. ISBN-10: 1-59718-048-3 Editorial: Stata Press
- Carvalho da Silva, A. and R. Leal (2003) Corporate Governance, Market Valuation and Dividend Policy in Brazil, *Working Paper*
- Claessens, S. (2003) Corporate Governance and Development, *Global Corporate Governance Forum Focus 1*, 17-18
- Cubbin, J. and D. Leech (1983) The effect of shareholding dispersion on the degree of control in British companies: Theory and measurement. *Economic Journal*, Vol. 93, 351-369
- DeAngelo, H. and L. DeAngelo (1990). Dividend Policy and Financial Distress: An empirical investigation of troubled NYSE firms, *Journal of Finance*, Vol. 45, 1415-1431

- Easterbrook, F. (1984) Two agency-cost Explanations of Dividends, *American Economic Review*, Vol. 74, 650-659
- Eiteman, D., A. Stonehill and M. Moffet (2007) *Multinational Business Finance*, Onceava edición, Boston: Pearson Addison Wesley
- Esqueda, O. (2016) Signaling, corporate governance, and the equilibrium dividend policy, *The Quarterly Review of Economics and Finance*, Vol. 59, 186-199.
- Fama, E. and K. French, K. (2001) Disappearing Dividends: Changing Firm Characteristics of Lower Propensity to Pay?, *Journal of Financial Economics*, Vol. 60, 3-43
- Fuenzalida D., S. Mongrut, M. Nash and J. Benavides (2008) Estructura Propietaria y Rendimientos Bursátiles en Suramérica. *Cuadernos de Administración*, Vol. 21, No 35, 11-35.
- Gompers P., J. Ishii and A. Metrick (2003) Corporate Governance and Equity Prices", *Quarterly Journal of Economics*, Vol. 118, 107-155
- Gonzalez M., C. Molina, E. Pablo and J. Risso (2017) The effect of ownership concentration and composition on dividends: Evidence from Latin America, *Emerging Markets Review*, Vol. 30, 1-18.
- Gutiérrez, L., C. Pombo and R. Taborda (2005) Ownership and Control in Colombian Corporations, *Working Papers*, Inter-American Development Bank, Research Department
- Jensen, G., D. Solberg and T. Zorn (1992) Simultaneous Determination of Insider Ownership, Debt, and Dividend", *Journal of Financial and Quantitative Analysis*, Vol. 27, 247-263
- Jensen, M. (1986) Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers, *American Economic Review*, Vol. 76, 323-329
- Jensen, M. and W. Meckling (1976) Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure, *Journal of Financial Economics*, Vol. 3, 305-360
- Jiraporn P. and Y. Ning (2006) Dividend Policy, Shareholder Rights, and Corporate Governance, *Working Paper*. Pennsylvania State University y University of Houston – Victoria
- Johnson, S. and A. Shleifer (2001) Privatization and Corporate Governance, *In: 12th Annual East Asian Seminar on Economics*
- Kowalewski O., I. Stetsyuk and O. Talavera (2007) Corporate Governance and Dividend Policy in Poland, *Working Paper*, Warsaw School of Economics, UMCS y DIW Berlin
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (2000) Agency Problems and Dividend Policies Around the World, *Journal of Finance*, Vol. 55, 1-33
- Lagos, D., and C. Vecino (2011) Medición de la aplicación de prácticas de gobierno corporativo en Colombia, *Tendencias*, Vol. XII, No. 2, 230-253.

Lagos, D. (2013), Análisis de las prácticas de Gobierno Corporativo en la Bolsa de Valores de Colombia, *Ad-minster*, Vol. 23, 25-43.

Mayorga, M. and E. Muñoz (2000) La Técnica de Datos de Panel: Una Guía para su Uso e Interpretación, Banco Central de Costa Rica, Departamento de Investigaciones Económicas

Mehar, A. (2003) Corporate Governance and Dividend Policy, *MPRA Paper*, Vol. 619, University Library of Munich, Germany

Miller, M. and K. Rock (1985) Dividend Policy Under Asymmetric Information, *Journal of Finance*, Vol. 40, 1031-1052

Minguéz, A. (2006) Política de Dividendos, Riesgo, Endeudamiento y Estructura de Propiedad: Un Análisis para el Mercado Español, *Working Paper*, Instituto Valenciano de Investigaciones Económicas

Mitton, T. (2004) Corporate Governance and Dividend Policy in Emerging Markets. *Emerging Markets Review*, Vol. 5, 409-426.

Mongrut, S., C. Delfino, G. Devercelli and D. Lambarri (2017) Corporate Governance and Dividend Policy in Peru: Is there any link?, *Mexican Journal of Economics and Finance*, Vol. 12, No. 2, 107-116.

Neyman, J. and E. Scott (1948) Consistent Estimates Based on Partially Consistent Observations, *Econométrica The Econometric Society*, Vol. 16, No. 1, 1-32

Padgett, C. and A. Shabbir (2005) The UK Code of Corporate Governance: Link between Compliance and Firm Performance, *discussion papers in finance*, ICMA Centre, University of Reading

Pérez, C. (2008) *Econometría Avanzada: Técnicas y Herramientas*, ISBN: 9788483224793. 1ra. Edición

Pombo, C. and L. Gutierrez (2007) Corporate Governance and Firm Valuation in Colombia, *Working Papers 4470*, Inter-American Development Bank, Research Department

Rozeff, M. (1982) Growth, Beta and Agency Costs as Determinants of Dividend Payout Ratios, *Journal of Financial Research*, Vol. 5, 249-259

Villalonga, B., M. Trujillo, A. Guzmán and N. Cáceres (2018), What are Boards for? Evidence from Closely Held Firms in Colombia. *Financial Management*. Accepted Author Manuscript.

Zhang, H. (2005) Corporate Governance and Dividend Policy: a Comparison of Chinese Firms Listed in Hong Kung and in the Mainland, *Tesis para optar al título de Doctor*, The Hong Kong University of Science and Technology

Table No 1 – VARIABLES

Variable	Symbol	Measure
Gross Domestic Product	GDP	$\ln(\text{GDP}_t/\text{GDP}_{t-1})$
Return On Assets	ROA	Net Profit/ Total Assets
Return On Financial Assets	ROAf	Net Income/ External Financial Needs
Total leverage	LEV	Liabilities/Assets
Financial leverage	LEV _f	External Financial Needs/Total Assets
Tangibility	TANG	Fixed Assets/Total Asset
Sales	SIZE	$\ln(\text{Sales})$
Operating Profit	EBIT	Operating Profit/Sales
Net Profit	PROFIT	Net Profit/Sales
Dividend Payout Ratio	Dpay	Dividends/ Net Income
Ownership Concentration	Her	Appendix 2
Adoption of the Code	Dycode	Dichotomous variable
Quality of the Code	Rat	Appendix 1
Interaction between the Adoption of the Code and its Quality	Dum_Rat	Dycode x Rat

Source: Own elaboration

Table No 2 – DESCRIPTIVE STATISTICS

	A. Total Sample (279)				B. Subsample without CG Code (208)				C. Subsample with CG Code (71)				D. Subsample that paid dividends (77)			
	Mean	Std Dev	Min	Max	Mean	Std Dev	Min	Max	Mean	Std Dev	Min	Max	Mean	Std Dev	Min	Max
comp			1	279			1	279			6	278			1	278
year			1997	2008			1997	2008			1997	2008			1997	2008
GDP	11.1%	4.1%	2.5%	18.9%	11.7%	4.2%	2.5%	18.9%	10.10%	3.70%	2.50%	18.90%	10.80%	3.90%	2.50%	18.90%
ROA	1.5%	17.9%	-547.1%	89.6%	0.3%	22.1%	-547.1%	89.6%	3.30%	6.30%	-46.60%	23.90%	4.30%	5.40%	-46.60%	32.30%
ROAf	1.9%	22.7%	-452.4%	183.0%	0.6%	27.9%	-452.4%	183.0%	4.10%	8.50%	-58.90%	42.80%	5.40%	9.00%	-59.30%	42.80%
LEV	37.1%	49.6%	0.0%	1263.7%	36.9%	60.6%	0.0%	1236.7%	37.40%	21.50%	0.70%	95.40%	31.40%	21.00%	0.00%	94.50%
LEVf	23.1%	70.7%	-8.7%	2664.8%	23.5%	88.4%	-8.7%	2664.8%	22.50%	19.70%	0.00%	94.60%	18.00%	17.40%	0.00%	89.00%
TANG	22.7%	19.9%	0.0%	91.5%	23.8%	20.3%	0.0%	91.5%	20.80%	19.10%	0.00%	90.90%	22.10%	20.30%	0.00%	90.20%
SIZE	10.80	229%	-0.80	17.30	10.00	230%	-0.80	15.00	12.1	154.60%	7.00	17.30	11.30	191.80%	5.20	17.30
EBIT	1.3%	142.7%	3894.5%	100.0%	-4.3%	146.0%	3894.5%	100.0%	10.40%	136.80%	2368.3%	98.20%	12.50%	112.30%	2368.3%	99.50%
Profit	9.9%	279.2%	4422.2%	7379.8%	11.1%	337.3%	4422.2%	7379.8%	7.80%	140.80%	2471.2%	386.50%	14.80%	155.80%	2471.2%	2910.50%
Dpay	25.7%	39.2%	0.0%	282.7%	19.5%	34.8%	0.0%	182.6%	35.80%	43.70%	0.00%	282.70%	44.90%	42.80%	0.00%	282.70%
Dycode	21.4%	41.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	56.50%	49.60%	0.00%	100.00%	25.20%	43.40%	0.00%	100.00%
Her	30.3%	29.1%	0.4%	100.0%	27.5%	27.0%	0.4%	100.0%	34.80%	31.70%	0.80%	100.00%	26.60%	26.90%	0.00%	100.00%
Rat	43.4%	16.2%	14.5%	88.0%					43.40%		14.50%	88.00%	46.90%	15.80%	13.50%	88.00%

Source: Own elaboration

The table offers the descriptive statistics (mean, standard deviation, maximum and minimum values) for four subsamples: the first subsample (A) includes the total number of companies; the second subsample (B) corresponds to all the companies without a Corporate Governance Code; the third subsample (C) includes companies who have adopted the code, and the last subsample (D) includes all companies that have paid dividends at least once during the period. Variables are the ones explained in Table 1.

Table No 3 – ESTIMATION OF THE MODELS

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6
GDP	-0.448*** (-3.25)	-0.408*** (-3.19)	-0.493*** (-2.69)	-0.493*** (-2.72)	-0.414** (-2.24)	-0.415** (-2.12)
ROAf	0.059* (1.19)	0.058* (1.95)	0.057** (2.37)	0.065** (2.39)	0.111 (0.77)	
LEV	-0.021* (-1.69)	-0.019* (-1.69)	-0.006 (-0.86)		-0.273** (-2.23)	-0.303*** (-2.66)
TANG	0.188** (2.53)	0.191*** (2.64)	0.116* (1.93)	0.122** (2.02)	0.399*** (3.81)	0.393*** (3.77)
SIZE	0.056*** (12.53)	0.052*** (10.96)	0.05*** (6.56)	0.05** (6.53)	0.055*** (5.41)	0.057*** (5.67)
Her	-0.191*** (-4.18)	-0.192*** (-4.56)	-0.212*** (-3.65)	-0.217*** (-3.82)	-0.015 (-0.26)	
Dycode	0.069** (2.05)					
Dum_Rat		0.23*** (3.52)			0.12* (1.69)	0.103* (1.72)
Constant	-0.246*** (-5.57)	-0.213*** (-4.72)	-0.207*** (-3.44)	-0.211*** (-3.48)	-0.139 (-1.34)	-0.151 (-1.39)
Observations	1572	1572	977	977	898	898
Wald Chi2	207.49***	182.95***	70.52***	70.52***	61.01***	60.40***
R-Squared	0.23	0.26	0.18	0.18	0.27	0.29

Robust standard errors in parenthesis

*** p<0,01, ** p<0,05, * p<0,1

Source: Own Elaboration

The dependent variable of the model is the dividend payout ratio (dpay) and the independent variables are the ones introduced in Table 1. Model 1 and Model 2 consider the total sample, while the first one calculates the impact of the adoption of the Code (Dycode) over the dividend payout ratio (dpay) and the second measures the joint effects of the adoption of the Code and its quality (Dum_Rat) on the dependent variable (dpay). Model 3 and 4 consider the subsample of companies that haven't adopted the Code yet with (3) being the initial model and (4) the final one without the variables that resulted to be not statistically significant (LEV). Model 5 and 6 refer to the subsample of companies that paid dividends, the former including all the variables that resulted to be significant for the total sample, the latter without the variables that are not significant in (6).

Appendix 1 – RATING

The Superintendence created a Committee that included several entities, with the aim of defining a Good Corporate Governance Code, to supervise the Colombian listed companies. The topics of the Code are: (a) General Shareholders' Meeting, (b) Board of Directors, (c) Financial and non-Financial Information Disclosure and (d) Mediation. Moreover, an annual survey has been established to monitor the effects of the Code. It includes 80 questions, grouped by the four topics already seen. This structure allows weighting the rating: in particular, the present study uses four different weightings to check for the robustness of the model, finding that the statistically significance and the expected signs stay constant. The weightings are the followings:

Topic	Questions	Rating 1	Rating 2	Rating 3	Rating 4
General Shareholders' Meeting	20	24.1%	25.0%	9.0%	10.0%
Board of Directors	37	44.6%	25.0%	60.0%	75.0%
Information Disclosure	23	27.7%	25.0%	30.0%	10.0%
Mediation	3	3.6%	25.0%	1.0%	5.0%

A fundamental assumption of the model is that the rating was constant before year 2007. This is because the volatility between 2007 and 2008, the years for which the survey is available, is very low. It means an improvement of 1 or maximum 2 answers for survey, a factor that has not considered as a structural change. The following table contains the average rating for each of the years of the survey, its annual volatility and the average rating of the two considered years. (Source: Own Elaboration)

	Rating 1	Rating 2	Rating 3	Rating 4
Year 2007	42.6%	45.5%	43.3%	43.7%
Year 2008	45.2%	49.0%	45.8%	46.4%
Rating Increase	2.6%	3.50%	2.50%	2.70%
Average	43.9%	47.2%	44.5%	45.0%

Appendix 2 – OWNERSHIP CONCENTRATION INDEX

To measure the degree of ownership concentration the chosen measure was the Herfindahl – Hirschman (HHI), following Cubbin & Leech (1983). According to these authors, one of the main advantages of the index is that it can be easily reproduced because every increase in the square of a decreasing proportion will lead the index to quickly converge (Cubbin & Leech, 1983). Appendix 2.1 describes the equation used in the study of year 1983. Appendix 2.2 and 2.3 present the indexes adapted to the sample of this study. The first modification suggests a constant participation of each of the shareholders, from the sixth year to the last one. To check for the robustness of the model, it has been modified using the different indexes and found statistical similar results (no reported).

Appendix 2.1 – The Herfindahl index used by Cubbin & Leech (1983). N is the number of shareholders, H is the concentration index, S_i the number of shares owned by shareholder i , T_N the total number of outstanding shares owned by N shareholders.

$$H_N = \sum_{i=1}^N \left(\frac{S_i}{T_N} \right)^2$$

Appendix 2.2 – Concentration index for Colombian firms, considering the total number of shareholders. Due to the fact that, in Colombia, around 74% of the ownership is concentrated in the first five shareholders, from the sixth shareholder up to the last one the participation is assumed to be constant. P_i is the participation of shareholder i (with $i=1, 2, 3, 4, 5$). P_{REST} is the cumulative participation from shareholder $n=6$ to the last one. $Accts$ is the total of shareholders.

$$Her = P_1^2 + P_2^2 + P_3^2 + P_4^2 + P_5^2 + \left[\left(\frac{P_{REST}}{Accts - 5} \right)^2 \times (Accts - 5) \right]$$

Appendix 2.3 – Concentration index for Colombian firms, considering up to the fifth (5) shareholder. This time only the first five shareholders (74% of the ownership for Colombian firms) is considered. P_i is the percentage of participation of the shareholder i .

$$Her_2 = \left(\frac{P_1}{\sum_{i=1}^5 P_i} \right)^2 + \left(\frac{P_2}{\sum_{i=1}^5 P_i} \right)^2 + \left(\frac{P_3}{\sum_{i=1}^5 P_i} \right)^2 + \left(\frac{P_4}{\sum_{i=1}^5 P_i} \right)^2 + \left(\frac{P_5}{\sum_{i=1}^5 P_i} \right)^2$$