Institutional investors and board diversity in Latin America*

Abstract

This paper enquires whether institutional investors have specific preferences on the composition of the boar of directors in Latin American firms they invest in. The result show that preferences vary significantly in terms of the type of institutional investor. The econometric results suggest grey institutional investors (pension funds and insurance companies) prefer experience and education, while dislike entrenchment and CEO related factors. Independent institutional investors value more experience on the boards, as well as strong CEO involvement and favor male to female as members of the board. The results bring to the front the need of boards of directors to be shaped in order to attract institutional investors.
JEL codes: G10, G11, G34.

Key words: Board of directors, institutional investors.

1 Introduction

During the last 20 years, the number of institutional investors has grown substantially in developed economies such as Canada, the United States and the United Kingdom and they now control more than half of the corporate property in these countries (Aggarwal et al., 2010). According to Ferreira and Matos (2008), the increasing importance of institutional investors is a key factor in the global capital market, suggesting that the presence of these investors is vital to economic development. In Latin America, institutional investors have a real opportunity to influence the development of the region's capital markets, since they currently manage considerable financial assets (Blume and Alonso, 2007). Many studies on institutional investors have analyzed the relationship between performance, firm valuation and ownership structure (De-La-Hoz and Pombo, 2016; Woidtke, 2002; Del Guercio and Hawkins, 1999; Navissi and Naiker, 2006; Qi et al., 2000; Xu and Wang, 1999) concluding that firms with large institutional shareholders are associated with higher firm performance and value. These studies derive their results based on market performance while the internal characteristics of firms is not considered in understanding the presence of institutional investors.

Given the potential benefits derived from institutional investors in emerging markets, understanding the institutional investors' preferences is a must. In this study institutional investor preferences are focused on the board of directors composition. According to **?**, the board of directors is an important strategic resource for the firm, links the firm to external resources, provides a network to a nation's business elite, access to capital, market intelligence, and information from the competition. The board is also seen as a complement of shareholder and market monitoring since it limits managers' discretion to engage in opportunistic behavior (Jensen, 1993; Shleifer and Vishny, 1997; Walsh and Seward, 1990). As a consequence, the board is said to embody the routinization of shareholders' distrust (O'Connell and Teo, 2009), which helps to explain why it can be relevant and key factor for institutional investors.

The aim of this study is to enquire whether institutional investors have specific preferences on the composition of the board of directors in the Latin American firms they invest in. The empirical approach to answer this question implies using factor analysis to reduce multiple dimensions of board of directors and regression analysis to determine how such factors do explain the presence and extent of institutional investors in Latin America. Presence of institutional investors is studied in a probit regression, while the amount of shares is explored using panel data regression methods. This is one of the first papers that tests institutional investors' preferences on boards across larger Latin

American corporations.

The results show that the probability to have a institutional investors as an investor is positive with experienced members on the board and negative with highly trained young members. At the same time, results show that preferences vary significantly depending on the type of institutional investor: banks and investment funds (independent investors) value more experienced boards with strong CEO involvement, and a small ratio of women, while pension funds and insurance companies (grey investors) value trained board members over experienced ones, have a negative probability to invest if there is involvement of the CEO in the board, and value the presence of foreign directors.

There is little evidence about the behavior of institutional investors in emerging markets (**?**), and particularly on the preferences of institutional investors on board characteristics. We offer a first exploration of this issue, making emphasis not only on the corporate characteristics of the board but also in the personal characteristics of the directors. We contribute to the literature on corporate governance in emerging markets in deeply exploring the relationship between institutional investors and board characteristics using a comprehensive database of board composition in Latin America, while at the same time, reducing the dimension of the data with standard multivariate statistics methods.

The remainder of the paper is organized as follows. Section 2 briefly reviews the literature in board composition and develops the hypothesis herein explored. Section 3 presents the data characteristics. Section 4 outlines the factor analysis procedure and results to reduce the variate of board characteristics into meaningful theoretical concepts. Section 5 discuss the results and section 6 concludes.

2 Brief literature review and hypothesis formulation

As discussed in the previous section, this paper explores how board composition can help to explain presence and ownership of institutional investors; both strands of literature have usually been studied separately whenever standard business conditions apply. However, in the Latin American business environment with atomized ownership, low liquidity and lower investor protection with respect to developed markets, the existence of institutional investors can not be regarded as a response to a standard optimization decision. Under this setting institutional investors exist as the result of more than financial performance indicators. Ultimately this paper explores how board composition influences to have institutional investors.

This section separately outlines both the institutional investors preferences and the standard knowledge around board of directors. From here this paper hypothesize how

certain board characteristics can shape the presence and ownership of institutional investors.

2.1 Institutional investors preferences

Institutional investors preferences about corporate governance are generally undisclosed. However, it is key to understand their choices: "Understanding the preferences and views of institutional investors is important for both companies trying to attract new investors and policymakers considering the regulation of governance mechanisms" (McCahery et al., 2016).

Findings (based on indirect evidence according to McCahery et al. (2016)) suggests that institutional investors are less likely to invest in firms with poor corporate governance structures (Giannetti and Simonov, 2006; Leuz et al., 2010), and that weaker investor protection is associated with lower stock returns (Gompers et al., 2003; Cremers and Nair, 2005; Yermack, 2006; Cremers et al., 2009). Gompers and Metrick (2001) find that institutional investors prefer stocks with large market capitalization companies, higher liquidity and higher book-to-market ratio, compared to individual investors. Al-Amarneh et al. (2011) find that institutional investors with stocks in the Jordanian market prefer to invest in firms with good financial performance, high degree of leverage, low trade frequency, low annual return, and low price to book value ratio.

Gompers et al. (2003), Brown and Caylor (2006), Larcker et al. (2007) find that better governed firms are related with higher firm value and better operating performance. Brian J. Bushee (2000) approach this connection showing that despite the evidence that investors prefer to invest in firms with existing preferred governance mechanisms, firms with a high level of institutional ownership sensitive to shareholder rights, exhibit significant future improvements in shareholder rights, implying some activism by these institutions.

McCahery et al. (2016) conduct a direct approach to analyze institutional investors' preferences through a survey of institutional investors in two developed countries enquiring about corporate governance from a country and firm perspective. McCahery et al. find that institutional investors consider among the most important characteristics, equity ownership of management, use of equity based compensation, board independence, transparency about the holdings of large shareholders, and high free float.[1]

[1] A high free float allows firms to liquidate shares easily, allows prices to more accurately reflect managerial effort and thereby increase the efficiency of stock-based compensation (Holmström and Tirole, 1993; Edmans, 2009), and suggests lower holdings of large shareholders and therefore lower agency problems between large and small shareholders (McCahery et al., 2016).

Overall, the results of the study suggest that institutional investors focus primarily on issues that reduce agency conflicts. They also find that firms located in countries with weak legal regimes may be able to attract investors with stronger corporate governance mechanisms. In the same line, Brav et al. (2008) find that activist hedge funds are more likely to invest in firms with high operating cash flows, high return on assets, low total payout, and high executive compensation.

Bushee et al. (2013) find that large investors and investors with a large number of stocks are more likely to be sensitive to corporate governance mechanisms, meaning that investors see governance mechanisms as means to decrease monitoring costs. When institutional investors hold a large portfolio, the costs of monitoring are usually very high. Brian J. Bushee (2000) find that these types of investors prefer higher quality disclosure as a way to offset monitoring costs. Thus, institutional investors could like more firms with strong internal monitoring mechanisms as a substitute for the investors' own monitoring.

Grullon et al. (2004) show that firms that spend more on advertising have a larger number of individual and institutional investors, because it increases the investors' awareness of the firm. However, Larcker et al. (2007) do not find any evidence supporting that hypothesis.

At an aggregate level, Li et al. (2006) argue that there are many macroeconomic factors that affect the choice of institutional investors on becoming large shareholders. Li et al. use data from 19,883 firms across 45 countries, and find that countries with strong shareholder rights, functioning law enforcement, and extensive financial disclosure tend to have a greater extent of large institutional shareholders and engage in more concentrated equity positions. This is because they expect that a strong macro governance environment influences institutional ownership decisions by providing the necessary infrastructure to increase monitoring effectiveness and efficiency. However, they also state that shareholder protection seems to matter only when institutions decide to become large, but not controlling, shareholders.

Liquidity also has an important role defining ownership structure. As stated by Maug (1998), greater market liquidity facilitates the construction of blocks of shareholders. However, Back et al. (2013) states that once these blocks are formed, liquidity is not favorable anymore and becomes damaging for governance. Coffee (1991), Bhide (1993), and Back et al. (2013), argue that liquidity discourages investors' monitoring because the costs of exit become lower. That means that a less liquid market will encourage large shareholders to monitor the firm's performance. However, not all institutional investors have the same preferences or incentives, McCahery et al. (2016) points out that "prefer-

ences for governance mechanisms vary across the institutional investor types. The issue of highest importance to the hedge funds in our sample is equity ownership by managers, while insurance firms care most about a high free float. Mutual funds find both equity ownership by managers and transparency about holdings of large shareholders to be most important, while pension funds are most concerned about ownership concentration, board independence and the high free float."

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

The criteria when deciding where to invest, varies dramatically with institutions. In the United States some institutions (e.g., the Colorado Public Employee Retirement System and the Pennsylvania Public School Employees Retirement System) have chosen firms based only on performance (Wahal, 1996); others, such as the Teachers Insurance and Annuity Association (TIAA), choose firms based on specific governance objectives. More activist pension funds (e.g., The California Public Employees' Retirement System (CalPERS)) have used a combination of governance issues and performance measures in their targeting criteria (Carleton et al., 1998).

Gaspar et al. (2005) finds that investors with a shorter investment horizon have fewer incentives to monitor, as they are less likely to remain shareholders of the firm enough time to collect the corresponding benefits. As a consequence, they have less time to learn about the firm. Therefore, "the length of the investment horizon of shareholders affects managerial behavior both in initiating corporate control transactions and in merger negotiations" (Gaspar et al., 2005).

In all there is international evidence that institutional investors care for firm char-

acteristics inherently related to board structure, such as independence, governance and members characteristics.

2.2 Board of directors and shareholders preferences

There is a growing literature dedicated to studying the evolution of modern board of directors, in particular the one devoted to increasing diversity (Anup Agrawal, 2001; Carter et al., 2003; Singh and Vinnicombe, 2004; Farrell and Hersch, 2005).

Regarding the one tier versus two tier board systems, Adams and Ferreira (2007) state that whichever board structure is selected, it should entirely depend on the specific shareholder preferences.[2] On the other hand, Graziano and Luporini (2005) argue that in the presence of large shareholders, the two-tier board system in better because it limits the interference of the large shareholder, encouraging the manager to exert effort. They also state that the two-tier system might be optimal in markets with higher ownership concentration. In their study, McCahery et al. (2016) find that the institutional investors are split, and most of them prefer the two-tier system (52%), while 21% of them prefer the one-tier system. This proportion is maintained across all investor-types with hedge funds being the ones that prefer the one-tier system the most. They also find that apparently, institutional investors' preference for a board structure is not independent, but depends on country-specific circumstances.

Bushee et al. (2013) find that investors with preferences for growth, lean their portfolios toward firms with "better" board characteristics, implying that investors view board governance as more crucial for firms with a high level of growth opportunities. On the other hand, authors find that investors with long investment horizons are more likely to lean their portfolios toward firms with "better" shareholder rights, suggesting that shareholder governance allows these investors to protect their large, stable investments.

Among the many possible observable variables used to gauge a "good" board of directors, two broad categories can be used to summarize the abundance of options: Board structure and board's members characteristics.

[2] "One and two-tier corporate governance systems have evolved from the corporate law of England and Germany, respectively. Under the English model, a company is governed by one corporate body that undertakes both the management and monitoring functions (the one-tier board system). Under the German model, two separate bodies operate independently: the board of directors and the supervisory board (the two-tier board system). Under the two-tier system, the board of directors and the supervisory board exist side by side. The board of directors conducts the day-to-day management of the company, while the supervisory board conducts supervisory functions." (Szánthó, 2012)

2.2.1 Board structure

Governance. Bruno and Claessens (2010) show that the two most important governance mechanisms across countries are i) independence of the board and ii) independence of the board committees. Aggarwal et al. (2010) and Dahya et al. (2008) suggest that board independence is important in countries with weak investor protection.

Independence. McCahery et al. (2016) show how many studies have shown indirectly that investors value board independence: "Previous studies have failed to find direct evidence that investors value board independence. Indirect evidence, however, suggests that board independence is important as research has documented that independent directors are more likely to replace a poorly performing CEO, the likelihood of hiring a replacement CEO from outside the firm increases with the percentage of independent directors, and shareholders react more positively to decisions made by boards dominated by independent directors. [...]Our survey evidence supports the indirect evidence provided earlier in that we find that a high percentage of respondents think that board independence is important".

Borokhovich et al. (2004) shows that directors who are also managers of the firm (inside directors) have incentives to make corporate decisions that maximize their own utility, whereas outside directors have incentives to make decisions that signal their abilities as efficient decision makers, through the effective monitoring of management. The above goes in the same line as Fama and Jensen (1983), who argue that outside directors have greater incentives to make decisions that benefit shareholders than do inside directors.

Stein and Plaza (2011) states that a satisfactory number of qualified independent directors are an appropriate substitute for CEOs. Yermack et al. (2010) argue that a big concentration of voting power in the hands of management tends to decrease the discipline of corporate governance and the market for corporate control.

Size. According to Judge and Zeithaml (1992), larger boards are better, since having more directors increases the amount of expertise within the board and therefore the executives of the firm have more and better advice available. Several studies have found a positive relationship between board size and diversification (Pearce and Zahra, 1992) and internationalization (Sanders and Carpenter, 1998).

On the other hand, Amason and Sapienza (1997) suggest that a larger board might generate more conflicts and disagreements among directors, which may lower levels of motivation and increase hostility. Also, from the agency perspective proposed by Jensen (1993), Ruigrok et al. (2006) conclude that large boards are more easily controlled by the CEO, because the latter can engage tactics like coalition building and selective provision

of information.

Turnover. Despite the research made analyzing the relationship between CEO turnover and ownership/performance etc, little research has addressed the relationship between board of directors' turnover and ownership/performance. Bates et al. (2015) find that directors are more likely to turnover after the realization of poor stock and accounting performance. In this same line, Fahlenbrach et al. (2010) and Yermack (2014) argue that some directors usually resign before the realization of bad firm performance, mainly motivated by their personal reputation. Asthana and Balsam (2010) find that directors are more likely to leave if the firm is riskier. William O. Brown and Maloney (William O. Brown and Maloney) show that outside directors are more likely to leave the board before a bad acquisition. Therefore, turnover might be a signal for shareholders indicating that the firm is performing, or will be performing, badly.

Regarding legal reasons for turnover, Baum et al. (2016) find that turnover rates for board members are higher when a firm settles a lawsuit than when a suit is dismissed. However, the authors acknowledge the fact that a director's departure may be due to a dismissal as well as a voluntary departure. Kang and Shivdasani (1995) and Denis et al. (1997) also find that top management turnover propensity is more closely linked to stock price performance when there are large blockholders controlling a big number of shares.

Other studies (Boone et al., 2007; Coles et al., 2008; Duchin et al., 2010; Linck et al., 2008) have found evidence showing that firms structure their boards according to their advising and monitoring needs. As a consequence, shareholders may see a restructuring of the board as a positive event meaning that the firm is improving its leadership.

Many unobserved variables might be affecting either positively or negatively the board turnover, and endogeneity, consequence of reverse causality and omitted variables, is a possibility among these results. Therefore, the effect of board turnover on institutional ownership remains ambiguous.

2.2.2 Board Members

In regards to board members, the literature on diversity can be summarized around gender, nationality and education (Masulis et al., 2012).

Gender.There is mixed evidence regarding the effect of women directors on performance, risk, effectiveness of the board, etc. On one hand, there is evidence suggesting that the presence of women sitting in the board of directors has positive effects on performance, which may influence shareholders positively to invest in the firm. Bilimoria and Wheeler (2000) state that institutional investors and other shareholders have begun to

pressure corporate boards to increase, in particular, the representation and use of women directors. Perrault (2015) state that women sitting on the board enhance the board's legitimacy, generate trust with stakeholders, and signal that the women were recruited specifically because of their competence. Several studies have found that all-male boards are less effective in their governance functions, negatively impacting firm performance (Bear et al., 2010; Burke, 1997; Kuhnen, 2009), while gender diverse boards allocate more effort to monitoring (Adams and Ferreira, 2009).

On the other hand, several studies have found that women on the board might have negative effects on certain firm characteristics. Adams and Ferreira (2003) find a strong negative relation between variability in stock returns and the proportion of women on the board. They find that under high uncertainty, group homogeneity is better. Regarding firm performance, Adams and Ferreira (2009) for a sample of United States firms, find that, on average, firms perform worse the greater is the gender diversity of the board. Authors find this is consistent with the arguments of Almazan and Suarez (2003) and Adams and Ferreira (2007) who state that too much board monitoring can decrease shareholder value. Andreoni and Vesterlund (2001) find that women tend to pay more attention than men to long-term goals and their social concerns at the expense of profit maximization, which, according to Abdullah et al. (2016), are characteristics likely to be perceived as harmful to shareholders. Shrader et al. (1997) also find a negative effect between certain accounting measures and the percentage of women on the board. In this same line, Bigelow and Parks (2006) found that US male investors invest three times more in male-led firms than in female-led firms. Regarding risk, Sila et al. (2016) state that there's still a lack of strong empirical evidence on its relationship with gender diversity.

These mixed results regarding gender are said to be shaped by the institutional and country-level context in which they take place. The effect of gender depends on the nature of the corporate governance context (Aguilera and Jackson, 2003; Doidge et al., 2007) and culture (Hofstede and Hofstede, 2001; House et al., 2004; Terjesen and Singh, 2008; Terjesen et al., 2009; Grosvold, 2009) show that these contextual characteristics might explain the gender composition of boards across countries, and its effect on performance.

Nationality. Hahn and Lasfer (2015) study the presence of foreign non-executive directors of the board on board meetings and find a negative relationship. Their results suggest that a trade-off between increased board diversity together with reduced monitoring through fewer meetings weakens the internal governance system, reduces the advisory role benefits of foreign nonexecutive directors who are likely to have international expertise, and significantly aggravate agency conflicts. "We find that, unlike

Vafeas (1999), shareholder value creation is not affected by the meeting frequency, but, in line with Miletkov et al. (2014), it is negatively affected by the proportion of foreign nonexecutive directors" (Hahn and Lasfer, 2015).

Given the above, it may be better to hire local directors, because ties to management through social connections and geographic proximity have been argued to provide information advantages Duan et al. (2014). "It is also easier and cheaper to attract local directors who are more likely to have relatively more time and energy to travel cheaply to board meetings and oversee firm developments, and firms have better access to soft information about their availability" (Knyazeva et al., 2013).

Education. Board members education and financial experience is another important factor in relation with firm performance. Previous studies have shown its importance and its relationship with financial decision making (Borokhovich et al., 2004; Dionne and Triki, 2005; Helland and Sykuta, 2004; Kroszner and Strahan, 2001). A crucial point revealed by the past financial crisis "is the necessity to certify a minimum level of financial knowledge of directors sitting on the board and those composing the audit committee in order for them to understand subjects related to risk and risk management." (Dionne and Triki, 2005).

Hambrick and Mason (1984) research shows that experts with plenty academic knowledge can offer relatively objective and impartial consultation and support. Mehran et al. (1992) finds that independent directors from a banking background can help firms with potential profits. Anderson and Bizjak (2003) show that in the United States listed companies, 40.6% of the Independent Directors are senior executives from other companies, when only 4.7% are from academic institutions.

According to Wang et al. (2016) the question of whether can improve corporate governance and fully perform their duties, is closely linked to their professional backgrounds. In the same line Dionne and Triki (2005) argues that graduate education of the board including the Chief Executive Officer (CEO) is an important determinant of the hedging activity.

3 Data

3.1 Sources and data characteristics

This study uses a longitudinal database (2001-2011) with 439 non-financial firms from Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico and Peru) there is a maximum of 4,399 firm-year observations. The major source of the financial and owner-

ship (blockholders) data was Thomson's Datastream platform (Thomson Reuters Datastream, 2013). Information from financial regulators in each country were also used, as well as annual reports of each firm.[3] Shareholder information for Chile, Brazil and Peru, was extracted from Economatica (2013) and the corresponding local regulatory agency.

The main source of data on board of directors (such as: gender, educational, background, experience, etc.), was Thomson One (2013), and hand-collected work for the more detailed biographical information. Table X summarizes the construction of the sample and its representativeness. Data extraction began with 4,809 firms. After removing non-active firms, firms with non-equity instruments, financial firms, and those with missing financial or board of directors' information, the number of firms under scrutiny is 439. The sample is representative of the region since it comprises more than xx% of Latin America's equity capital.

3.2 Institutional investors variables: Presence, shares, grey investors and independent investors

This study defines an institutional investor as the one who is an investment fund, a bank, a pension fund or an insurance company among the top three shareholders. In the empirical approach institutional investor is the dependent variable and to accomplish the purpose of the paper is redefined as two variables: 1. institutional investor presence, defined as is a dummy variable for firms with an institutional investor among its first three shareholders. 2. institutional investor shares, defined as the percentage of shares owned by institutional investors among the first three shareholders.

Following Ferreira and Matos (2008), institutional investors can be classified into two distinct groups: independent investors (investment funds and banks) and grey investors (insurance companies and pension funds). Such definition is adopted in this paper. Institutional investor presence independent (gray) is a dummy variable for firms with an independent (gray) investor among its first three shareholders. Likewise, institutional investor shares independent (gray) is the percentage of shares held by independent (gray) investors among the first three shareholders.

Finally, institutional investors are also identified as foreigner or local. The variable institutional investor presence foreigner is a dummy variable for firms with institutional investors with a foreigner investor among its first three shareholders. Likewise, institu-

[3]Superintendencia de Valores y Seguros (Chile), Superintendencia del Mercado de Valores (Peru), Comissao de Valores Mobiliarios (Brazil), Superintendencia Financiera (Colombia). Comisión Nacional Bancaria y de Valores (Mexico), and Comisión Nacional de Valores (Argentina).

tional investor shares foreigner is the percentage of shares owned by a foreigner investors among the first three shareholders.

3.3 Board of directors' variables

Board of directors' variables are the ones of interest in this study. The variables obtained and used in this study follow closely those commonly used in the literature examining board composition and further effects on firm performance (section 2.2). However this study gathers the variables in two sets, one that gives account of the board as a whole, and one that highlights the members of the board' profile. Doing so the study fits into the need, and potential gap in the literature, to study both dimensions.

On the one hand, when studying the board as a whole, some variables gather information related with its independence, governance and diversity. The variables chosen are: 1. board size, 2. outsiders, 3. turnover, 4. whether there are firm employees in it, 5. whether the CEO is in it, 6. whether the CEO is chairman of the board. These variables give account of the choices made by the firm itself in the configuration of its board of directors. On the other hand, when studying the board by the characteristics of its members some variables show the experience, background (education) and diversity of its members. The variables chosen for this dimension are: 1. average age of the members, 2. whether a woman sits, 3. whether a foreigner sits, 4. whether members have a masters degree, 5. whether members have undergraduate studies different from law or business, 6. whether members have had experience as CEO, 7. whether members have experience as founder of another firm, and 8. whether members have experience in public sector. Both sets of variables stand for defining characteristic of the board and firm itself that may influence the shareholder presence and ownership from institutional investors.

- Outsider measures the number of board members who doesn't have a contract or labors for the firm. They are considered a third party as they don't have any commercial activity or any kind of relationship with the firm.
- Turnover measures the number of board members that left the board that year.
- Employees on the board measures the number of board members that have or had an executive position in the firm.
- CEO on the board measures the number of members sitting in the board that are or where CEO of the firm.

- CEO of the firm is also chairman of the board is a dummy variable that takes the value of 1 if the CEO of the firm is also the chairman of the board.
- Female represents whether a woman sits on the board.
- Foreigners is the number of members sitting in the board with a nationality different from the country the firm is established in.
- Board members with a master degree represents the numbers of board members with a masters' degree in any academic area from a local or foreign university.
- Undergraduate studies in non business or law related fields is the number of board members with an undergraduate degree in a academic field different from business or law (such as engineering or psychology).
- Board members that were founders is the number represents the number of people in the board that were founders or co-founders of a firm.
- Board members that are or were CEO of any firm represents the number of people in the board that currently are or were at some point, the CEO of any other firm.
- Board members that were founders, represent the number of directors who were founders of any firm or organization (including the corresponding firm).
- Directors with high public profile (ratio) represents the number of directors in the board that have or had public high profile position in the firm, divided by the size of the board.

All non-dummy variables are redefined as a ratio with respect to the total number of board members (board size).

3.4 Financial and ownership control variables

In line with empirical research on firm value and institutional investors (Chung and Zhang, 2011), several financial variables to control for firm characteristics are introduced, these are: Return on Assets (ROA), leverage, operating income volatility, sales growth, size, firm beta, asset tangibility and stock turnover. There are also two ownership control variables: wedge and Shapley value.

- ROA is used as a measure of firm performance, this variable is defined as the net income to total assets ratio.

- Leverage is measured as the book value of total liabilities divided by total assets (debt ratio). The expected relationship between this variable and the presence of an institutional investor is unclear, since empirical evidence suggests that leverage can have either a positive disciplinary effect on the management's free use of cash flow (which may be attractive to institutional investors), or a negative effect if it increases the probability of bankruptcy and a firm's aggregate financial risk (Gertler and Hubbard, 1993).

- Operating income volatility is measured as the standard deviation of operating income for the last three year. This variable serves as a proxy for firm idiosyncratic risk. Other things being equal, the higher a firm's operating income volatility, the lower the likelihood an institutional investor will be present.

- Sales growth is a measure for growth opportunities and is measured by previous real annual percentage growth in operating income. It's expected that firms with better growth opportunities to grow faster and become more attractive for the investment of institutional investors.

- Size is measured by the natural logarithm of total assets (log assets). A negative relationship between size and the presence of institutional investors is expected, since size proxies for firm age, and older firms tend to be less dynamic. It is also a proxy for the possibility of moral hazard from management, since monitoring costs increase with size.

- Beta is the standard measure of systemic risk for a firm's stock with respect to the market. It measures shares that have been traded for more than 180 days in a given year.

- Asset tangibility is measured as plant, property and equipment valuation relative to the total assets ratio. Low asset tangibility signals that a firm's cash flow is being produced by intangibles.

- Stock turnover, as a proxy for market liquidity, is a dummy variable that takes the value of one if the stock turnover of the firm is above the 75th percentile.

- Wedge represents the degree of asymmetry between ownership and control. Is the percentage of votes controlled by the firm's largest shareholder minus the percentage of cash flow rights owned by the firm's largest shareholder.

- Shapley value is the solution for the largest shareholders in a three-voting cooperative game. Represents the largest shareholder's probability of forming a coalition with the second and third shareholders.

4 Empirical strategy

The empirical approach to investigate the relationship between board of directors and institutional investors is estimate two equations using econometric methods, one where the dependent variable is institutional investors presence (equation 1), and one where the dependent variable is institutional investors shares (equation 2). The explanatory variables of interest are those describing the board of directors in the two dimensions discussed in section 3.3: board as a whole and the members themselves. Financial, ownership and macroeconomic variables are also included as control variables.

$$\begin{aligned} \textit{Institutional investors (presence)} = f(&\textit{Board of directors}, \\ &\textit{financial}, \\ &\textit{ownership}, \\ &\textit{macroeconomy}) \end{aligned} \tag{1}$$

$$\begin{aligned} \textit{Institutional investors (shares)} = f(&\textit{Board of directors}, \\ &\textit{financial}, \\ &\textit{ownership}, \\ &\textit{macroeconomy}) \end{aligned} \tag{2}$$

Given the data structure (longitudinal) and equations to be estimated (discrete and continuos dependent variables), econometric methods vary accordingly. The baseline estimation methods are standard panel data models and probit model with firm and time fixed effects.

In line with the approach to gather the effect of the board of directors along two dimensions, factor analysis was used. The goal is to reduce the number of variables gathered to study a board of directors into underlying factors that highlight the board and the members characteristics. The method also accomplishes the purpose of reducing several variables into theoretically relevant concepts explaining the characteristics of board of directors without loosing information, and avoiding collinearity issues related to a standard Ordinary Least Squares (OLS) estimation.

Therefore there are four baseline regression estimations presented in section 5. Estimates for presence and shares held by institutional investors explained by underlying factors associated to a set of board of directors variables and estimates for presence and shares held by institutional investors explained by specific variables related to board of directors. All estimations are expanded to independent and grey investors definition.

5 Results

This section summarizes the estimation results for equations 1 and 2. All results are presented and discussed first for institutional investor presence (probit estimation) and second institutional investors shares (panel data estimation). For each equation two set of results are presented: 1. Estimation including board dimensions summarized by factor analysis (section **??**) for institutional investors as a whole and by independent and gray investors. 2. Estimation including single variables chosen to distinguish particular board characteristics for institutional investors as a whole and by independent and gray investors.

5.1 Factor analysis

Factor analysis is used to reduce the dimension of several variables collected to describe a board of directors into more meaningful theoretical concepts related with characteristics of a board as a whole and its members. The factor analysis undertaken in this study resorts to the simplest principal factor analysis method with factor loading rotation.

As presented in section 3.3 board of directors' variables have been divided in two sets, those conveying information on the board as a whole and those summarizing boar members characteristics (table 1).

Factor analysis for the variables comprising information on board composition suggested to retain the first two factors (those factors with eigenvalue higher than 1 in the principal components analysis) which explained 68% of the variance. While factor analysis upon variables incorporating board members characteristics suggested to retain the first three factors (those with eigenvalue higher than 1 in the principal components analysis) which explained 52% of the variance.

The rotated (orthogonal) factor loadings for both sets is presented in table 2. For the set of variables summarizing the board the first factor has a high negative loading for the outsider variable and high and positive loading for the employee variable, followed by CEO on board. Given such loadings factor 1 mostly summarizes a board which welcomes

Table 1. Variables classification for factor analysis

Board as a whole	Board members
• outsiders • turnover • whether there are firm employees in it • whether the CEO is in it • whether the CEO is chairman of the board	• average age of the members • whether a woman sits • whether a foreigner sits • whether members have a masters degree • whether members have undergraduate studies different from law or business • whether members have had experience as CEO • whether members have experience as founder of another firm • whether members have experience in public sector

Note: Variables used in factor analysis. All variables measured as ratio with respect to board size except those with an asterisk.

Source: Author's estimation.

existing employees and dislike alien members, in line with this factor is labeled as "Board Factor: Entrenchment". Factor 2 loadings gathers a strong positive role from the CEO and negative from the turnover rate. This factor unveils the role of CEO and the dislike for volatility, this factor is labeled as "Board Factor: CEO & stability".

For the set of variables summarizing board members' characteristics, the first factor has high loadings on variables that summarize experience in the board (age, and experience variables), this factor is labeled as "People Factor: Experience". The second factor has high and positive loadings on education and experience in public sector, while negative in age, suggesting the aglomeration of variables around a concept of highly trained young members in the board, this factor is labeled as "People Factor: Education". Finally factor 3 show high loadings in gender, foreign and non business / law education, these are characteristics positively related to diversity in the board, this factor is labeled as "People Factor: Diversity".

The results of the factor analysis are consistent with the aspiration of the paper to summarize into less variables valuable concepts to characterize the structure of board of directors. With these new variables (factors) the first set of econometric estimations for equations 1 and 2 is undertaken.

Table 2. Factor loadings

Board as a whole		
	Factor 1	Factor 2
Outsiders	-0.9058	-0.0966
Turnover	0.2782	-0.6110
Employee	0.9122	0.1595
CEO on board	0.4681	0.6731
CEO COB	0.2632	0.7471

Board members' characteristics			
	Factor 1	Factor 2	Factor 3
Age	0.5306	-0.4535	0.0439
Female	0.0876	-0.0201	0.7534
Foreigners	-0.1891	0.0823	0.6333
Edu. Masters	-0.0077	0.8567	0.0395
Edu. Non-business or law	0.4775	0.4774	0.3465
Exp. CEO	0.7176	0.0732	-0.0331
Exp. Founder	0.4937	-0.1423	0.0888
Exp. Public sector	0.5244	0.5012	-0.2743

Note: Rotated factor variables estimated via principal components.
Source: Author's estimation.

5.2 Presence

This section presents the estimation results for equation 1. The estimation method was a probit regression with firm and year dummy variables to capture fixed effects of both dimensions and a set of financial and macroeconomic variables (described in section 3.4).

Table 3 shows the coefficients of the variables of interest. The first finding of importance is the contrasting effect the board characteristics play when studying grey from independent institutional investors. For the sake of illustration the coefficient associated to "Board factor: CEO & stability" has positive sign in the aggregated institutional investor equation and institutional investor equation, while negative in the gray investor estimation.

Examining each estimation result, the institutional investor equation shows that the probability to have an institutional investors is positive with experienced members on the board and negative with the education factor. A positive probability is also observed whit the entrenchment factor and CEO & stability factor. Similar results are observed in the independent institutional investors. This set of results suggest how aggregate behavior

Table 3. Presence (factor variables)

	Inst. investors	Grey	Independent
Factor			
People Factor: Experience (Rotated)	0.372b	0.955b	0.473b
	(0.168)	(0.373)	(0.188)
People Factor: Education (Rotated)	-0.624a	0.123	-0.648a
	(0.215)	(0.393)	(0.231)
People Factor: Diversity (Rotated)	-0.0515	0.00736	-0.0988
	(0.154)	(0.338)	(0.194)
Board Factor: Entrenchment (Rotated)	0.449b	-0.810b	0.882a
	(0.183)	(0.357)	(0.248)
Board Factor: CEO & stability (Rotated)	0.202c	-0.424b	0.337b
	(0.105)	(0.206)	(0.131)
Constant	-0.284	1.554	5.525a
	(1.510)	(3.115)	(1.617)
Financial controls	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes
Observations	836	389	721
Firm dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Country dummy	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes
Robust SE	No	No	No
Pseudo - R2	0.278	0.384	0.315

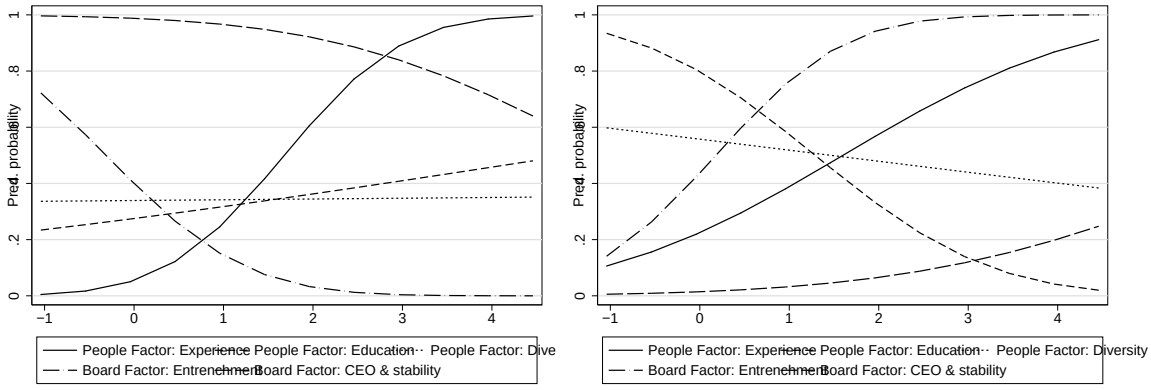
Note: Standard errors in parentheses. a $p<0.01$, b $p<0.05$, c $p<0.1$.

Source: Author's estimation.

of institutional investors might be strongly influenced by independent investors, mutual funds and banks, who increase the likelihood to become a major shareholder when the board is experienced, not particularly trained, with strong CEO involvement and stable.

Completely contrary results are associated to grey investors, insurance companies and pension funds. These investors show positive likelihood to become major shareholders with an experienced board, and negative likelihood with the involvement of CEO in the board. The result suggests this type of investor strongly dislike the role CEOs play on the board of directors. Figure 1 shows the predicted probabilities for the grey and independent institutional investors using factors as explanatory variables.

In order to understand better the results suggested after estimating the regression with factor variables. The estimation results using single variables are discussed now. As informative as is the proposed factors, the ability to gauge the effect to a single measured



a. Grey investors *b.* Institutional investors

Figure 1. Institutional investors. Grey and independent. Predicted probabilities.
Note: Figures show the predicted probability from factor variables upon presence of grey and independent institutional investors. BF stands for Board Factor. PF stands for People Factor.
Source: Author's estimation.

variable is missing. Using individual variables will help to accomplish and improve the association between board of directors and institutional investors. This estimation result is shown in table **??**

Among the variables used to characterize the association between board and institutional investors there are some that show no statistical correlation regardless the equation being estimated (grey or independent investors). Such variables are: turnover, CEO as chairman of the board, female members on the board, education in non-business or law and small board size; although these variables feed the factor variables described above, when individually included in the estimation show no effect. Not to say they are not relevant variables for the analysis, but seem to loose the ability to identify the expected relationship when studied isolated.

The presence of outsiders, foreigners and experience in public sector in the board of directors show a negative sign in all institutional investors and independent investors estimation. Such result suggests, as in the factor variables, the dislike in independent investors of a particular board profile. On the contrary, independent investors are highly positively associated with experience as CEO and founders of other firms. Grey investors show up when the board has foreigners and members with masters degree. Both profiles are in line with the findings of the equation estimated using factor variables.

5.3 Shares

This section presents the estimation results for equation 2. Given the longitudinal structure of the data, the economic estimation method is panel data methods. The estimation results favor the Random Effects (RE) against the Fixed Effects (FE) transformation. [4] Table 5 shows the coefficients of the variables of interest. This set of results is rather disappointing, the only highly significant factor variable is education. In the estimation results for grey investors education increases the amount of shares held, while for the independent investors the amount of shares decreases. In terms of the hypothesis proposed in this paper such results suggests that institutional investors take into consideration the proposed board of director factors when taking the decision of investing, not when deciding the amount of shares to hold.

Table 6 shows the coefficients of the variables of interest, the coefficients showing the effect of the board characteristics on total shares of all institutional investors and on the total shares of each category of institutional investors (grey, independent and foreign). First column shows the results for the shares of all institutional investors. Among all board characteristics under scrutiny, three appear to be relevant for institutional investors: the ratio of foreign directors, the ratio of women directors and the number of board members that left the board that year (board turnover). While foreigners ratio and board turnover have a positive and significant effect 5.81% and 0.43%, respectively. For institutional ownership, the ratio of women on the board has a negative and significant effect (19.9%).

The second column displays the results for the shares of grey institutional investors. In this case, the ratio of foreign directors continues to be positively related to institutional ownership, and in a smaller magnitude (2%). The ratio of women directors, although not significant, is positive. And the ratio of board members with a master degree is positive and significant (3.48%), suggesting that grey institutional investors value trained board members over experienced ones.

Column three displays the results for the shares of independent institutional investors. For this category of investors, very different results are found: the ratio of foreign directors, although negative, is not significant. The ratio of women on the board has a negative and significant effect on independent institutional ownership of 15.2%. The ratio of directors with a high public profile has a negative and significant effect on institutional ownership of 16.6%. The ratio of board members that were founders of any firm or

[4] The Hausman specification test does not reject the null hypothesis of the RE specification is the true model.

organization has a positive and significant effect of 18.1% on independent institutional ownership. And the ratio of board directors with undergraduate studies in non business or law related fields has a negative and significant effect of 5.75% on the shares owned by independent investors. This suggests that independent investors value particularly those firms whose board of directors are experienced men, while their education is not particularly relevant.

Finally, column four shows the results for the shares of foreign institutional investors. Once again, the ratio of foreign directors continues to be significant and positively related (4.61%). The ratio of women directors on the board is negative and significant (13.5%). And board turnover is significant and positively related to foreign institutional ownership (0.24%). Results suggest that foreign investors are the ones who most value the presence of a foreigner sitting in the board compared to the other two groups.

Table 4. Presence (Individual variables)

	Inst. investors	Grey	Independent
Board			
Outsiders	-2.252a	2.185	-1.389c
	(0.799)	(1.445)	(0.734)
Turnover	-0.00677	-0.0183	0.00825
	(0.0327)	(0.0414)	(0.0323)
CEO - COB	0.404b	-0.476	0.0374
	(0.178)	(0.318)	(0.187)
Female	0.551	-0.841	-1.203
	(1.015)	(1.667)	(1.187)
Foreigners	-1.159c	1.564c	-1.337b
	(0.648)	(0.884)	(0.667)
Edu. Master	0.106	3.829a	-0.324
	(0.769)	(1.077)	(0.705)
Edu. Non business or law	-1.490b	-0.477	-0.897
	(0.652)	(0.919)	(0.691)
Exp. CEO	1.562b	0.555	2.113a
	(0.707)	(1.112)	(0.633)
Exp. Founders	1.216	3.072	2.563c
	(1.225)	(2.740)	(1.344)
Exp. Public sector	-1.080	1.398	-2.381b
	(1.153)	(1.987)	(1.168)
Board size 0 and 25th per.	-0.0214	-0.156	-0.180
	(0.175)	(0.272)	(0.185)
Board size 25 and 50th per.			
Board size 50 and 75th per.			
Board size 75 and 100th per.	0.376b	-0.156	0.287c
	(0.157)	(0.189)	(0.158)
Constant	0.358	-5.478b	4.870a
	(1.476)	(2.645)	(1.376)
Financial controls	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes
Observations	1,455	643	1,204
Firm dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Country dummy	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes
Robust SE	No	No	No
Pseudo - R2	0.292	0.289	0.266

Note: Standard errors in parentheses. a $p<0.01$, b $p<0.05$, c $p<0.1$.

Source: Author's estimation.

Table 5. Shares (factor variables)

	Inst. investors	Grey	Independent
Factor			
People Factor: Experience (Rotated)	-0.000420	0.00170	0.00533
	(0.0121)	(0.00284)	(0.00949)
People Factor: Education (Rotated)	0.0191	0.0152a	-0.0274a
	(0.0132)	(0.00314)	(0.0106)
People Factor: Diversity (Rotated)	-0.00353	0.00336	-0.000699
	(0.0110)	(0.00254)	(0.00854)
Board Factor: Entrenchment (Rotated)	-0.00965	-0.00153	-0.00195
	(0.0126)	(0.00304)	(0.0102)
Board Factor: CEO & stability (Rotated)	-0.00772	0.000433	-0.000867
	(0.00770)	(0.00183)	(0.00607)
Constant	0.247c	0.0710b	0.148
	(0.142)	(0.0324)	(0.114)
Financial controls	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes
Observations	1,424	2,002	2,002
Number of firms	200	236	236
Firm dummy	No	No	No
Industry dummy	Yes	Yes	Yes
Country dummy	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes
Robust SE	No	No	No
R2	0.0695	0.0435	0.0747
Chi-stat	114.5	129.1	148.9

Note: Standard errors in parentheses. a $p<0.01$, b $p<0.05$, c $p<0.1$.

Source: Author's estimation.

Table 6. Shares (Individual variables)

	Inst. investors	Grey	Independent	Foreigner
Board				
Outsiders	0.0419	0.0205c	0.0290	0.0290
	(0.0491)	(0.0124)	(0.0389)	(0.0291)
Turnover	0.00434b	-0.000600	0.00237	0.00236c
	(0.00217)	(0.000660)	(0.00188)	(0.00142)
CEO - COB	0.00595	0.00327	-0.00373	-0.0134
	(0.0130)	(0.00371)	(0.0112)	(0.00837)
Female	-0.199a	0.0252	-0.152a	-0.135a
	(0.0614)	(0.0155)	(0.0494)	(0.0365)
Foreigners	0.0581c	0.0200b	-0.0135	0.0461b
	(0.0337)	(0.00883)	(0.0287)	(0.0215)
Edu. master	0.0367	0.0348a	0.0271	0.00492
	(0.0412)	(0.0110)	(0.0348)	(0.0260)
Edu. Non business or law	0.0197	-0.00340	-0.0575c	0.00478
	(0.0387)	(0.0110)	(0.0345)	(0.0256)
Exp. CEO	-0.00349	-0.00760	0.00990	-0.0365
	(0.0417)	(0.0104)	(0.0330)	(0.0250)
Exp. Founders	0.0519	0.0210	0.181b	0.0232
	(0.0873)	(0.0225)	(0.0716)	(0.0547)
Exp. Public sector	0.0379	0.0306	-0.166b	0.0661
	(0.0823)	(0.0224)	(0.0689)	(0.0519)
Board size 0 and 25th per.	0.00758	1.63e-05	0.00277	-0.00297
	(0.00951)	(0.00298)	(0.00871)	(0.00657)
Board size 25th and 25th per.				
Board size 50th and 75th per.				
Board size 75th and 100th per.	-0.0115	-0.00166	0.00269	-0.00838
	(0.00988)	(0.00302)	(0.00877)	(0.00666)
Financial controls	Yes	Yes	Yes	
Macro controls	Yes	Yes	Yes	
Observations	2,622	3,519	3,519	3,275
Number of firms	339	386	386	381
Firm dummy	No	No	No	No
Industry dummy	Yes	Yes	Yes	Yes
Country dummy	Yes	Yes	Yes	Yes
Year dummy	No	Yes	Yes	Yes
Robust SE	No	No	No	No
R2	0.0711	0.0254	0.0895	0.0183
Chi-stat	141.7	98.80	203.1	85.31

Note: Standard errors in parentheses. a $p<0.01$, b $p<0.05$, c $p<0.1$.

Source: Author's estimation.

6 Conclusion

This paper has shown the relationship between board composition and institutional investors in Latin America. The econometric results, on the one hand, suggest grey institutional investors prefer experience, education and diversity in the board of directs, while dislike entrenchment and CEO related factors. On the other hand, independent investors dislike education and diversity, while preferring entrenchment and CEO related factors. In looking carefully to specific variables, grey investors invest more in firms with foreigners and highly educated board members; while independent investors invest less when boards have outsiders, foreign and board members with experience in public sector, however will increase investment when there is an experienced CEO and founders.

In conducting factor analysis to reduce the large number of variables, we are able to summarize board characteristics around experience, education, diversity, entrenchment and CEO factors. Such dimension reduction allows a clearer view of institutional investors interest when becoming a large shareholder of Latin American companies. Regression analysis using factor variables reveals preferences around a narrower set of characteristics, instead of struggling with multiplicity of highly correlated or uncorrelated variables.

The findings are relevant in bridging the institutional investors and board composition literature in the framework of emerging markets. They bring to the front the need to shape a board of directos fulfilling certain characteristics to attract institutional investors and maximize the benefits of the investors' strategy. The results also deliver a message to existing firms interested in attract institutional investors. Whether they are interested in gray or independent investors, firms will have to evaluate their current board composition to expect full benefits of their shareholder composition.

Appendices

1 Acronyms

CEO	Chief Executive Officer
FE	Fixed Effects
OLS	Ordinary Least Squares
RE	Random Effects
ROA	Return on Assets

2 Additional estimation results

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