



The Board Composition as an Explanatory Factor of the Capital Structure of Mexican Listed Companies

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Abstract

Objective – The objective of this study is to analyze the influence of the composition of the BD on the leverage level in companies listed on the Mexican Stock Exchange (MSE) in the materials and industrial sectors during the 2009-2013 period. Particularly, we study four dimensions of the board: size, independence, female presence and the COB-CEO duality.

Design/methodology – This study focused on the materials and industrial sectors comprising about 50% of all listed companies on the Mexican Stock Exchange. The sample consists of 48 companies and 207 year-observations corresponding to the 2009-2013 period. Using a multiple regression analysis. This study is a pioneer in analyzing these variables in Mexico, since previous literature has focused on developed and Anglo-Saxon countries.

Results – The results show that size and independence of the board affect the leverage level. In addition, certain business characteristics such as the industrial sector, the company's age, profitability and size influence the leverage level in Mexican listed companies. The results provide practical evidence for those responsible for issuing policies and principles of corporate governance as well as for the companies under analysis.

Research limitations – There are several limitations in this study. In the first place, only two sectors of the companies listed in Mexico during the 2009-2013 period were analyzed. On the other hand, linear regression analysis was used, which does not solve the problems of causality between variables, however we did not count with enough observations. However, despite the limitations mentioned, the results are interesting in the case of Mexico. In addition, this study can be extended in the future for other sectors and extend the period of analysis, as well as include other Latin American countries to carry out comparative studies.

Keywords Board of Directors, Leverage, Corporate Governance, Mexico.

1. Introduction

In recent years strong pressure has been exercised to strengthen the mechanisms of Corporate Governance (CG) in Mexico and the world. The CG had its origins in the early 1990s, when investors felt the need to demand greater representation in the administrative bodies of the companies. However, the issue of CG became of greater importance in late 2001 and early 2002, when a crisis of confidence arose in the United States' stock market derived from the scandals in which large companies like Enron and WorldCom were affected due to manipulating financial information in order to present investors a situation that did not correspond to what was the company actually living. In these cases, what some managers did was to leave ethics, regulation and accounting principles aside, managing to question the transparency and reliability of financial information as well as investors' confidence. International experience has pointed out that the greater transparency and information there is, the

greater the investor confidence in the markets. That is why to avoid the occurrence of fraud or bad practices and achieving competitiveness, the correct application of CG in companies is proposed. The CG refers to the rules, processes and laws applied in the operation, control and regulation of companies. CG defines the rights and responsibilities of corporate participants: shareholders, the board of directors (BD), and administrators, and other business participants as well as the rules and procedures for decision-making at a corporate level.

One dimension of GC that has been widely studied in the international literature is the BD, which is defined as the highest governing body of the society in which shareholders and business owners delegate their responsibility. It is the place where decisions are made that will affect all areas of the company. In addition, these decisions will conform the pattern of operation of the company's executives. The creation of a BD implies, according to the legislation, the fulfillment of a series of formal requirements such as its registration, structure and regulations that make its members managers and responsible for the company. The BD composition refers to size, percentage of independent members, percentage of women who make up the BD and COB-CEO duality¹. For its part, capital structure is defined as the specific mix of long-term debt and capital. The optimal capital structure emerged since the early 1950s with the traditional concept of financial structure, which defended the idea of an optimal combination of equity and debt, seeking to minimize cost of capital and maximize the company's value. Then came the concept of irrelevance on the value of the company proposed by Modigliani and Miller in 1958, where it is stated that in perfect markets financial structure decisions do not affect the value of the company. These two theses base their assumptions on perfect capital markets while being contradictory in their results. As early as 1963, both authors published another article where they included in their initial model corporate taxes, reversing their initial conclusions and suggesting that the company should borrow as much as possible in order to benefit of the tax advantage of the debt (Zambrano- Vargas & Acuña-Corridor, 2011).

The objective of this study is to analyze the influence of the composition of the BD on the leverage level in companies listed on the Mexican Stock Exchange (MSE) in the materials and industrial sectors during the 2009-2013 period. The study sample consists of 20 enterprises of the materials sector and 28 industrial companies, giving a total of 48 companies. The total of company-year observations is 207. The research aims to answer the following questions: What is the effect of the board composition on the leverage level in Mexican listed companies? Are there significant differences in the structure of the board and the leverage level in the sectors under study? In the second section, the paper presents the theoretical framework, then is shown the research methodology, in section four study results are analyzed, and finally, the conclusions, limitations and future lines of research are described.

2. Theoretical Background

2.1 Context of Corporate Governance at the Global Level

The current global environment requires greater transparency and better CG practices. Investors seek better security conditions and accountability in the presentation of information and policies and procedures of administration and governance. Through the pressures of investors, several countries have issued guidelines and principles of CG through the Codes of Best Practice (CBP). These codes show differences that go in line with the institutional, legal and economic structure of each country. In 1992, the first good governance code was published in the UK, the "Cadbury Report", followed by a series of internationally issued codes. In Spain it was the Olivencia Code of 1998 that establishes the CG bases in the Spanish context, which was followed by the Aldama Code in 2003. Today the recommendations of the Olivencia and Aldama Code have been standardized through the Unified Code of Good Governance or Conthe Code, approved in May 2006. According to the European Institute of Corporate Governance, from 1992 to March 2009, 73 countries had issued 253 s code of

Explanatory Factor of the Capital Structure

good governance, principles and recommendations of CG not always being the government the driving force behind these (Bridges-Poyatos, Velasco-Hernández – Gámez, & Vilar, 2010). These codes have configured what is called "Good Corporate Governance". In Latin America, CG's most important development arose at the beginning of the 1990s. Latin America offers an opportunity for companies to send reliable signals to investors with the voluntary adoption of good CG practices and policies, which partially compensate for the legal deficiency that operates within the environment (Garay & González, 2008).

There are several factors that make CG systems differ and impact the performance of the company. On the one hand, aspects specific to the firm such as its capital structure, compensation mechanisms for its executives, decision-making and control systems. On the other hand, external factors, such as the legal system, corporate control market, management labor market and the degree of competition (García-Meca & Sánchez-Ballesta, 2009). The concept of CG arises through national and international non-conformities of the business organizations, since their purpose was to improve the reliability and transparency from the economic sphere. It is for this reason that the Organization for Economic Cooperation and Development (OECD) established in the year 1999 for the first time a "Principles of CG" which has become a global benchmark for policy makers, investors, companies and other interested parties around the world. The principles are a living instrument that offers non-binding standards and good practices, as well as guidance on the application, which can be adapted to the specific circumstances of different countries and regions. These principles have been updated to improve the CG context (OECD, 2004). According to the OECD, the CG is the mechanism that ensures efficiency, equity, transparency and results through direct actions followed by the organization, in order to achieve reasonableness, accountability, results, transparency and responsiveness. On the other hand, the Code of Best Corporate Practices (CBCP) defines the CG as the system under which companies are managed and controlled. This definition involves the set of principles and mechanisms that design and integrate the company's governing bodies (CCE, 2010).

2.2 Context of Corporate Government in Mexico

Today Mexico faces an increasingly difficult social and economic situation, which from the point of view of businesses, represents a greater vulnerability to global markets and challenges for managers. The development of the CG in Mexico has been linked to the evolution of the stock market due to the need to establish precise rules of administrative and ethical responsibility, as well as to reveal and make transparent the information of public companies. At the initiative of the Business Coordinating Council (BCC) a Committee of Best Corporate Practices was established in June 1999, issuing the first version of the CBCP. In November 2006, a first review of the CBCP was held and the second version was published, and the third revision was in April 2010. The code is not of mandatory observance, but proposes behaviors and parameter for the functions of administrative bodies. The CBCP in Mexico integrates the dimensions of assembly shareholders, board of directors, audit function, evaluation function, compensation, finance and planning function, which in turn are integrated by 51 CG practices.

The CBCP and the New Securities Market Act seeks to establish mechanisms of confidence to attract investment, increase the competitiveness of companies, seeking greater transparency in corporate information and establish controls to prevent improper handling of information. On the other hand, the new Mexican Securities Market Law, effective as of 2006, incorporates good CG practices and principles contained by the CBCP recommendations to make them applicable to securities issuers in the Stock Exchange. In Mexico, control of the ownership of most listed companies is in the hands of the family, so the administration can be manipulated, implying flaws in in-

ternal controls. That is, in many cases relatives occupy managerial positions, without taking into account that they may not be the best suited people to occupy such positions, which generates incompetence and the possibility of fraud in the company (Briano, Argente & Rodríguez, 2011). In this context, the Single Issuers' Circular (SIC), modified in 2009, obliges listed companies to publish their annual report and the degree of adherence to the CBCP.

2.3 Dimensions of Corporate Governance

Diverse dimensions that guarantee the operation of the companies and an effective decision-making integrate the CG. The BD is one of the most important dimensions of CG and is a monitoring mechanism for shareholders. Its main objective is to contribute with opinions based on business experience that effectively protect and enhance the value of the business. The BD must, in principle, have a clear definition of its responsibilities so as to enable a professional action that derives in high value for the company, taking care at all times not to subsidize, not duplicate and not stop performing its functions, which implies an exercise of strategic direction and business strengthening (ACAD, 2012). Leverage is an important dimension within the company as it is a corporate performance supervisory mechanism and establishes the dividend policy in order to increase the annual remuneration of the shareholders and promote a good functioning of the CG (Palacín-Sánchez, 1997). Castrillo-Lara and San Martín-Reyna (2007) show that the increase in debt can be translated into a good investment for the company due to the possibility of bankruptcy induces managers to take a behavior that seeks to reduce the likelihood of this bankruptcy, consequently, managers will try to make more effective decisions to propitiate the creation of value for the company.

2.4 Development of the Study Hypothesis

The problems related to the separation of the ownership and the control were analyzed by classical institutional economists. Veblen (1914) visualized the effect of corporate finance on the ownership and control of the firm (Rutherford, 2001); while Berle and Means (1932) and Coase (1937) argued that the ownership of large companies was dispersed among a large number of shareholders, which implied that control was in the hands of the managers of the companies. Thus, a conflict of interest between shareholders and directors is identified as the first only seek monetary benefits while managing goes in search of the prestige, money and power of the company (García-Soto, 2003). The agency theory arises in the USA and the United Kingdom, being the legal and institutional context of these countries favorable to the efficient application of agency contracts (Peng, 2003). The agency theory is related to the theory of ownership rights and the theory of the transaction costs and defines the firm as a series of contractual relationships between individuals, who have residual rights over assets and cash flows of the organization. It is understood that an agency relationship arises each time an individual depends on the action of another, and gives place to a contract under which one or more persons (the principal) entrusts to another person (the agent) the performance of some services on their behalf (Pratt & Zeckhauser, 1991; Jensen & Meckling, 1976).

According to García-Soto (2003) within the agency theory there are two currents of different research, the positive agency theory and the principal-agent theory, which share similar characteristics that propose that agency costs are minimized through the hiring process. The positive agency theory is characterized by being less formalized, lacking mathematical orientation, being of an empirical nature and focusing, fundamentally, on the study of large companies. The second current, called principal-agent theory, is characterized by being less abstract than the first, has a mathematical orientation and unlike the first theory that focuses on the study of large companies, it does so in a broader set of organizations.

Explanatory Factor of the Capital Structure

2.4.1 *The Independence of the Board and the Leverage Level*

According to the agency theory, the BD is a control instrument that reduces the agency costs to maximize the wealth of the shareholders. A tool that reduces stress between management and shareholders (Jensen & Meckling, 1976). The BD must be composed by independent directors in accordance with the regulatory framework or codes of good governance. The responsibilities of independent directors include contributing to the strategy and managerial supervision and ensure the necessary staffing support committees. The decisions of the independent directors generally take care of the interests of the company, leaving aside personal interests of family members.

With regard to the relationship between the BD and the leverage level of the company, Fatma and Dufour (2005) show evidence of a positive relationship between the presence of independent directors and the company's advantage. That is, the independent members whose function is to assure the allocation of resources, allow the company to increase its credibility and therefore its ability to borrow. On the contrary, family counselors prefer to maintain exclusive control and prevent external financing. The presence of independent directors decreases the cost of the debt as long as the credit conditions are favorable or the demand of the companies for the leverage is low (Bradley & Chen, 2015). On the contrary, the cost of debt increases when the credit conditions are unfavorable or the demand for corporate leverage is high. Debt is perceived as a variable representative of the level of dependence of the council, since it is precisely independent boards that have the reputation and credibility necessary to access the bank loan more easily (La Porta, López-de-Silanes, Shleifer & Vishny, 2000). That is to say, independent directors usually establish corporate policies that increase business risk, which could have an impact on greater leverage. Therefore, the hypothesis to be tested in this study is as follows.

H1: The higher the proportion of independent directors, the higher the leverage in Mexican listed companies.

2.4.2 *The Size of the Board and the Leverage Level*

According to Cai, Keasey and Short (2006), small boards have gained popularity, since larger ones generate higher costs and bureaucracy, which leads to lower corporate transparency. According to Gandía (2008), the BD must be composed of a reasonable number of directors. The optimal size of the board has an impact in its good functioning and its supervisory capacity. There is debate in the literature regarding the effect of a BD's size on the political and financial structure of the company. On one hand, John and John (1993) argue that decisions discussion in small groups favors a policy of aggressive financing. Along the same lines, Wang (2012) shows that companies that constitute small boards adopt more conservative debt policies, although they prefer to take greater risk in investment decisions. That is, the smaller boards are more conservative the debt policy must be followed. Given the above, the following hypothesis is established.

H2: The larger the size of the board, the higher the leverage level in Mexican listed companies.

2.4.3 *Female Participation in the Board and the Leverage Level*

Diversity in the board may favor of improving business management thanks to the participation of women in senior management positions, both from a work, organizational and financial approach. In this context, Burke (1997) concludes that companies that had women on the board had a competitive advantage that translated into higher sales. Bilimoria (2000) supports the argument that female presence not only improves reputation, but also improves strategic direction by integrating a more glob-

al vision of the company. According to the traditional CG litigation, both debt and managerial share represent two basic control mechanisms in the company, given its ability to align the interests of managers with those of shareholders. The independence of a board strengthens the institutional environment in countries with poor protection of the minority shareholders when counteracting the discretion of the majority groups (Pindado & De la Torre, 2006). There is also an effective relationship between female participation and the level of debt, which can be explained from the belief, shared in other countries, that diversity is a fundamental trigger for the independence of the BD and that they are precisely independent BAs those who achieve the reputation and credibility necessary to access financing more easily. However, the lack of relationship between the female presence and the degree of managerial participation would suggest that this independence of the board is perceived from the outside, but it is not fulfilled within the company. Therefore, the hypothesis that we propose in this investigation is as follows.

H3: Female participation increases the leverage in listed Mexican companies.

2.4.4 COB-CEO Duality and the Leverage Level

The COB-CEO duality refers to the practice in which a single person occupies both positions. This variable has been of great interest to researchers, professionals and academics in the last two decades. The BD is configured to monitor the management as well as the CEO in representing the interests of the shareholders. In accordance with a study carried out by Vintilá (2013) there is a negative correlation between the leverage level and the COB-CEO duality, remarking that this benefits the creation of value within the company because it works with close collaborative relationship with the BD. The results of this study show that the COB-CEO duality has a negative impact on the debt level. Therefore the proposed hypothesis is:

H4: The COB-CEO duality reduces the leverage level in Mexican listed companies.

3. Research Methodology

3.1 Study Sample

The study focuses on companies listed on the Mexican Stock Exchange, corresponding to the sectors of materials and industrial sectors, as these sectors account for about 50% of listed companies in Mexico, excluding companies belonging to the banking and insurance sector, given that its regulation is stricter and are subject to greater scrutiny in terms of regulations and CG (Garay & González, 2008). For the analysis, those companies whose information was not available in their annual reports or websites were excluded. Table 1 shows the integration of the study sample.

Sector	Number of companies	Number of observations
Materials	20	90
Industrial	28	117
Total companies	48	207

Source: Self made

Table 1
Number of companies
that make up the study
sample

3.2 Type of Research

A quantitative research approach is adopted, since both quantitative variables (financial ratios) as well as some dichotomous variables are used. The multiple regression model provides an explanatory level to the study. The Ordinary Least Squares (OLS) method will be used to study the relationship between the leverage level and the variables related to the composition of the BD. The information related to the variables of the BD, the financial ratios and control variables were collected from each of the annual reports through the content analysis technique (Samaha et al., 2012). According to Kothari (2009), the principle that governs the analysis of content is that the words of a text can be classified into categories, and therefore be subject to compari-

Explanatory Factor of the Capital Structure

son. The technique used for the collection of the information was the content analysis, which focuses on the analysis and identification of the information contained in the annual reports, either through the search of key words or by careful reading of the information. Once the database was finished, the treatment of outliers or extreme values was carried out, since these could affect the reliability of the results.

3.3 Specification of the Model and Measurement of the Study Variables

The empirical analysis seeks to analyze if the leverage level is associated with the composition of the council (size of the board, independence of the board, female participation in the board and duality COB-CEO). Equation [1] shows the model to be estimated, while table 2 describes the variables integrated in the model.

Equation 1. Empirical model

$$Lev = \alpha_i + \beta_1 BS_i + \beta_2 BI_i + \beta_3 Gender_i + \beta_4 Duality_i + \beta_j [controls_i] + \mu_i$$

Where:

$\beta_j [controls_i]$ = Set of control variables (size and age of the company, years quoted on the stock exchange, profitability of the company (ROA and ROE) and dummy variables for the industrial sector and the year of study) (Wang, 2012).

μ = Error term.

Variable	Definition	Expected sign	Source
<i>Dependent variable</i>			
<i>Lev</i>	Debt level (Book value of total debt / Total Assets)		Wang (2012)
<i>Independent variables</i>			
<i>BI</i>	Board independence: Proportion of external directors with respect to the total number of board members.	+	Fatma and Dufour (2005); La Porta et al. (2000)
<i>BS</i>	Size of the board: Number of members in the BD.	+	John and John (1993)
<i>Gender</i>	Percentage of women who participate in the board with respect to the total number of members.	+	Bilimoria (2000)
			Pindado and De la Torre (2006)
<i>Duality</i>	Duality of the COB-CEO: Dichotomous variable that takes the value of 1 if both positions are held by the same person and 0 otherwise.	-	Vintilá (2013)

Source: Prior research

4. Analysis of Results

4.1 Descriptive Analysis

Table 3 shows the descriptive statistics for the variables corresponding to the BD. It is observed that the independence of the board in the industrial sector has an average of 0.69, while in the materials sector an average of 0.34 is registered. With respect to the size of the BD, the industrial sector obtains an average of 12 directors, while the material sector of 11 directors. There is a very low female participation rate in the materials sector (2%), compared to the industrial sector, which obtains 9%. Finally, the results show a greater COB-CEO duality in the industrial sector, with 32.5%, while the materials sector gets 16.7%.

Table 2
Definition and measurement of study variables

Board of directors	Industrial Sector									
	Mean the	MATERIALS				INDUSTRIAL				
		% of				Standard	% of the			
		Max	Min	Std. Desv	%	Mean	Max	Min	deviation	column
Size	11	18	6	3		12	21	7	3	
Independence	0.34	0.75	0.00	0.24		0.69	7.00	0.00	1.27	
Gender diversity	0.02	0.22	0.00	0.05		0.09	3.00	0.00	0.35	
COB-CEO duality					83.3%					67.5%
COB-CEO No Duality					16.7%					32.5%

Table 3
Descriptive statistics for the board of directors

Table 4 shows the descriptive statistics for the financial and corporate variables. It is noted that the material companies are older with a mean of 3.03 years. It can be said that the materials sector is more profitable with an average of 0.07 compared with 0.04 of industrial sector. It is noted that industrial companies are the most indebted with an average of 0.53 compared with 0.44 of material sector. In addition, the companies with a major size is materials with 14.47 of Ln total assets compared with industrial sector (13.09).

Financial and corporate variables	MATERIALS					INDUSTRIAL				
	Mean	Max	Median	Min	Std. Desv	Mean	Max	Median	Min	Std. Desv
Age of the firm	3.03	4.41	3.37	0.00	1.22	3.07	4.44	3.22	1.10	0.73
ROA	0.07	0.54	0.04	-2.3	0.12	0.04	0.28	0.04	-0.11	0.07
ROE	0.14	1.87	0.10	-0.30	0.26	0.05	0.54	0.09	-2.74	0.34
Total leverage	0.44	1.70	0.43	0.00	0.28	0.53	0.98	0.53	0.06	0.20
Size Firm (Ln)	14.47	19.59	14.64	10.91	1.67	13.09	19.39	14.13	0.00	4.31

Table 4
Descriptive statistics for financial and corporate variables

4.2 Correlation analysis

Table 5 describes a number of significant correlations between the dependent variable (leverage level) and the independent variables (board structure) and control. It is observed that the leverage level is significantly and positively related to the size of the board, the independence of the BD, the COB-CEO duality, the industrial sector, the age of the company and the years of study. On the other hand, the analysis shows a negative association between the leverage level and the profitability and size of the company. These correlations show a significant P value of 0.01 and 0.05.

4.3 Multiple regression analysis

Table 6 shows that the multivariate model is significant (P value = 0.000). The explanatory variables referring to the composition of the board and control explain 46.2% of the model (R value), while the R² is 21.4%, which is in line with previous literature in the CG area. To evaluate the potential collinearity between variables, the explanatory and control variables were analyzed and variance inflation factors (VIF) were calculated, which were shown to be below 2 and the tolerance level above 0.60, which show the absence of problems of correlation and linearity between variables. Table 7 shows the statistics and the results of the multiple regression analysis.

To verify the relationship between the leverage level and the composition of the BD, the multiple regression analysis was performed. The model was derived from the aggregation of the variable to be explained, which is, the total leverage level and the explanatory variables referring to the BD structure (size, independence, female participation and COB-CEO duality), as well as the control variables. The variables that turned out to be significant in the model were: size of the BD with a positive association (value of p = 0.01), independence of the board with a negative influence (value of p = 0.05), the industrial sector (value of p = 0.10), the age of the company with nega-

Explanatory Factor of the Capital Structure

tive influence ($p = 0.10$), profitability with negative association ($p = 0.01$) and the size of the company that negatively influences ($p = 0.01$). See table 7.

In this context, the accepted hypothesis is number 2 which states that the size of BD positively affects the debt level, while hypothesis 1 despite being significant, its impact is negative, which leads to reject this hypothesis. In the case of listed Mexican industrial and materials companies, empirical results show that larger boards favor a higher debt ($p = 0.01$), while the independence of the BD has an opposite effect at least in the case of Mexico ($p = 0.05$). This could be due to Mexico's institutional and regulatory environment, which is characterized by being weak and with low investor protection, which has an aversion to risk and indebtedness, in addition to not having a favorable credit environment. It is also observed that the control variables referred to the industrial sector ($p = 0.10$), the age of the company (0.10), the profitability [ROA] (0.01) and the size of the company ($p = 0.01$) are factors that affect the level of indebtedness. For example, it is expected that older, more profitable and larger companies to be less indebted, since they are self-sufficient and can self-finance in new projects (Wang, 2012). On the other hand, the variables that were not significant are those of female participation in the BD, given that their participation is minimal in Mexico compared to other countries, the COB-CEO duality, the year of study, the years of contribution and the ROE.

Table 5
Correlation analysis between the study variables

Variables	Total indebtedness	Size of the council	Independence of the council	Femininity index	COB-CEO Duality	Industrial sector	Year of study	The age of the company	Years of contribution	ROA	ROE	Tamaño of the company (Ln)
Total leverage	1.00											
Board size	0.226**	1.00										
Independence board	0.148*	0.165*	1.00									
Gender diversity	0.035	0.172*	-0.024	1.00								
COB-CEO duality	0.197**	0.217**	0.273**	0.001	1.00							
Industrial sector	0.171*	0.049	0.174*	0.124	0.180**	1.00						
Year of study	0.201	0.077	-0.033	-0.063	0.058	0.113	1.00					
The age of the company	0.119	0.086	0.260**	0.024	0.256**	0.023	0.121	1.00				
Years of study	0.137	0.164*	0.464**	-0.042	0.151*	-0.171*	0.121	0.787**	1.00			
ROA	-0.275**	0.025*	-0.069	-0.024	-0.143*	-0.122	-0.014	-0.268**	-0.136	1.00		
ROE	-0.221**	0.113	-0.016	0.025	-0.171	-0.151*	-0.145*	-0.189**	-0.035	0.547**	1.00	
Size of the company (Ln)	-0.336**	-0.065	-0.641**	0.080	-0.437**	-0.198**	-0.164	-0.209**	-0.176*	0.233**	0.473**	1.00

** The correlation is significant at the 0.01 level

* The correlation is significant at the 0.05 level

Table 6
Summary of the R squared model obtained in the multiple regression model

Model	R	R square	R squared adjusted	Standard error of the estimate	Change statistics				
					Change of square R	Change in F	df 1	df 2	Next. Change in F
Dependent variable: leverage	0.462 _a	0.214	0.169	0.21913	0.214	4.730	10	174	0.000

a. Predictors: (Constant), ROE, Year of study, Board independence, Gender Diversity on the board, Industrial sector, Size of the board, Ln age of the company, COB-CEO duality, ROA size of the company (Ln)

Table 7
Multiple regression analysis and tolerance factors and variance inflation

Variables	Non-standardized coefficients		Standardized coefficients		Collinearity statistics			
	B	Standard error	Beta	t	S.I.G.	Tolerance	VIF	
(Constant)	9.483	24.202		0.392	0.696			
Size of the council	0.014	0.005	0.184	2.527	0.012	0.847	1.181	
Independence of the council	-0.057	0.028	-0.240	-2.069	0.040	0.332	3.013	
Index of femininity	0.024	0.062	0.027	0.391	0.696	0.924	1.082	
COB-CEO duality	0.011	0.041	0.021	0.273	0.785	0.734	1.362	
Industrial sector	0.067	0.037	0.138	1.794	0.075	0.761	1.314	
Year of study	-0.004	0.012	-0.025	-0.361	0.719	0.932	1.073	
Age of the company	-0.054	0.031	-0.214	-1.704	0.090	0.284	3.519	
Years of contribution	0.004	0.002	0.224	1.609	0.109	0.231	4.325	
ROA	-0.682	0.218	-0.262	-3.130	0.002	0.639	1.564	
ROE	0.069	0.074	0.091	0.928	0.355	0.467	2.141	
Company size (Ln)	-0.027	0.008	-0.405	-3.399	0.001	0.316	3.163	

a. Variable dependent: total leverage

5. Conclusions and Limitations

Corporate governance has gained great importance at a global and regional level, and has been adopted as a strategic tool by listed companies to maintain the integrity and confidence of investors in the capital markets. An extensive literature has analyzed the possible relationship between the dimensions of CG and the business and financial performance, but in the Mexican case literature is limited. For its part, the capital structure is a key element in making business and investment decisions.

The present study analyzed the influence of the structure of the BD referring to its size, independence, female participation and the COB-CEO duality on the level of indebtedness. To this end, Mexican listed companies from the materials and industrial sector were studied, which capture nearly 50% of the total number of companies. According to the agency theory, the BD, which constitutes the main supervising body of the management action, significantly influences the leverage level. The empirical results of this study show that the size of the BD has a positive influence on the debt level of the listed companies, so hypothesis 2 is accepted, which supports the statement that the greater the number of directors participate in making financial decisions, these will promote higher levels of leverage. On the other hand, the fact that BD independence is significant but in a negative way, leads us to reject hypothesis 1, which refers to the fact that BD independence increases the level of leverage. This could be due to the institutional environment that operates in Mexico (Bradley & Chen, 2015). The variables of gender diversity and COB-CEO duality are not significant in the analysis, which leads us to reject hypothesis 3 and 4. It is also interesting to note that the characteristics of the company such as age, profitability (ROA) and size influence negatively on leveraging decisions. For its part, the industrial sector obtained a higher leverage index compared to the materials sector.

There are several limitations in this study. In the first place, only two sectors of the companies listed in Mexico during the 2009-2013 period were analyzed. On the other hand, linear regression analysis was used, which does not solve the problems of causality between variables, however we did not count with enough observations. However, despite the limitations mentioned, the results are interesting in the case of Mexico. In addition, this study can be extended in the future for other sectors and extend the period of analysis, as well as include other Latin American countries to carry out comparative studies.

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Explanatory Factor of the Capital Structure

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