

The moderating effect of corporate governance on the relationship between diversification and operational performance in Mexican companies

Efecto moderador del gobierno corporativo sobre la relación entre diversificación y desempeño operativo en las empresas mexicanas

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Abstract

This paper aims to analyze the moderating effect of corporate governance on the relationship between business diversification and operational performance. The diversification literature shows empirical evidence that diversification can generate negative and positive returns in the firm; however, to our knowledge, few empirical studies have considered the impact of corporate governance to shed light on this relationship. We use data from 134 companies listed on the Mexican Stock Exchange (BMV, from its Spanish acronym) during the 2011-2018 period. Secondary data from 134 companies listed on the BMV during the period 2011-2018 were used and subjected to panel data analysis techniques. The main finding shows a positive effect on the implementation of corporate governance practices when diversification occurs in its unrelated form. This finding allows to identify the conditions under which diversification achieves better results for companies that use this growth strategy.

Keywords: Corporate governance; related diversification; unrelated diversification; operational performance; moderating effect.

Resumen

Este documento tiene como objetivo analizar el efecto moderador del gobierno corporativo en la relación entre la diversificación de negocios y el desempeño operativo. La literatura sobre diversificación muestra evidencia empírica de que la diversificación puede generar rendimientos negativos y positivos en la empresa; sin embargo, hasta donde sabemos, pocos estudios empíricos han tenido en cuenta el impacto del gobierno corporativo para arrojar luz sobre esta relación. Se utilizaron datos secundarios de 134 compañías listadas en la Bolsa Mexicana de Valores (BMV) durante el periodo 2011-2018, los cuales fueron sometidos a técnicas de análisis de datos panel. El principal hallazgo muestra un efecto positivo en la implementación de prácticas de gobierno corporativo cuando la diversificación se presenta en su forma no relacionada. Este hallazgo permite identificar las condiciones en las cuales la diversificación alcanza mejores resultados para las empresas que utilizan esta estrategia de crecimiento.

Palabras clave: Gobierno corporativo; diversificación relacionada; diversificación no relacionada; desempeño operativo; efecto moderador.

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Introduction

Business diversification represents one of the most important activities that companies perform as a strategic measure of expansion (Arte & Larimo, 2022; Vázquez & Morales, 2018; Wang & Xia, 2022). The related literature suggests that, in some cases, implementing a diversification strategy generates agency problems in which senior management seeks diversification in a short-term growth strategy, causing negative results for firms (Hoskisson & Turk, 1990; Jensen & Meckling, 1976; Martínez-Campillo & Fernández-Gago, 2009; Panikarova & Vlasov, 2016). For this reason, some authors have proposed the implementation of controls that allow the mediation of the interests between the agent (CEO) and the principal (Freeman & McVea, 1983; Shleifer & Vishny, 1997; Strange, 2018). However, literature does not deeply address the effect of corporate governance practices on diversification. Therefore, this research paper aims to analyze the moderating effect of corporate governance on the relationship between business diversification and operational performance. Studying diversification in a context of corporate governance will allow to understand the impact of these variables on the performance of the company and provide solutions to agency problems.

Literature on diversification is broad, and it offers various results regarding the relation of diversification to operational performance. On the one hand, there are works that relate these variables to each other by finding a positive effect using underutilized asset capacity (Fernández & Díez Vial, 2013; López-Cózar-Navarro *et al.*, 2017; Martínez-Campillo & Fernández-Gago, 2008; Miller, 2006; Phung & Mishra, 2017). In contrast, other authors argue that diversification is not positively related to operational performance because new businesses with little experience are subsidized by a main business, thereby suggesting concentration as a better growth strategy (Dang *et al.*, 2016; Martínez-Campillo & Fernández-Gago, 2009).

Diversification has been defined by several authors as the use of resources and capabilities to generate economic activities other than those of the main business, aiming to obtain increases in profits (Ansoff, 1957; Ehiedu & Priscilla (2022); Miller, 2006; Rumelt, 1974; Rumelt *et al.*, 1991). Likewise, diversification is traditionally divided into two aspects according to the magnitude of the resources used for the different economic activities. The first aspect is related diversification, which maintains a close operational relationship between the different activities of a company, and the second aspect is unrelated diversification, which incorporates business lines that are different from the main line (Ansoff, 1957; Miller, 2006).

Given the popularity of diversification as a business growth strategy, some authors suggest the implementation of control measures that regulate and maximize resources for the benefit of the company and its stakeholders (Gómez-Mejía *et al.*, 2010; Panikarova & Vlasov, 2016; Strange, 2018). These corporate control measures have been called corporate governance practices, which have been studied and adopted by large corporations as tools that allow risk reduction and regulation of the interests of stakeholder interest groups, thus, ensuring an optimal way to operate in the market (Denis & McConnell, 2003; Freeman & McVea, 1983; Sánchez-Ballesta & García-Meca, 2007; Strange, 2018).

Corporate governance practices are understood as the set of mechanisms that, through ordered controls, seek compliance with the decisions made by the board and safeguard the interests of the stakeholders (Freeman & McVea, 1983; Sánchez-Ballesta & García-Meca, 2007; Strange, 2018).

Based on the above, in this research it is proposed to analyze the moderating effect of corporate governance practices on the relationship between concentration and diversification strategies (both related and unrelated) and operational performance in Mexican companies. To this end, the companies listed on the Mexican Stock Exchange (BMV, from its Spanish acronym) were selected as the unit of analysis; thus, the necessary information was collected from publicly available reports generated by the companies, with the aim of determining the relevance of the interaction of the variables over time within a dynamic environment.

Theory and hypotheses

One of the main areas addressed by business studies in recent years has been the identification of those resources and capabilities that contribute to organizational performance (Foss, 1997; Phung & Mishra, 2017; Vázquez & Morales, 2018). These items are exploited by companies seeking higher returns in their activity with the objective of generating a competitive advantage (Dang *et al.*, 2016; Phung & Mishra, 2017). The resource-based view of the firm is based mainly on the heterogeneity of the assets, as well as on the existing capacities within the organizations, which generate different results when competing in the industry. Therefore, the diversification strategy that companies choose is usually linked to the resources they own (Barney, 1991; Priem & Butler, 2001).

Resources and capabilities are defined according to their worth and scarcity, such as those that are uncommon in companies and which are not offered in a market of goods. These items come to be considered as valuable, rare, imperfectly imitable, and non-substitutable, thus, allowing them to be considered a source of sustainable competitive advantage (Barney, 1991).

In relation to diversification, Barney (1991) states that resources and capabilities are important for the growth of a company. As the company diversifies, its resources tend to expand, while its capabilities tend to increase to the extent that they could no longer be compatible or combinable. In contrast, when a company does not diversify, it concentrates its resources and capabilities only on its main activities.

Therefore, specialization in activities can generate advantages related to concepts such as the accumulation of experience, which is also called the learning curve, or the use of installed capacity, commonly related to the concept of economies of scale. Both concepts have a time component; that is, accumulation and scale are both achieved by keeping core activities constant (Porter, 1985). This constancy allows the establishment of a strong position against competitors in each industry (Miller, 2006; Septina, 2022).

Thus, in accordance to the provisions of the theory of resources and capabilities, and coinciding with the use of assets in the search for results, the following hypothesis is established:

H1: Concentration has a positive effect on the operating performance of BMV companies.

As argued before, the effect of the use of assets on business performance has been studied from an internal perspective. Suárez (1993) relates the effect that assets have on the intention of organizations to develop new products. In his work, Suarez identifies the increase in results from the shared use of assets in operational activities, both for products that are already positioned and for new ones (i.e., diversification). This finding is supported by a study carried out by Fernández-Olmos & Díez-Vial (2013), where the authors explain that through the proper use of resources that are not used in the generation of new products a positive performance for the company can be preserved.

In specific, the idea that increased resources and capabilities can be related to diversification is their shared use, especially when diversification activities have points in common (i.e., that are complementary) (Fernández & Jurado, 2018). In this way, the complementarity of assets that is achieved when the company diversifies in a related way can generate great benefits for the company. Bettis (1981) argues that the use of the resources available for companies to expand their product lines in other sectors is related to their principal strategy. In his study, the author finds that, through the implementation of a related diversification strategy, greater operational performance is achieved. In another study, Gary (2005) agrees with the argument made by Bettis (1981), since he explains that diversification could bring positive results in their related form if the resources used are implemented in an appropriate manner.

One of the reasons why related diversification can offer positive results is derived from the organizational structure. The organizational structure adopted in a situation of diversification helps to efficiently achieve the objectives, and it can be adapted to a competitive environment (Chandler, 1962; Tsai *et al.*, 2009; Williamson *et al.*, 2022).

Therefore, linking assets appropriately between business units represents the maximum utilization of capabilities and the opportunity to increase operational performance. Hill & Hoskisson (1987) propose a multidivisional structure that can centralize financial and decision-making activities according to needs.

Based on the arguments made above, the following hypothesis is proposed, seeking to respond to the effect of related diversification in a Mexican business context:

H2: Related diversification strategy has a positive and significant effect on the operational performance of BMV companies.

As stated above, the diversification strategy represents a measure of business growth, where the use of valuable resources is vital to achieving specific objectives. That is why, in the context of unrelated diversification in which activities, products, and assets are heterogeneous, there is a lower probability of using the assets complementarily in the organization. The acquisition of assets that support an unrelated diversification strategy is necessary, especially when such a strategy is not related to the main activities (Berger & Ofek, 1995; Dang *et al.*, 2016).

Therefore, some companies seek diversification as a measure of growth not only by competing in their own sectors but also by migrating to other sectors. This phenomenon can be visualized from a geographical perspective, taking as a reference axis the current positioning of company activities, for instance, the national or international level (Bueno, 1995).

Some studies address the impact generated by unrelated diversification in business operational performance. In some cases, these studies find a negative relationship, where diversification establishes a presence in different sectors, which causes the lack of competition capability and thereby generates returns below the industry average (Arte & Larimo, 2022; Dang *et al.*, 2016; Forcadell, 2004; Martínez-Campillo & Fernández-Gago, 2009).

One of the important factors for growth through a diversification strategy is the investment issue. Dang *et al.* (2016) found that related diversification is more attractive to external investments than unrelated diversification. In the context of unrelated diversification, companies must base their decisions on their own resources and lack of experience (Chatterjee *et al.*, 2003).

In this sense, the argument for the use of unused resources and valuable resources for the implementation of business diversification is the possibility of achieving positive results when such diversification seeks related business lines. Otherwise, when diversification is implemented in a context of unrelated lines, according to the literature, it is common to expect negative effects (Capron & Mitchell, 2010).

Based on the previous works, a few studies have managed to separate diversification into its slopes (i.e., related and unrelated) (Moatti *et al.*, 2015; Senderovitz *et al.*, 2015). Since these aspects are separate from the theory of resources and capabilities, the following hypothesis is proposed for unrelated diversification:

H3: Unrelated diversification has a negative and significant effect on the operating performance of BMV companies.

Corporate governance: a vision from agency theory

One of the current corporate issues that has been the focus of attention for both the business and research contexts is that of corporate governance (Escobar-Váquiro *et al.*, 2016; Grajales *et al.*, 2013). The main objective of corporate governance is to support the conditions -mainly in senior management- that allow the balancing of the interests of shareholders and managers, which ensures the proper use of investments and confidence in adequate remuneration.

The adoption of corporate governance practices is based on agency theory and derived from the need for business control, where the decisions made by the agent, pertaining to the correct application of resources, are aligned with the company's objectives and with the interests of the principal, thus avoiding the so-called agency problem in a context of property separation (Jensen & Meckling, 1976; Teodoro-Cruz & Vargas-Hernández, 2017).

That is, in an environment of constant change, companies have taken on organizational structures that have allowed them to maintain operational control in different areas. Given this situation, many owners have had to delegate decision-making power to the so-called agents (Clarke, 2004; Esparza *et al.*, 2021; Jensen & Meckling, 1976), which leads to the following hypothesis:

H4: Corporate governance positively impacts operating performance in BMV companies.

Corporate governance in the context of diversification

Diversification strategies have been seen to grow and take advantage of underutilized resources belonging to the company, thereby forcing the principal to delegate power and authority to the agent in situations of great operational magnitudes, especially in the case of unrelated diversification (Teece, 1982). In these situations, corporate governance can be a tool used to balance the interests of the parties involved (Amihud & Lev, 1981; Jensen, 1986).

To increase the value of the company, the CEO (agent) can resort to business diversification as a measure of expansion and the search for short-term benefits (Esparza *et al.*, 2021; Hoskisson & Turk, 1990; Jensen, 1986; Puente & Andrade, 2016).

To prevent the agent from establishing short-term measures that harm the value to shareholders, especially in the Latin American context, Turrent (2014) mentions that information transparency is important after the uncertainty of depositing investments through shares in companies that provide stock quotes. Likewise, Turrent (2014) argues that transparency, as a key element for corporate governance, plays an important role for organizations seeking this type of financing.

For Rutledge *et al.* (2016), the situation of CEO duality represents a problem for companies. In their study, in which they analyze 100 companies that were listed on NASDAQ during the 2010-2014 period, they find that the practice of CEO duality negatively impacts organizations; this negative impact is attributed to the reduction of information asymmetry between the board and the managerial level.

In this sense, it is considered that a diversification strategy should correspond to the size of the company and the benefits that it can generate for the agent, assuming that diversification is an appropriate path for the agent without using their position to meet their personal goals (Jensen & Murphy, 1990). However, this behavior is not always explicit. For example, Hoskisson & Hitt (1988) comment that when they questioned agents about the search for personal benefits through business diversification, the agents denied such behavior. This characteristic increases the need of the implementation of corporate governance as a control (Gómez-Mejía *et al.*, 2010).

The context of unrelated diversification is interpreted as an extreme situation in which organizations exert their presence in different sectors with respect to the product lines offered (Ansoff, 1957), directly affecting the organizational structure and, with it, the delegation of power with respect to each product line. This approach can be viewed as an opportunity for the CEO to gain power and prestige in the short term and to risk the long-term financial well-being of the organization (Hoskisson & Turk, 1990; Mohan & Chandramohan, 2018).

Therefore, the following hypotheses are proposed, considering the effects of diversification strategies in the presence of the moderating effect of corporate governance:

H4a: Corporate governance moderates the relationship between related diversification and operating performance of BMV companies in a positive and significant way.

H4b: Corporate governance moderates the relationship between unrelated diversification and operating performance of BMV companies in a positive and significant way.

Materials and methods

The present study focuses on the companies that traded on the BMV in the years 2011-2018. To achieve this, a quantitative approach was adopted using a panel data analysis through the generalized moments method (GMM) with a correlational-causal scope. The information used in this study was obtained through the Bloomberg platform, which collects financial data, among which is that provided by the BMV. During the 2011-2018 period, 134 companies containing at least one of the eight years within the study period were listed (Appendix A. Supplementary Data 1 – Company List).

Dependent variable

Operational performance. For this research work, operational performance represents the dependent variable, which seeks to measure the result of the implementation of resources and capabilities in the company's operations. EBITDA (Earnings Before Interest, Tax, Depreciation and Amortization) is used for this purpose.

EBITDA allows a better detection of the efficiency regarding the use of the resources of the organization because it provides the financial information of the profits that the company generates before interest, taxes, depreciation, and amortization (Bouwens *et al.*, 2019). Unlike net income, which reflects the result after considering nonoperating items, EBITDA represents a result closer to the efficient use of resources that the company manages at the operational level (Cornejo & Díaz, 2006; Iço & Braga, 2001; Nissim, 2017).

Independent variables

Concentration. To determine the concentration level more accurately than that established by a simple dichotomous classification, the Herfindahl index was used. This variable was retained in the form of an index to help better explain the level of concentration/diversification with which companies operate in different markets, considering the percentage of sales that each product represents of the total sales. The concentration level for this variable is determined as follows: a lower value from the Herfindahl index was assigned to a company if it focused on a single segment of products and markets (concentration), while a high value of this metric was assigned to a company if they demonstrated diversity in product segments and markets (diversification). This variable has been named "Concen" for the purpose of presenting results.

Related and unrelated diversification. Similarly, to determine the level of diversification with more accuracy than that provided by a simple dichotomous classification, the Herfindahl index was used for related and unrelated diversification. However, to establish the difference between related (Div_Rel) and unrelated (Div_Nrel) diversity, the standard industrial classification (SIC) four-digit codes were used, which allowed the diversification to be separated into its two slopes (Huerta & Navas, 2006; Patrisia & Dastgir, 2017; Peinado & Peinado, 2002).

As described in this section, the literature offers different methods to operationalize the diversification variable and its two aspects. As part of the robustness of the present study, the operationalization of the variable was performed dichotomously, finding the results to be consistent with those offered by the Herfindahl index; that is to say, significant effects ($p < 0.000$) were found at the extremes of unrelated concentration and diversification (Arango *et al.*, 2019). However, the continuous metric was taken as a preference, as it allows variations in the level of diversification and has better estimators, according to the literature (Patrisia & Dastgir, 2017; Schommer *et al.*, 2018).

Corporate Governance. Business control has been important for large companies over the past 10 years, given the OECD's proposal of the incorporation of corporate governance practices as an added value for companies. In this way, the BMV has strengthened the use of this concept for the participating companies. In the case of BMV companies, the Center for Excellence in Corporate Governance (CEGC) of the Universidad Anáhuac determines the level of corporate governance implemented by each company contained within the environmental, social, and governance (ESG) index, breaking down each of them and reporting them annually.

The ESG index is usually used to measure corporate social responsibility variables (Drempetic *et al.*, 2019; Landi & Sciarelli, 2019). The ESG is used in this investigation to operationalize the corporate governance variable according to its governance component (Gob_Corp), using a range from 0 to 100, so that an increase in value represents a higher level of governance, as reported in the Bloomberg database. However, since this global metric represents the accumulated corporate governance practices mentioned in the previous paragraph, an individual analysis of corporate governance practices was performed to establish consistency with the global metric and to provide greater robustness to the study. The results show significant effects on the variables of board size, audit, and remuneration, with respect to the EBIDTA dependent variable. In this way, the validity of the index used (ESG) can be assumed with greater confidence.

Control variables

In addition to the aforementioned variables, independent variables may have a different econometric behavior in the presence of control variables, which are traditionally present in the literature; therefore, for the present research work, the size of the organization, the sector to which they belong according to their registration in the BMV, and their years of contribution were used as control variables, which took values of 1 or 0 to establish the presence or absence of these variables (Huerta & Navas, 2006; Turrent & Garcia, 2015).

Subsequently, we proceeded to evaluate the assumptions for a panel analysis, starting with the application of the Hausman test, which showed the option of random effects as the best predictor, since the use of fixed effects was not significant at $p < 0.1$. Next, the model was subjected to a Breusch-Pagan Lagrange multiplier test for heteroscedasticity and the Wooldridge serial autocorrelation (Arellano & Bond, 1991; Breusch & Pagan, 1980; Greene, 2012; Wooldridge, 1994). The results of the first test were not significant at $p < 0.1$, which suggests the presence of a heteroscedastic model. The results of the second test were significant at $p < 0.001$, thereby, rejecting the null hypothesis, which refers the existence of a serial autocorrelation.

To address the problem of heteroscedasticity, the use of the generalized moments method (GMM) model was proposed, with the purpose of correcting the problem detected in the research model (Arellano & Bond, 1991; Breusch & Pagan, 1980; Greene, 2012; Wooldridge, 1994).

As part of the robustness of the results of this research, the following variables were considered as instrumental variables to address the problem of endogeneity: a) the number of products, b) the dichotomous measure of diversification, c) the average of the index Herfindahl by industry, d) the level of diversification to the cube, e) the inverse of the Herfindahl index, and finally f) the assets.

Results

Of the total number of companies integrated into the analysis of this research, the industrial sector was the most representative at 29%, followed by 21% for the companies in the material sector. On the other hand, the sectors that were the least represented were telecommunications at 9%, health at 5%, technologies at 2%, and energy at 1% out of the total number of companies listed on the BMV in 2011-2018.

Likewise, of the total number of companies that traded on the BMV during the years 2011-2018, 46% of these did not follow some type of diversification, while 54% of them did. Of this 54%, the related diversification strategy was the most used, representing 43% of the total number of companies that diversified.

As part of the result, the corporate governance practices measured by the ESG index showed that the board of directors' element was utilized by 97% of these companies, which suggests that this is an important element. Other practices that were represented were the use of audits in 97% and transparency in 99% of the companies examined, which is unsurprising as transparency is a requirement for being listed on the BMV.

First, the total study variables were examined. In general, if the variables of the model maintain correlations that are within the criterion of less than 0.5 (Table 1), the analysis of the previously established models can be performed. However, in the current study, the concentration variable had a correlation greater than 0.5; to address this problem, the variables were separated into different models to avoid the problem of multicollinearity.

Table 1. Correlations.

(N=134) Variables	Mean	S. D.	1	2	3	4	5	6	7	8	9	10	11	12	13
EBITDA (DV)	13831.06	57656.70	1.00												
Concen (IV)	3265.67	2676.37	0.0973	1.00											
Rel_Div (IV)	794.41	1954.88	0.1309	0.5036	1.00										
UnreL_Div (IV)	1256.74	2343.24	0.0110	0.6009	0.3241	1.00									
CorGob (IV)	40.47	13.47	0.3657	0.1294	0.1582	0.0182	1.00								
Size (CV)	23297.31	47321.56	0.9442	0.1279	0.1032	0.0515	0.3586	1.00							
Ener (CV)	0.0066	0.0813	0.0296	0.0380	0.0129	0.0503	0.0790	0.0184	1.00						
Indus (CV)	0.2208	0.4150	-0.1187	-0.1755	0.2970	0.0975	0.1868	0.0868	0.0698	1.00					
Mat (CV)	0.1875	0.3906	0.0853	0.2928	0.2167	0.1583	0.1672	0.0685	0.0570	0.2882	1.00				
Prod (CV)	0.1423	0.3496	0.0524	0.2934	0.1524	0.2053	0.0346	0.0663	0.0599	0.3027	0.2474	1.00			
Health (CV)	0.0372	0.1895	0.0302	0.1514	0.0952	0.0538	0.1492	0.0194	0.0148	0.0747	0.0610	0.0641	1.00		
Telecom (CV)	0.0638	0.2446	0.1362	-0.2615	0.0661	0.3682	0.0275	-0.0157	0.0287	0.1452	-0.1187	0.1246	0.0307	1.00	
Finance (CV)	0.2128	0.4095	0.2596	0.2894	0.2805	0.0520	0.1551	0.2970	0.0534	0.2699	0.2206	0.2317	0.0571	0.1111	1.00

S.D. = Standard deviation; DV = Dependent Variable; VI = Independent Variable; VC = Control Variable.
Source: Author's own elaboration.

Subsequently, the regression models are shown through the GMM method (Table 2), where the effects of diversification and corporate governance are presented as an intervening variable in operational performance.

Table 2. Panel regressions.

Dep. Var. EBITDA (DV)	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6				
	β	S.E.	P>z	β	S.E.	P>z	β	S.E.	P>z	β	S.E.	P>z	β	S.E.	P>z	β	S.E.	P>z		
Concen (IV)				2.75		1.12 **														
Div_Rel (IV)							-2.25		1.25 **				42.35		7.48 ***					
Div_NRel (IV)							-2.84		1.27 **							27.18		8.40 **		
Gob_Cor (IV)										4742.65		568.03 ***	6228.00		575.89 ***	5360.58		565.47 ***		
DivRel x Gob													-1.07		0.18 ***					
DivNRel x Gob																-0.84		0.21 ***		
Size (CV)	24538.49	1578.93 ***		24988.29	1570.79 ***		24942.79	1566.31 ***		39449.73	3472.28 ***		38171.91	3202.50 ***		39589.73	3329.15 ***			
Ener (CV)	65583.35	52342.23		54851.26	51900.83		53475.67	52049.42		120689.10	70128.62 *		174630.80	66205.11 **		118519.50	66174.38 *			
Indus (CV)	37503.68	43517.36		31755.44	43060.37		30839.40	43128.83		102307.7	57799.92 *		136906.20	53913.27 *		106176.00	54636.31 *			
Mat (CV)	38161.26	43489.23		32346.05	43034.11		31625.75	43161.25		89845.96	58174.01		142138	54683.45 **		92980.51	55080.22 *			
Prod_cons (CV)	19567.93	43243.75		6923.48	43036.66		6064.97	43247.58		-16844.42	54601.94		19759.43	52786.61		-14822.88	51523.11			
Health (CV)	46210.04	45277.46		32830.11	45067.57		33193.12	45188.88		161992.80	65224.26 *		239329.40	63693.49 ***		177732.50	61824.30 **			
Telecom (CV)	55521.71	44734.32		51500.57	44229.27		51312.50	44430.17		254898.50	65548.39 ***		296397.20	62581.22 ***		259117.40	63580.86 ***			
Ser_fin (CV)	48191.80	43591.43		35840.81	43363.63		36120.12	43660.95		131044.40	59353.23 *		169075.90	56505.88 **		131805.10	56060.57 *			
Year (CV)	YES	YES		YES	YES		YES	YES		YES	YES		YES	YES		YES	YES			
Constant	-607801.70	58171.89 ***		-629049.40	58126.13 ***		-602044.60	57720.72 ***		-1232152.00	95685.89 ***		-1307534.00	90987.83 ***		-1249985.00	92003.28 ***			
Wald chi(x)	294.33 (x=10)			307.50 (x=11)			308.66 (x=12)			438.17(x=11)			555.34 (x=13)			514.74 (x=13)				
P > chi ²	0.0000			0.0000			0.0000			0.0000			0.0000			0.0000				
VIF	-			1.61			1.58			1.99			4.22			3.66				
Observations: 698							Groups: 8													Observations per group: 59 - 110

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

DV = Dependent Variable; VI = Independent Variable; VC = Control Variable.
EBITDA is presented in millions. The year variable was controlled in dichotomic form. GMM-type L (2/.).
Source: Author's own elaboration.

The results obtained in Model 1 show that the effect that the controls have on diversification has little significance on EBITDA, except for the size control variable. Subsequently, model 2 shows a significant ($p < 0.01$) positive effect ($\beta = 2.75$) of the concentration variable on operational performance, which corroborates with the nonrejection of hypothesis 1, in which the company that decides to allocate its available resources to a single line of business does so through a greater use of resources and capacities.

Model 3 examines the effects of diversification, both related and unrelated, to operational performance. For the first case, the related diversification shows a negative effect ($\beta = -2.25$) that is significant at $p < 0.01$, which suggests the rejection of hypothesis 2. For the second case, the unrelated diversification shows a negative effect ($\beta = -2.84$) that is significant at $p < 0.01$, which suggests that hypothesis 3 cannot be rejected. For both cases, the Herfindahl index allows different levels of diversification to be assumed due to the nature of a continuous variable, assuming that the greater the heterogeneity of resources in the company's activities, the lower its efficiency versus its operational performance.

About model 4, the direct effect of corporate governance on operating performance is examined, finding a positive effect ($\beta = 4742.65$) that is significant at $p < 0.001$, which suggests that hypothesis 4 cannot be rejected. This means that with an increased use of corporate governance practices, companies obtain greater operational performance.

Finally, models 5 and 6 examine the moderating effect of corporate governance on the relationship of related and unrelated diversification. Regarding the moderating effect on the case of related diversification, there is a negative effect ($\beta = -1.07$) that is significant at $p < 0.001$, which suggests that hypothesis 5 cannot be rejected. In the case of the moderating effect for unrelated diversification, there is a negative effect ($\beta = -0.84$) that is significant at $p < 0.001$, which suggests that hypothesis 6 of this investigation cannot be rejected. It is worth mentioning that in both effects of the operating performance moderated by corporate governance on the impact of diversification, both related and unrelated demonstrated negative outcomes.

To better explain the effect of corporate governance as a moderating variable, two graphs are shown below. The procedure for obtaining both graphs was to divide the corporate governance variable (high and low) into two groups. This allowed us to observe the performance of business performance (EBITDA) and diversification in the presence of corporate governance. The first graph shows the interaction with related diversification, and the second graph shows the interaction with unrelated diversification.

Figure 1 shows the effect on EBITDA in the high and low corporate-governance scenarios for companies that use related diversity. In this sense, the result shows that when a company diversifies in a related way, the implementation of corporate governance at either a high or low level has a negative effect. That is, the higher the level of corporate governance, the lower the operating performance in publicly traded companies. Despite the above, it is important to highlight that the negative effect decreases for the group with a high level of corporate governance; that is, the marginal difference in EBITDA, according to the variation of corporate governance, is less when the company maintains high levels of corporate practices than when the company maintains low levels of these corporate practices.

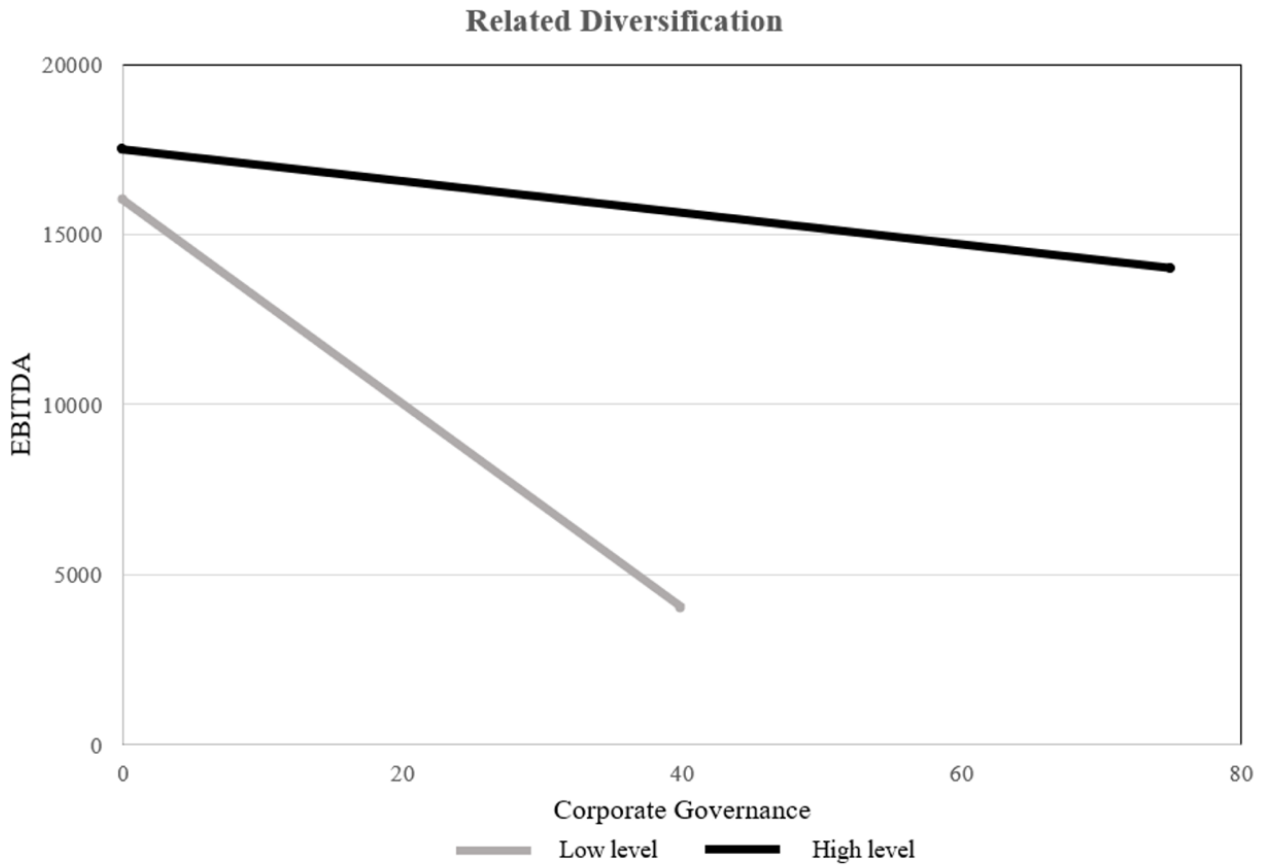


Figure 1. EBITDA effect.
Source: Author's own elaboration.

In the case of unrelated diversity (Figure 2), the result allows us to observe that, when a company diversifies in an unrelated way, the implementation of corporate governance at a low level has a negative effect, that is, the higher the level of corporate governance, the lower the operating performance in publicly traded companies. However, for companies with a high level of corporate governance, the result changes: the greater the corporate governance, the better the operating performance of the company that diversifies in an unrelated manner.

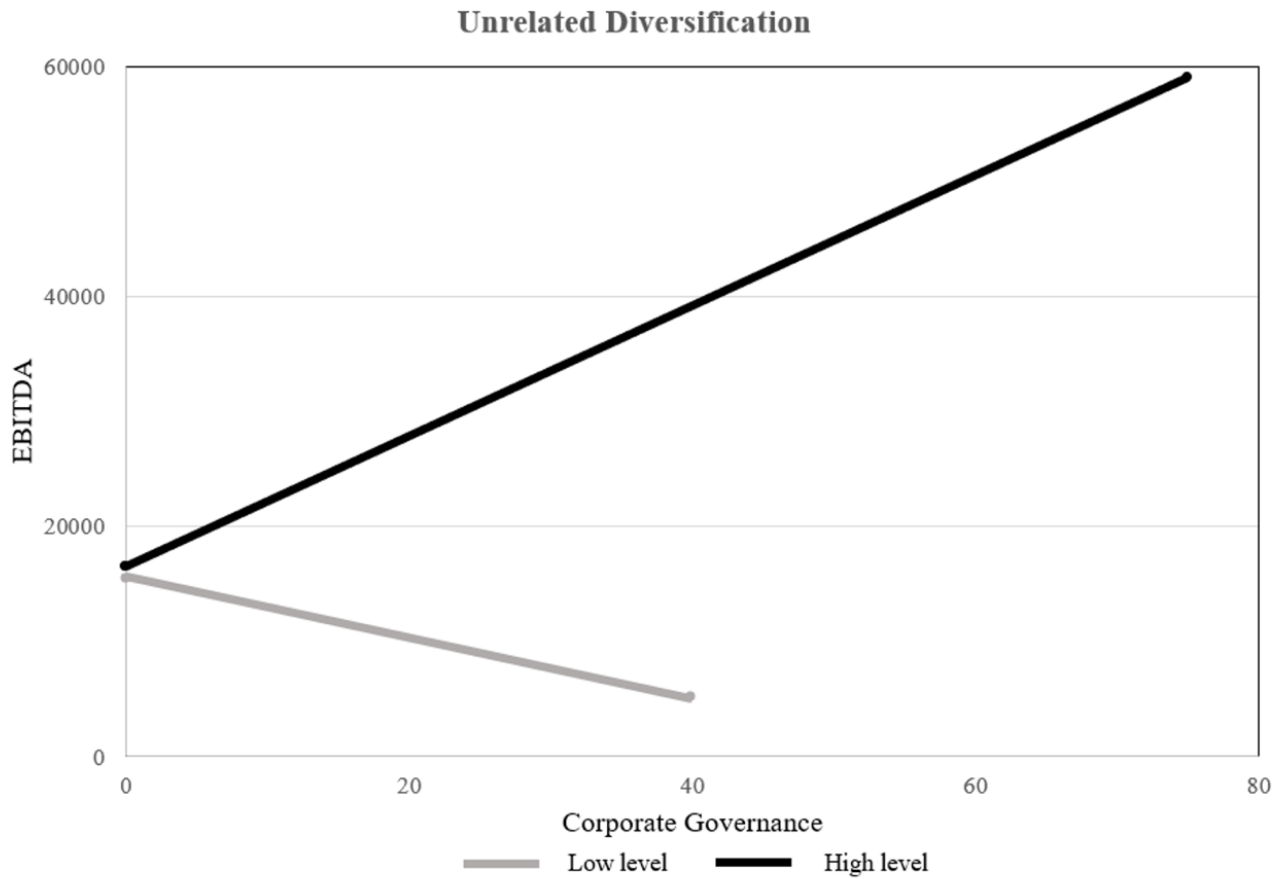


Figure 2. Company diversification.
Source: Author's own elaboration.

Discussion

The practical implications for companies pursuing a concentration strategy as a measure of growth are several. On the one hand, it allows to corroborate that companies with the characteristics of the BMV, being in a situation of operational specialization, the resources and capacities have become efficient and generate learning, which allows reducing costs and improving the quality of the products generated. These characteristics make it possible to be competitive in a globalized market and, therefore, achieve beneficial results for organizations even when they do not diversify.

On the other hand, reference is made to diversification strategies and the effect they have on operating performance. In the present study, it was possible to separate diversification into its two forms, that is, related and unrelated, which allowed to know the separate effect on operating performance, involving the moderating effect of corporate governance.

In the case of related diversification, the effect coefficients are negative for both the direct effect and the interaction with corporate governance. However, graphically, it is possible to appreciate that this effect is attenuated for the group with a high level of corporate governance. Although the result is maintained with a negative effect on operating performance, it is presented with less magnitude; that is, when the company decides to diversify in a related form and has high levels of corporate governance, the effect is less negative than it would be for those companies that have low levels of corporate governance.

In comparison, for unrelated diversification, the effect coefficients are negative for operating performance in the presence of corporate governance. However, this effect presents an interesting finding as two separate levels of corporate governance are presented: high and low. The main finding focuses on a change of direction from negative to positive; that is, when the level of corporate governance is high in companies that diversify in an unrelated way, their operational performance increases. In the case of a low level of corporate governance, the effect is maintained with a negative slope; that is, when the level of corporate governance is low in a company with an unrelated diversification strategy, its operational performance will decrease.

This result allows us to confirm agency theory, in which the corporate government regulates the interests of stakeholders to support the company's results (Jensen & Meckling, 1976). As a theoretical contribution of this work to the diversification literature, corporate governance has a positive effect on the operating result if the diversification strategy is specifically unrelated. For this type of diversification, which represents one end of the continuum between concentration and diversification, the resources and capabilities necessary to operate are used more efficiently, as there is a high level of corporate governance, as evidenced by the change in the effect on the performance result.

This result allows us to contribute to a greater understanding of the impact of corporate governance in the context of business diversification. While some companies carry out these practices in compliance with BMV guidelines, others apply it as a control measure, which contributes to their achievement of their objectives. This finding is presented as a partial contribution to the corporate governance literature, as it supports the positive effect that corporate governance represents for organizational operations through an ethical position in the market. Likewise, there are theoretical contributions in which diversification finds positive effects in the presence of high levels of corporate governance.

Finally, it is important to point out that the analysis of productivity and investment in assets is crucial in this context, since the level of production will allow the expansion of the market and, therefore, a sustainable growth through concentration as long as the general conditions are maintained.

Conclusions

The main finding of this research shows that in the presence of high levels of corporate governance using the unrelated diversification strategy, higher business operating returns are achieved. Likewise, a second finding shows that in the presence of corporate governance, the effect between related and unrelated diversification strategies against operational performance is improved.

That is, in the presence of corporate governance, the unrelated diversification strategy has a positive effect on operational performance in the presence of high levels of corporate governance. In the case of related diversification, the negative impact is maintained with the presence of corporate governance, but with a significant decrease compared to when corporate governance is not considered.

These findings allow us to obtain clarity of the benefit that corporate governance represents in the context of growth. However, it is important to raise awareness, especially in businesspeople, about the proper implementation of corporate governance; that is, a greater number of practices allows these benefits to be achieved in operational performance and not only with the implementation of corporate governance practices such as compliance badge.

As part of the contribution of this work, some recommendations of future lines of research are the following. First, it is necessary to consider the analysis of corporate governance practices separately, which will allow us to know with greater certainty the effect of each element on the dependent variable. On the other hand, it is proposed to observe the phenomenon from institutional theory, allowing to explain the phenomenon of study from another perspective, for example, to understand the effect of corporate governance and diversification in a context of different levels of economic development and institutional regulation.

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Conflicts of interest

The authors declare that there is no conflict of interest with the preparation of the article.

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