Do Board Diversity Affect Anticorruption Disclosure? A Study of Latin America Firms?

VICTOR DANIEL-VASCONCELOS
UNIVERSIDADE FEDERAL DO CEARÁ

Do Board Diversity Affect Anticorruption Disclosure? A Study of Latin America Firms?

1 Introduction

Corruption is "the abuse of entrusted power for private gain" (Transparency International, 2020b) or "the use of power for private gain" (Duho et al., 2020). Corruption can affect the functioning of companies with the increase of their costs (Sari et al., 2020). The notion that corruption has harmful effects on business and society is widely accepted, so companies are expected to be part of the fight against corruption (Blanc, Branco, et al., 2019). Therefore, anti-corruption rules can be seen as an effective solution in the fight against corruption, promoting investments and restoring investor confidence (Battaglia et al., 2020).

Prior studies have examined the impact of media exposure (Blanc et al., 2017), foreign ownership (Sari et al., 2020), membership in the United Nations Global Compact (Duho et al., 2020) and board directors expertise (Masud et al., 2019) in anticorruption disclosure. Anticorruption disclosure is part of social disclosure and sends signals to investors of firms' commitment to fight corruption (Duho et al., 2020). Firms are pressured to improve their transparency due to international developments on the incidence of corruption (Nobanee et al., 2020). To this extent, anticorruption disclosure is a way of organizational legitimation after a corruption practice (Lombardi et al., 2020). Further, anticorruption disclosure provides more appropriate risk assessments, strengthening the fight against corruption (Blanc, Cho, et al., 2019)

Corporate governance has a central role in preventing corruption in firms (Lombardi et al., 2020). Board of directors has the role of advising and monitoring the firm in which it operates (El Gammal et al., 2020; Karim et al., 2020) and decisions made in the board of directors help contain and prevent corporate corruption by applying national regulations (Lombardi et al., 2020). The diversity of the board allows managers to provide the resources necessary for effective management of the various stakeholders (Harjoto et al., 2015; Oh et al., 2019) and board diversity acts to reduce conflict between principal and agent by encouraging managers to disseminate information, generating better social performance (Hoang et al., 2018; Zaid et al., 2020). Therefore, board diversity is one of the main requirements for better corporate social performance (Azam et al., 2019).

Previous studies demonstrate the influence the board independence diversity (Endrikat et al., 2020; Gallego-Álvarez & Pucheta-Martínez, 2020; Jaggi et al., 2020; Ullah et al., 2019), gender diversity (Amorelli & García-Sánchez, 2020; Jaggi et al., 2020; Pucheta-Martínez & Gallego-Álvarez, 2019; Qureshi et al., 2020; Ullah et al., 2019; Wang et al., 2020), board specific skills (Al-Qahtani & Elgharbawy, 2020; Arayssi & Jizi, 2019; Harjoto et al., 2015; Helfaya & Moussa, 2017) and board size (Beji et al., 2020; Endrikat et al., 2020; Gallego-Álvarez & Pucheta-Martínez, 2020; Zaid et al., 2020) on the corporate social disclosure. However, the evidence for the board diversity in anticorruption disclosure is still scarce.

The objective of the paper is to analyze the influence of board diversity (gender diversity, board independence diversity, board skill diversity and board size) on the anticorruption disclosure. This study examines the association between board diversity and anticorruption disclosure using the lenses of stakeholder, resource dependence, agency and upper echelons theories. Stakeholder theory (Freeman, 1984) states that a firm that engages in activities beyond profit maximization is rewarded with value creation for the firm and its stakeholders (Qureshi et al., 2020) and that firms disclose social and environmental information to decrease pressure from their stakeholders (Al-Qahtani & Elgharbawy, 2020). According to resource dependency theory (Pfeffer & Salancik, 1978), a more diverse board has a diverse set of knowledge, skills, culture and experience that will improve the board's performance (Azam et al., 2019). Agency theory (Jensen & Meckling, 1976) is based on the contractual relationship between principals and agents, agents act on the principals behalf to serve the interests of the

principals (Kumala & Siregar, 2020). According to upper echelons theory, some personal characteristics affect decision making process, including social and environmental decisions (Attah-Boakye et al., 2020; Malik et al., 2020).

The study collects data from 287 firms in Latin America over a 5-year period (2015-2019). The study contributes to the literature in several aspects. First, the study investigates quantitatively the impact of board diversity on the anticorruption disclosure in Latin America firms. Second, the study uses a multi-theoretical perspective, including stakeholders, agency, resource dependency, and upper echelons theories. Finally, data was obtained from Thomson Reuters database. Thomson Reuters database provides environmental, social and governance (ESG) information of firms from stock market filings and annual company reports (Burkhardt et al., 2020).

The reminder of the paper is organized as follows: Section 2 proposes relevant literature on the topic. Section 3 presents the methodology. Section 4 shows the findings and discussion. Lastly, Section 5 includes conclusions and limitations.

2 Literature Review and Hypothesis Development

2.1 Corruption and board diversity

In last years, corruption has become a concern of all firms and governments around the world (Nobanee & Ellili, 2020) and anti-corruption issue is a widely researched topic in the international context, requiring rigorous attention and solutions from governments, regulators and organizations (Lombardi et al., 2020). In this context, international development agencies have made considerable investments in combating corruption, but no significant changes have been achieved in the levels of corruption (Dávid-Barrett & Fazekas, 2020). In addition, corruption has numerous channels and demonstrations endangering a country's political, economic, social and judicial systems (Ahmed, 2020).

In 2019, citizens of Latin American countries held protests against corruption in Latin American countries (Transparency International, 2020a). In Latin America, there is a drop in investments due to corruption (Battaglia et al., 2020). More than half (53%) of Latin American and Caribbean citizens believe corruption increased in 2018 (Transparency International, 2019). Moreover, Covid-19 is presenting challenges never seen before for Latin American countries, including combating corruption (Simon & Aalbers, 2020).

2.2 Board independence diversity and anticorruption disclosure

According resource dependence theory, the greater number of independent directors allows the firm to have and provide alternative sources of knowledge linked to social and environmental aspects (Endrikat et al., 2020). From the perspective of agency theory independent directors reduce agency conflicts ensuring effective monitoring and better management (Beji et al., 2020; Naciti, 2019) and independent directors improve corporate governance and decision making (Colakoglu et al., 2020). According to stakeholder theory, a more independent board is less subject to shareholder pressure, thus improving sustainability performance (Naciti, 2019).

Previous studies revealed a positive and significant relationship between board independence diversity and corporate social disclosure (Endrikat et al., 2020; Gallego-Álvarez & Pucheta-Martínez, 2020; Jaggi et al., 2020; Ullah et al., 2019). In line with theoretical discussions and prior empirical findings, the following hypothesis is proposed:

Hypothesis 1: There is positive relationship between board independence diversity and anticorruption disclosure

2.3 Board gender diversity and anticorruption disclosure

According to stakeholder theory, women establish good relationships and respond to the need of others by using social reasoning more than men (Naciti, 2019). Agency theory states that a female leadership encourages social and environmental disclosure, thus, women directors

are drivers of social and environmental disclosure (Gallego-Álvarez & Pucheta-Martínez, 2020; Pucheta-Martínez & Gallego-Álvarez, 2019) and gender diversity acts as a mechanism for corporate governance, encouraging sustainable development (Jarboui et al., 2020; N Orazalin & Baydauletov, 2020). According to resource dependence theory women directors "offer many benefits for organizations" (Yarram & Adapa, 2021) and gender diversity provides a broader range of orientation, so greater gender diversity is expected to have a positive impact on social and environmental performance (Wang et al., 2020). From the upper echelon theory perspective, gender board diversity can affect firm strategy because men and women can have different characteristics (Činčalová & Hedija, 2020) and a greater presence of women on the board can be associated to a better social and environmental behavior of the company because women are more aligned with the social and environmental corporate performance (Byron & Post, 2016). Therefore, anti-corruption disclosure can be encouraged by gender diversity (Jaggi et al., 2020).

Empirically, Amorelli and García-Sánchez (2020), Jaggi et al., (2020), Pucheta-Martínez and Gallego-Álvarez (2019), Qureshi et al., (2020), Ullah et al., (2019) and Wang et al., 2020) found a significant positive relationship between gender diversity and corporate social disclosure. In line with theoretical discussions and prior empirical findings, the following hypothesis is proposed:

Hypothesis 2: There is positive relationship between gender diversity and anticorruption disclosure

2.4 Board specific skills diversity and anticorruption disclosure

Board members with specific skills are more effective because they have specific knowledge and skills (Gallego-Álvarez & Pucheta-Martínez, 2020). According to upper echelons theory, characteristics such as career experience and education of directors are determinants of the firm's strategy and business performance (Shahab et al., 2020). In line with resource dependence theory, boards more diverse in their composition perform better their functions because they have different skills, points of view and professional experience (Amorelli & García-Sánchez, 2020) and board skills diversity allows for greater board resources and better board decisions on social and environmental issues (Al-Qahtani & Elgharbawy, 2020).

Previous studies revealed a positive and significant relationship between board specific skills diversity and corporate social disclosure (Al-Qahtani & Elgharbawy, 2020; Arayssi & Jizi, 2019; Harjoto et al., 2015; Helfaya & Moussa, 2017). In line with theoretical discussions and prior empirical findings, the following hypothesis is proposed:

Hypothesis 3: There is positive relationship between board specific skills diversity and anticorruption disclosure

2.5 Board size and anticorruption disclosure

In line with stakeholder theory, larger boards allow for greater participation of stakeholders in the decision-making process, encouraging firms to contribute to sustainability (Zubeltzu-Jaka et al., 2020). According to resource dependency theory, larger boards have greater diversity in knowledge, skills and academic backgrounds that will be useful in formulating strategic policies (Buertey et al., 2020) and allows greater access to resources and more connections (Endrikat et al., 2020). Additionally, according to the agency theory, in small boards, members have their control abilities limited because they have to bear a high workload (Zhou, 2019).

Empirically, Beji et al., (2020), Endrikat et al., (2020), Gallego-Álvarez and Pucheta-Martínez (2020) and Zaid et al. (2020) found a significant positive relationship between board size and corporate social disclosure. In line with theoretical discussions and prior empirical findings, the following hypothesis is proposed:

Hypothesis 4: There is positive relationship between board size and anticorruption disclosure

3 Research Design

3.1 Sample selection and data sources

To test the hypotheses, we use a sample composed of 1047 firm-year observation from 287 firms from Argentina, Brazil, Chile, Colombia, Mexico, and Peru between 2015 and 2019. This countries were selected because they belong to the Morgan Stanley Capital International (MSCI) Emerging Markets Latin America Index, created in 1990, which quarterly captures information from companies in six Latin American countries: Argentina, Brazil, Chile, Colombia, Mexico and Peru (MSCI, 2020). The sample is unbalanced, because full data is not available for all companies and for all years, and it consists of a total of 1047 firm-year observations. Our data set is made up of information from the Thomson Reuters Eikon database. Table 1 illustrates the sector classification used in this analysis, based on the Global Industry Classification Standard (GICS).

Table 1

Sample distribution by sector of activity and countries

Sector	Countries						
	Argentina	Brazil	Chile	Colombia	México	Peru	Total
Automobiles & Components	0	4	0	0	4	0	8
Banks	18	25	20	18	20	9	110
Capital Goods	7	15	18	5	9	8	62
Commercial & Professional Services	0	4	0	0	0	0	4
Consumer Durables & Apparel	8	34	4	0	8	0	54
Diversified Financials	4	9	9	14	9	4	49
Energy	14	18	4	4	4	0	44
Food & Staples Retailing	4	9	4	5	9	4	35
Food, Beverage & Tobacco	14	28	15	4	34	18	113
Health Care Equipment & Services	0	14	0	0	0	0	14
Household & Personal Products	0	4	0	0	5	0	9
Insurance	0	15	0	0	4	0	19
Materials	15	44	14	8	38	36	155
Media & Entertainment	7	4	0	0	8	0	19
Pharmaceuticals, Biotechnology & Life Sciences	3	4	0	0	4	0	11
Real Estate	8	14	4	0	7	4	37
Retailing	4	23	7	4	5	0	43
Software & Services	4	10	4	0	0	0	18
Telecommunication Services	4	14	4	4	4	0	30
Transportation	7	24	11	0	24	4	70
Utilities	27	60	34	14	4	12	151
Total	148	372	152	80	196	99	1047

As is evident from the data in Table 1, the sample comprised twenty-one activity sectors. Firms belonging to the materials sector represent 155 observations (14,8%), followed by the utilities and food, beverage and tobacco sectors at 151 (14,4%) and 113 (10,7%) observations, respectively. The sector with the lowest representation was commercial and professional services with 4 observations (3%). In relation to countries, Brazil is the country with the most observations with 372 (35,5%), followed by Mexico and Argentina with 196 (18,7%) and 148 (14,1%) observations, respectively.

3.2 Dependent variable

Anticorruption disclosure is presented in this study as the dependent variable. This variable is calculated as the ratio between the aggregate of 7 items focused on anticorruption issues and the total number of items analyzed. If the company discloses information on an item,

this will take the value 1; if not, the value is 0. The 7 items analyzed of anticorruption aspects are shown in Table 2.

Table 2

Anticorruption disclosure items

Policy Bribery and Corruption	Policy Fair Competition	Policy Business Ethics
Improvement Tools Business Ethics	Bribery, Corruption and Fraud Controversies	Anti-competition Controversies
	Business Ethics Controversies	

3.3 Independent variables

In this study we adopted dimensions of board diversity. Board independence diversity, gender diversity and board specific skills diversity were introduced in our regression model to examine their influence on the anticorruption disclosure in the Latin America firms. To compute the Blau index we employed the following equation:

Blau index formula: $1 - \sum_{i-1}^{n} P_i^2$

where:

P_i = the proportion of boardroom members in each category in the ith group.

n = the number of different categories.

$\sum$ = the sum of the calculations from category 1 to category n.

We used the Blau index to measure dimensions of board diversity. Blau index ranges from 0, if there is no diversity to 0.5, if the proportion of category members is exactly the same (Zaid et al., 2020) and provides greater robustness to the board diversity, because it presents maximum value when diversity, in fact, is maximum (Campbell & Mínguez-Vera, 2008). Further, board size was measured as the total number of directors on boards (Beji et al., 2020; Endrikat et al., 2020; Gallego-Álvarez & Pucheta-Martínez, 2020).

3.4 Control variables

A review of past empirical research allowed considering several control variables in this analysis. The company performance in line with Aggarwal et al., (2019), M C Pucheta-Martínez et al., (2019) and María Consuelo Pucheta-Martínez et al., (2020) was calculated as the total number of directors on boards. Leverage, was also controlled, measured as debt over total assets (Olthuis & van den Oever, 2020; Nurlan Orazalin, 2020; Nurlan Orazalin & Baydauletov, 2020; M C Pucheta-Martínez et al., 2019; María Consuelo Pucheta-Martínez et al., 2020). Finally, the company size was calculated as natural logarithm of total assets (Nurlan Orazalin, 2020; Nurlan Orazalin & Baydauletov, 2020; María Consuelo Pucheta-Martínez et al., 2020). See the variables description in Table 3.

Table 3

Variables description

Variable name	Variable name	Model name	Proxy
Dependent	Anticorruption disclosure	CORR	Anticorruption disclosure items/ total number of items

Independent	Board independence diversity	BID	$-\sum_{i-1}^{n} P_i^2$, where P_i is the proportion of boardroom members in each category and n is the number of different categories
Independent	Gender diversity	GED	$-\sum_{i-1}^{n} P_i^2$, where P_i is the proportion of boardroom members in each category and n is the number of different categories.
Independent	Board specific skills diversity	BSSD	$-\sum_{i-1}^{n} P_i^2$, where P_i is the proportion of boardroom members in each category and n is the number of different categories.
Independent	Board size	BSIZE	Total number of board members
Control	Company performance	QTOBIN	Market capitalization of common stock plus book value liabilities/book value of total assets.
Control	Leverage	LEV	Total debt/Total assets
Control	Firm size	FSIZE	Natural logarithm of total assets

3.5 Empirical model

The hypothesis proposed will be estimated with the following model:

$$\text{CORR}_{i,t} = \beta_0 + \beta_1 \text{BID}_{i,t} + \beta_2 \text{GED}_{i,t} + \beta_3 \text{BSSD}_{i,t} + \beta_4 \text{BSIZE}_{i,t} + \beta_5 \text{QTOBIN}_{i,t} + \beta_6 \text{LEV}_{i,t} + \beta_7 \text{TAM}_{i,t} + \varepsilon \quad (1)$$

where, CORR is the anticorruption disclosure, measured using anticorruption disclosure items divided by total number of items. BID is the board independence diversity, calculated using Blau index. GED is the gender diversity, calculated using Blau index. BSSD is the board specific skills diversity, measured using Blau index. BSIZE is the board size, measured using total number of directors. QTOBIN is the company performance, calculated using market capitalization of common stock plus book value liabilities divided by book value of total assets. LEV is the leverage, calculated using total debt divided by total assets. FSIZE is the firm size, measured using natural logarithm of total assets. β_0 the constant, i represents firm, t represents time dimension (years), β_1 to β_7 are the regression coefficients, ε is a vector of the stochastic error term.

4 Results

4.1 Descriptive statics

Table 4 reports a summary of the descriptive statistics for all variables considered in the study model. The average anticorruption disclosure is 0,067 with an SD of 0,197, and it ranges from 0 to 3,857.

Table 4

Descriptive statics

Variables	N	Mean	SD	Minimum	Maximum
CORR	1047	0,067	0,197	0	3,857
BID	1047	0,353	0,157	0	0,5
GED	1047	0,125	0,137	0	0,5
BSSD	1047	0,328	0,157	0	0,5
BSIZE	1047	10,095	3,727	2	25
QTOBIN	1047	0,755	0,821	0	7,901
LEV	1047	0,612	0,429	0	5,985
FSIZE	1047	20,070	0,236	7,567	26,795

Notes: CORR is the anticorruption disclosure, measured using anticorruption disclosure items divided by total number of items. BID is the board independence diversity, calculated using Blau index. GED is the gender diversity, calculated using Blau index. BSSD is the board specific skills diversity, measured using Blau index. BSIZE is the board size, measured using total number of directors. QTOBIN is the company performance, calculated using market capitalization of common stock plus book value liabilities divided by book value of total assets. LEV is the leverage, calculated using total debt divided by total assets. FSIZE is the firm size, measured using natural logarithm of total assets.

Blau independence has a mean value of 0,353 and it varies between 0 and 0,5. The average level of board gender diversity is 12,5%. The average level of Blau gender is 12,5% which is similar to 13% reported by Zaid et al., (2020) using the Blau index, higher than 9% and 4% reported by Khan et al., (2019) and Lu and Herremans (2019) , respectively, and less

than 18,03% reported by Burkhardt et al., (2020), and it ranges from 0 to 0,5. The mean value of board specific skills diversity is 0,328 and it ranges from 0 to 0,5.

4.2 Multivariate analysis

We test our hypotheses using Hierarchical Linear Modeling (HLM). HLM can address several problems of traditional regression models because it deals with poorly estimated accuracy and analysis unit problems (Bryk & Raudenbush, 1992) and enables random variations in intercepts and slopes (Guo et al., 2019). Further, HLM is often considered better than other forms of analysis for data with a hierarchy structure, such as VCA (Variance Component Analysis) because it allows complex structures of errors, being able to model dependencies of levels of analysis (Soares et al., 2018).

HLM allows testing hypotheses between different levels of analysis and dividing the explained variations of each level (Song et al., 2018) and considers the variation in more than one level of analysis (Husted & Sousa-Filho, 2017). Multilevel models make it possible to analyze the differences individually and between groups (Fávero & Belfiore, 2017). According to Ortas et al., (2019), three levels of analysis are introduced: annual observations of anti-corruption disclosure (Level 1), firms (Level 2) and countries (Level 3). Multilevel model enables the division of the dependent variable into three variations: variations in observations within firms (Level 1), variations between firms within countries (Level 2) and variations between countries (Level 3). Table 5 presents the findings of all the models.

Table 5

Multilevel regression results

	Model 1	Model 2	Model 3	Model 4	Model 5
Fixed part					
Control variables					
INTERCEPT	41,058***	39,364***	33,589***	38,080	31,325***
YEAR	-0,021***	-0,020***	-0,017***	-0,019***	-0,016***
QTOBIN	-0,004	-0,002	-0,002	-0,003	-0,001
LEV	0,007	0,007	0,008	0,006	0,010
FSIZE	0,077***	0,078***	0,077***	0,076***	0,075***
Independent variable					
BID	0,052				0,041
GED		-0,034			-0,050
BSSD			0,012***		0,125**
BSIZE				0,002	0,003
Random part					
Country	0,039	0,031	0,039	0,033	0,041
Firm	0,892	0,893	0,891	0,860	0,878

Notes: CORR is the anticorruption disclosure, measured using anticorruption disclosure items divided by total number of items. BID is the board independence diversity, calculated using Blau index. GED is the gender diversity, calculated using Blau index. BSSD is the board specific skills diversity, measured using Blau index. BSIZE is the board size, measured using total number of directors. QTOBIN is the company performance, calculated using market capitalization of common stock plus book value liabilities divided by book value of total assets. LEV is the leverage, calculated using total debt divided by total assets. FSIZE is the firm size, measured using natural logarithm of total assets.

In Model 1, we explore how board independence diversity affects anticorruption disclosure. Model 2 analyzes the impact of gender diversity on anticorruption disclosure. In Model 3 we examine the association between the board specific skills in anticorruption disclosure. Model 4 analyzes the impact of board size on anticorruption disclosure.

In Model 1, we explore the influence of board independence diversity on the anticorruption disclosure. Our results indicate a positive and insignificant coefficient. This result not supports Hypothesis 1. Our result does not provide support for the resource dependency theory, which states that a greater presence of independent directors provides alternative sources of knowledge, agency theory that says that independent directors improve

corporate governance and reduce agency conflicts and stakeholder theory which cites that more independent directors decrease stakeholder pressure

Moving to model 2, we examine the association between gender diversity and anticorruption disclosure. The findings reveal a negative and insignificant coefficient of gender diversity on anticorruption disclosure, implying that Hypothesis 2 is not supported. Our result does not provide support for the stakeholder, agency, resource dependency and upper echelons theories that claim that a presence of women on the board improves the relationship between stakeholders, reduces agency conflict, brings more knowledge and makes the firm more aligned with social performance.

Model 3 analyses the effect of board specific skills diversity on the anticorruption disclosure. The variable the board specific skills diversity provides a positive sign and statistically significant, thus that Hypothesis 3 is supported. Our results show that board specific skills diversity is a determinant factor on anticorruption disclosure, i.e. it does support the idea that specific skills are crucial to the firm performance (upper echelons theory) and that board specific skills diversity enables it to better perform its functions (resource dependence theory). This result is consistent with the empirical findings of Al-Qahtani and Elgharbawy (2020), Arayssi and Jizi, (2019), Harjoto et al., (2015) and Helfaya and Moussa, (2017).

Moving to model 4, we examine the association between board size and anticorruption disclosure. The findings reveal a positive and insignificant coefficient of board size on anticorruption disclosure, implying that Hypothesis 4 is not supported. Our result does not provide support for stakeholder, agency, and resource dependency theories that claim that larger boards encourage the firm to perform better socially, provide greater access to resources and connections, and support a high workload.

4.3 Additional analysis

In this section, several tests were employed to examine the robustness of our findings. We applied the Shannon index as alternative measure of board gender diversity, board specific diversity and board independence diversity. Shannon index has properties similar to the Blau index, however, it is more sensitive to difference in board composition because it is a logarithmic measure of diversity (Baumgärtner, 2006; Unite et al., 2019). To compute the Shannon index, we employed the following equation:

Shannon index formula: $-\sum_{i=1}^{n} P_i . lnP_i$

where:

P_i = the proportion of boardroom members in each category in the ith group.

n = the number of different categories.

$\sum$ = the sum of the calculations from category 1 to category n.

The minimum value for the Shannon index is zero, as there is no logarithm of zero, zero value is adopted in cases where there is no diversity and the maximum value is 0.69 when the proportion is the same, according to previous studies (Aggarwal et al., 2019; Unite et al., 2019; Zaid et al., 2020). Table 6 presents the findings of all the models.

Table 6

Multilevel regression results

	Model 1	Model 2	Model 3	Model 4	Model 5
Fixed part					
Control variables					
INTERCEPT	40,854***	39,309***	33,508***	38,080***	30,906***
YEAR	-0,020***	-0,020***	-0,017***	-0,019***	-0,016***
QTOBIN	-0,004	-0,002	-0,001	-0,003	-0,005
LEV	0,007	0,007	0,009	0,006	0,0111
FSIZE	0,077***	0,078***	0,077***	0,076***	0,075***
Independent variable					

BID	0,032				0,025
GED		-0,028			-0,042
BSSD			0,088***		0,088***
BSIZE				0,002	0,003
Random part					
Country	0,037	0,032	0,038	0,033	0,043
Firm	0,892	0,893	0,891	0,860	0,878

Notes: CORR is the anticorruption disclosure, measured using anticorruption disclosure items divided by total number of items. BID is the board independence diversity, calculated using Shannon index. GED is the gender diversity, calculated using Shannon index. BSSD is the board specific skills diversity, measured using Shannon index. BSIZE is the board size, measured using total number of directors. QTOBIN is the company performance, calculated using market capitalization of common stock plus book value liabilities divided by book value of total assets. LEV is the leverage, calculated using total debt divided by total assets. FSIZE is the firm size, measured using natural logarithm of total assets.

The results in Table 6 are similar to those reported in Table 5 and confirm that board specific skills diversity positively affect anticorruption disclosure, i.e., firms with greater board specific skills diversity disclose more social information. Our results also confirm that board independence diversity, gender diversity and board size do not affect anticorruption disclosure. The summary of hypotheses is presented in Table 7.

Table 7

Summary of hypotheses

Hypothesis	Variable name	Expected sign	Actual sign	Level of support
Hypothesis 1: There is positive relationship between board independence diversity and anticorruption disclosure	BID	(+)	(+)	Not Supported
Hypothesis 2: There is positive relationship between gender diversity and anticorruption disclosure	GED	(+)	(-)	Not Supported
Hypothesis 3: There is positive relationship between board specific skills diversity and anticorruption disclosure	BSSD	(+)	(+)*	Supported
Hypothesis 4: There is positive relationship between board size and anticorruption disclosure	BSIZE	(+)	(+)	Not Supported

*p<0,01

In summary, the results confirm that board specific skills diversity helps to promote social disclosure. The results are consistent with upper echelons and resource dependency theories, and underline that greater board specific skills diversity in the board of directors brings important resources in promoting social disclosure.

5 Conclusions

This study analyzes the link between board diversity and anticorruption disclosure. Using a data of 287 Latin America firms over a 5-year period (2015-2019), we employ Hierarchical Linear Modeling (HLM) to test study hypotheses. We measure anticorruption disclosure as the ratio between the aggregate of 7 items focused on anticorruption issues and the total number of items analyzed. We also use the Blau index to measure board diversity (gender diversity, board specific skills diversity and board independence diversity).

We find a positive and significant relationship between board specific skills diversity and anticorruption in Latin America firms. This result is consistent with stakeholder, agency, upper echelons and resource dependency theories. A negative and insignificant relationship between gender diversity and anticorruption was also found. In addition, we noted a positive and insignificant relationship between board independence diversity and board size and anticorruption disclosure.

This study suffers of some limitations. We studied board diversity in terms of gender, board specific skills and board independence diversity. Future research could focus on

nationality, age and background. We also noted that few firms disclose their socials aspects this represents a difficulty in anticorruption disclosure.

References

Aggarwal, R., Jindal, V., & Seth, R. (2019). Board diversity and firm performance: The role of business group affiliation. *International Business Review*, *28*(6), 101600. https://doi.org/https://doi.org/10.1016/j.ibusrev.2019.101600

Ahmed, W. M. A. (2020). Corruption and equity market performance: International comparative evidence. *Pacific Basin Finance Journal*, *60*. https://doi.org/10.1016/j.pacfin.2020.101282

Al-Qahtani, M., & Elgharbawy, A. (2020). The effect of board diversity on disclosure and management of greenhouse gas information: evidence from the United Kingdom. *Journal of Enterprise Information Management*.

Amorelli, M., & García-Sánchez, I. (2020). Critical mass of female directors, human capital, and stakeholder engagement by corporate social reporting. *Corporate Social Responsibility and Environmental Management*, *27*(1), 204–221.

Arayssi, M., & Jizi, M. I. (2019). Does corporate governance spillover firm performance? A study of valuation of MENA companies. *Social Responsibility Journal*.

Attah-Boakye, R., Adams, K., Kimani, D., & Ullah, S. (2020). The impact of board gender diversity and national culture on corporate innovation: A multi-country analysis of multinational corporations operating in emerging economies. *Technological Forecasting and Social Change*, *161*, 120247. https://doi.org/https://doi.org/10.1016/j.techfore.2020.120247

Azam, M., Khalid, M. U., & Zia, S. Z. (2019). Board diversity and corporate social responsibility: the moderating role of Shariah compliance. *Corporate Governance (Bingley)*. https://doi.org/10.1108/CG-01-2019-0022

Battaglia, F., Carboni, M., Cicchiello, A. F., & Monferrà, S. (2020). Assessing the Effects of Anti-corruption Law on Entrepreneurial Finance: Evidence from Latin America. *Journal of Emerging Market Finance*, 0972652720932783. https://doi.org/10.1177/0972652720932783

Baumgärtner, S. (2006). Measuring the diversity of what? And for what purpose? A conceptual comparison of ecological and economic biodiversity indices. *And for What Purpose*.

Beji, R., Yousfi, O., Loukil, N., & Omri, A. (2020). Board Diversity and Corporate Social Responsibility: Empirical Evidence from France. *Journal of Business Ethics*, 1–23.

Blanc, R., Branco, M. C., & Patten, D. M. (2019). Cultural Secrecy and Anti-corruption Disclosure in Large Multinational Companies. *Australian Accounting Review*, *29*(2), 438–448.

Blanc, R., Cho, C. H., Sopt, J., & Branco, M. C. (2019). Disclosure Responses to a Corruption Scandal : The Case of Siemens AG. *Journal of Business Ethics*, *156*(2), 545–561. https://doi.org/10.1007/s10551-017-3602-7

Blanc, R., Islam, M. A., Patten, D. M., & Branco, M. C. (2017). Corporate anti-corruption disclosure: An examination of the impact of media exposure and country-level press freedom. *Accounting, Auditing and Accountability Journal*.

Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models: Applications and data analysis methods.* Sage Publications, Inc.

Buertey, S., Sun, E., Lee, J. S., & Hwang, J. (2020). Corporate social responsibility and earnings management: The moderating effect of corporate governance mechanisms. *Corporate Social Responsibility and Environmental Management*, *27*(1), 256–271.

Burkhardt, K., Nguyen, P., & Poincelot, E. (2020). Agents of change: Women in top management and corporate environmental performance. *Corporate Social Responsibility and Environmental Management*, *September 2019*, 1–14. https://doi.org/10.1002/csr.1907

Byron, K., & Post, C. (2016). Women on boards of directors and corporate social performance: A meta-analysis. *Corporate Governance: An International Review*, *24*(4), 428–442.

Campbell, K., & Mínguez-Vera, A. (2008). Gender diversity in the boardroom and firm financial performance. *Journal of Business Ethics*, *83*(3), 435–451. https://doi.org/10.1007/s10551-007-9630-y

Činčalová, S., & Hedija, V. (2020). Firm characteristics and corporate social responsibility: The case of Czech transportation and storage industry. *Sustainability (Switzerland)*, *12*(5). https://doi.org/10.3390/su12051992

Colakoglu, N., Eryilmaz, M., & Martínez-Ferrero, J. (2020). Is board diversity an antecedent of corporate social responsibility performance in firms? A research on the 500 biggest Turkish companies. *Social Responsibility Journal*, *December 2019*. https://doi.org/10.1108/SRJ-07-2019-0251

Dávid-Barrett, E., & Fazekas, M. (2020). Anti-corruption in aid-funded procurement: Is corruption reduced or merely displaced? *World Development*, *132*, 105000. https://doi.org/https://doi.org/10.1016/j.worlddev.2020.105000

Duho, K. C. T., Agyenim-Boateng, C., Asare, E. T., & Onumah, J. M. (2020). Convergence and determinants of anti-corruption disclosure among extractive firms in Africa. *Journal of Financial Crime*.

El Gammal, W., Yassine, N., Fakih, K., & El-Kassar, A.-N. (2020). The relationship between CSR and corporate governance moderated by performance and board of directors' characteristics. *Journal of Management and Governance*, *24*(2), 411–430. https://doi.org/10.1007/s10997-018-9417-9

Endrikat, J., de Villiers, C., Guenther, T. W., & Guenther, E. M. (2020). Board Characteristics and Corporate Social Responsibility: A Meta-Analytic Investigation. *Business & Society*, 0007650320930638.

Fávero, L. P., & Belfiore, P. (2017). *Manual de análise de dados: estatística e modelagem multivariada com Excel®, SPSS® e Stata®*. Elsevier Brasil.

Freeman, R. E. (1984). Stakeholder management: framework and philosophy. *Pitman, Mansfield, MA*.

Gallego-Álvarez, I., Lozano, M. B., & Rodríguez-Rosa, M. (2018). An analysis of the environmental information in international companies according to the new GRI standards. *Journal of Cleaner Production*, *182*, 57–66. https://doi.org/10.1016/j.jclepro.2018.01.240

Gallego-Álvarez, I., & Pucheta-Martínez, M. C. (2020). Environmental strategy in the global banking industry within the varieties of capitalism approach: The moderating role of gender diversity and board members with specific skills. *Business Strategy and the Environment*, *29*(2), 347–360. https://doi.org/10.1002/bse.2368

Gallego-Álvarez, I., & Pucheta-Martínez, M. C. (2020). Corporate social responsibility reporting and corporate governance mechanisms: An international outlook from emerging countries. *Business Strategy & Development*, *3*(1), 77–97.

Guo, M., Xu, Y., & David, Y. (2019). Resources, Conservation & Recycling Environmental enforcement and compliance in Pennsylvania's Marcellus shale gas development. *Resources, Conservation & Recycling*, *144*(January), 24–31. https://doi.org/10.1016/j.resconrec.2019.01.006

Harjoto, M., Laksmana, I., & Lee, R. (2015). Board Diversity and Corporate Social Responsibility. *Journal of Business Ethics*, *132*(4), 641–660. https://doi.org/10.1007/s10551-014-2343-0

Helfaya, A., & Moussa, T. (2017). Do board's corporate social responsibility strategy and orientation influence environmental sustainability disclosure? UK evidence. *Business Strategy and the Environment*, *26*(8), 1061–1077.

Hoang, T. C., Abeysekera, I., & Ma, S. (2018). Board Diversity and Corporate Social Disclosure: Evidence from Vietnam. *Journal of Business Ethics*, *151*(3), 833–852. https://doi.org/10.1007/s10551-016-3260-1

Husted, B. W., & Sousa-Filho, J. M. de. (2017). The impact of sustainability governance, country stakeholder orientation, and country risk on environmental, social, and governance performance. *Journal of Cleaner Production*, *155*, 93–102. https://doi.org/https://doi.org/10.1016/j.jclepro.2016.10.025

Jaggi, B., Allini, A., Ginesti, G., & Macchioni, R. (2020). Determinants of corporate corruption disclosures: evidence based on EU listed firms. *Meditari Accountancy Research*.

Jarboui, A., Kachouri Ben Saad, M., & Riguen, R. (2020). Tax avoidance: do board gender diversity and sustainability performance make a difference? *Journal of Financial Crime*. https://doi.org/10.1108/JFC-09-2019-0122

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/https://doi.org/10.1016/0304-405X(76)90026-X

Karim, S., Manab, N. A., & Ismail, R. B. (2020). Assessing the Governance Mechanisms, Corporate Social Responsibility and Performance: The Moderating Effect of Board Independence. *Global Business Review*, 0972150920917773.

Khan, I., Khan, I., & Saeed, B. bin. (2019). Does board diversity affect quality of corporate social responsibility disclosure? Evidence from Pakistan. *Corporate Social Responsibility and Environmental Management*, *26*(6), 1371–1381.

Kumala, R., & Siregar, S. V. (2020). Corporate social responsibility, family ownership and earnings management: the case of Indonesia. *Social Responsibility Journal*.

Lombardi, R., Cano-Rubio, M., Trequattrini, R., & Fuentes-Lombardo, G. (2020). Exploratory evidence on anticorruption activities in the Spanish context: A sustainable governance approach. *Journal of Cleaner Production*, *249*. https://doi.org/10.1016/j.jclepro.2019.119424

Lu, J., & Herremans, I. M. (2019). Board gender diversity and environmental performance: An industries perspective. *Business Strategy and the Environment*, *28*(7), 1449–1464. https://doi.org/10.1002/bse.2326

Malik, F., Wang, F., Naseem, M. A., Ikram, A., & Ali, S. (2020). Determinants of Corporate Social Responsibility Related to CEO Attributes: An Empirical Study. *SAGE Open*, *28*. https://doi.org/10.1177/2158244019899093

Masud, M. A. K., Bae, S. M., Manzanares, J., & Kim, J. D. (2019). Board directors' expertise and corporate corruption disclosure: The moderating role of political connections. *Sustainability (Switzerland)*, *11*(16). https://doi.org/10.3390/su11164491

MSCI. (2020). MSCI Emerging Markets Latin America Index. *New York*.

Naciti, V. (2019). Corporate governance and board of directors: The effect of a board composition on firm sustainability performance. *Journal of Cleaner Production*, *237*, 117727. https://doi.org/10.1016/j.jclepro.2019.117727

Nobanee, H., Atayah, O. F., & Mertzanis, C. (2020). Does anti-corruption disclosure affect banking performance? *Journal of Financial Crime*.

Nobanee, H., & Ellili, N. (2020). Anti-bribery information. *Journal of Financial Crime*.

Oh, W. Y., Chang, Y. K., & Jung, R. (2019). Board characteristics and corporate social responsibility: Does family involvement in management matter? *Journal of Business Research*, *103*(May), 23–33. https://doi.org/10.1016/j.jbusres.2019.05.028

Olthuis, B. R., & van den Oever, K. F. (2020). The board of directors and CSR: How does ideological diversity on the board impact CSR? *Journal of Cleaner Production*, *251*, 119532. https://doi.org/https://doi.org/10.1016/j.jclepro.2019.119532

Orazalin, N, & Baydauletov, M. (2020). Corporate social responsibility strategy and corporate

environmental and social performance: The moderating role of board gender diversity. *Corporate Social Responsibility and Environmental Management.* https://doi.org/10.1002/csr.1915

Orazalin, Nurlan. (2020). Do board sustainability committees contribute to corporate environmental and social performance? The mediating role of corporate social responsibility strategy. *Business Strategy and the Environment*, *29*(1), 140–153.

Orazalin, Nurlan, & Baydauletov, M. (2020). Corporate social responsibility strategy and corporate environmental and social performance: The moderating role of board gender diversity. *Corporate Social Responsibility and Environmental Management, January*, 1–13. https://doi.org/10.1002/csr.1915

Ortas, E., Gallego-Álvarez, I., & Álvarez, I. (2019). National institutions, stakeholder engagement, and firms' environmental, social, and governance performance. *Corporate Social Responsibility and Environmental Management*, *26*(3), 598–611. https://doi.org/10.1002/csr.1706

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York: Harper and Row.

Pucheta-Martínez, M C, Gallego-Álvarez, I., & Bel-Oms, I. (2019). Varieties of capitalism, corporate governance mechanisms, and stakeholder engagement: An overview of coordinated and liberal market economies. *Corporate Social Responsibility and Environmental Management.* https://doi.org/10.1002/csr.1840

Pucheta-Martínez, María Consuelo, Bel-Oms, I., & Rodrigues, L. L. (2020). Does stakeholder engagement encourage environmental reporting? The mediating role of firm performance. *Business Strategy and the Environment, May*, 1–13. https://doi.org/10.1002/bse.2555

Pucheta-Martínez, M. C., & Gallego-Álvarez, I. (2019). An international approach of the relationship between board attributes and the disclosure of corporate social responsibility issues. *Corporate Social Responsibility and Environmental Management*, *26*(3), 612–627.

Qureshi, M. A., Kirkerud, S., Theresa, K., & Ahsan, T. (2020). The impact of sustainability (environmental, social, and governance) disclosure and board diversity on firm value: The moderating role of industry sensitivity. *Business Strategy and the Environment*, *29*(3), 1199–1214. https://doi.org/10.1002/bse.2427

Sari, T. K., Cahaya, F. R., & Joseph, C. (2020). Coercive Pressures and Anti-corruption Reporting: The Case of ASEAN Countries. *Journal of Business Ethics.* https://doi.org/10.1007/s10551-020-04452-1

Shahab, Y., Ntim, C. G., Chen, Y., Ullah, F., Li, H., & Ye, Z. (2020). Chief executive officer attributes, sustainable performance, environmental performance, and environmental reporting: New insights from upper echelons perspective. *Business Strategy and the Environment*, *29*(1), 1–16.

Simon, R., & Aalbers, G. (2020). The Capacity to Combat Corruption (CCC) Index. *AS/COA*, 15.

Soares, R. A., Abreu, M. C. S. de, Marino, P. D. B. L. P., & Rebouças, S. M. D. P. (2018). Avaliação Hierárquica da Influência do País, Setor e Empresa na Evidenciação da Responsabilidade Social Corporativa. *Revista Contabilidade & Vista*, *85*, 96–121.

Song, F. (Sophie), Montabon, F., & Xu, Y. (2018). The impact of national culture on corporate adoption of environmental management practices and their effectiveness. *International Journal of Production Economics*, *205*, 313–328. https://doi.org/https://doi.org/10.1016/j.ijpe.2018.09.020

Transparency International. (2019). *Global Corruption Barometer Latin America & Latin America 2019.*

Transparency International. (2020a). *Corruption Perceptions Index 2019.*

Transparency International. (2020b). *What is corruption?*

Ullah, M. S., Muttakin, M. B., & Khan, A. (2019). Corporate governance and corporate social responsibility disclosures in insurance companies. *International Journal of Accounting and Information Management*, *27*(2), 284–300. https://doi.org/10.1108/IJAIM-10-2017-0120

Unite, A. A., Sullivan, M. J., & Shi, A. A. (2019). Board Diversity and Performance of Philippine Firms: Do Women Matter? *International Advances in Economic Research*, *25*(1), 65–78. https://doi.org/10.1007/s11294-018-09718-z

Wang, yun, Wilson, C., & Li, Y. (2020). Gender attitudes and the effect of board gender diversity on corporate environmental responsibility. *Emerging Markets Review*, 100744. https://doi.org/https://doi.org/10.1016/j.ememar.2020.100744

Yarram, S. R., & Adapa, S. (2021). Board gender diversity and corporate social responsibility: Is there a case for critical mass? *Journal of Cleaner Production*, *278*, 123319. https://doi.org/https://doi.org/10.1016/j.jclepro.2020.123319

Zaid, A. A. M., Wang, M., Adib, M., Sahyouni, A., & Abuhijleh, S. T. F. (2020). Boardroom nationality and gender diversity: Implications for corporate sustainability performance. *Journal of Cleaner Production*, *251*, 119652. https://doi.org/10.1016/j.jclepro.2019.119652

Zhou, C. (2019). Effects of corporate governance on the decision to voluntarily disclose corporate social responsibility reports: evidence from China. *Applied Economics*, *51*(55), 5900–5910. https://doi.org/10.1080/00036846.2019.1631440

Zubeltzu-Jaka, E., Álvarez-Etxeberria, I., & Ortas, E. (2020). The effect of the size of the board of directors on corporate social performance: A meta-analytic approach. *Corporate Social Responsibility and Environmental Management*, *27*(3), 1361–1374. https://doi.org/10.1002/csr.1889