

## Article

# Diversity of the Board of Directors and Financial Performance of the Firms

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**Abstract:** The diversity of the board of directors continues to be a matter of concern for investors, regulators, and the general public. In this sense, the purpose of the research presented was to identify whether there is a positive and significant impact between the diverse variables of the board of directors and the financial performance of the firms. In this context, the study's objective was to determine if the diversity in the composition of the boards of directors has a positive and significant impact on the financial performance of the companies listed in the Chilean stock market. The study considered a sample of 1106 reports on social responsibility and sustainable development between the 2015–2020 period and their respective returns. The research was descriptive-correlational, which determined the incidence of gender, nationality, and age diversity in the financial performance of the firms. The results show, in general, a low degree of gender and nationality diversity in Chilean boards. However, a positive and significant impact is observed in the commercial sector, nationality diversity, and the construction and gender diversity axis. In this regard, the study allows confirming the heterogeneity of results by linking the variables of diversity and financial performance and the importance of conducting sufficiently disaggregated studies to understand the relationship between both types of variables. Finally, this study updates the diversity levels of the board of directors for the Chilean stock market and establishes challenges for the regulator in terms of gender quotas and good corporate governance practices.

**Keywords:** diversity; gender diversity; board of directors; financial performance



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## 1. Introduction

Since the concept of Corporate Social Responsibility (CSR) gained popularity in the 1960s, different concerns have arisen regarding how companies expand their competencies beyond the value generated for their shareholders [1]. Some CSR and sustainability studies have even explored these concepts from the perspective of decision-making processes based on big data and digitized mass production for Industry 4.0 and manufacturing systems cyber-physicists [2,3]. However, the questions related to the composition and operation of corporate governance bodies [4], as well as the diversity of the board of directors and its impact on the financial performance of companies [5], continues to be a relevant topic of interest to the different participants in the stock markets.

CSR has generated a central debate in the academic literature [6]. Thematic, promoted by international organizations, considers the introduction of gender quotas in the boards of directors of companies listed on the stock exchange as a good practice [7]. On the other hand, some nations have introduced voluntary policies to regulate and increase the proportion of women in the Board of Directors [8].

Additionally, evidence supports the theory that gender diversity contributes to the generation of a critical mass in the composition of the boards of directors [9]. In addition,

some findings reinforce the initiatives being carried out around the world to promote diversity in the different corporate governance bodies [10].

In this regard, the radical problem, in which the results show heterogeneous and non-generalizable effects between countries, industries, and companies [5,11], fragmenting the discussion of relevant topics of interest to the region, to particular realities of each country and stock market [12]. Even the relationship between the diversity of the board of directors and the company's performance probably varies according to each country due to the different regulatory frameworks, political climate, culture, economic model, and size of the markets [13]. Additionally, many governments seek to impose gender equality on the boards through quota law. However, the consequences of doing so are unclear and could benefit or harm the companies and economies that carry it out [14].

After the above, the relevance of this research focuses on studying the composition of the board of directors through three types of diversity and the individualization of each of the industries participating in the Chilean stock market. In this context, the research significantly contributes to the discussion related to whether the diversity of the board of directors could be associated with positive future returns, providing tools to the local regulator for the discussion of a quota law or the adoption of governance practices. This promotes diversity in the boards and supports the theory of the critical masses within this governing body. Additionally, the findings provide new evidence regarding an incipient research topic in Chile. Given the above, the main objective of this research was to determine whether the diversity of gender, nationality, and age of the members of the board of directors positively and significantly affect the financial performance of the companies listed in the Chilean stock market during the period 2015–2020. The objective seeks to answer the research question: Will gender, nationality, and age diversity positively and significantly impact the financial performance of companies listed in the Chilean stock market?

## 2. Literature Review and Hypotheses Development

The low degree of female representation in senior positions in listed companies is global [13]. As an example, the study carried out by Terjesen, Aguilera, and Lorenz (2015) [15] indicates that women represent 10.3% of the boards of directors of listed companies, with significant gaps between countries such as Morocco (0.0%), Japan (0.9%), and Chile (2.4%), versus countries such as Norway (42.0%), Sweden (28.0%), and Finland (27.2%).

At the level of measures that promote diversity in Chile, there is no regulation related to gender quotas. On the other hand, in developed countries, different measures have been implemented to increase the presence of women on boards of directors [16]. The Quota Laws and the Codes of Good Governance are among them, the former being more effective due to their mandatory nature [15]. Additionally, it seems that board diversity is not an issue of corporate concern in Chilean companies [17].

Concerning the concept of diversity, various researchers point out that it should not only be limited to the gender of the council members. However, they must also incorporate variables such as ethnicity, nationality, occupation, and ages of the members to reduce the risk of "groupthink", a situation in which the group makes a wrong decision as a result of the pressure exerted by some of its members, which is not questioned due to the high homogeneity of the group [18–20].

Regarding the effects of adopting corporate practices related to promoting diversity on the board of directors, the topics and methodology used vary. For example, using univariate and regression models, Liao, Luo, and Tang (2015) [21] studied the effects of corporate board diversity on voluntary disclosure of greenhouse gas emissions, considering 329 UK companies. On the other hand, using a dynamic model, Sila, Gonzalez, and Hagendorff (2016) [22] investigated the relationship between gender diversity in the boardroom and financial risk of 13851 observations of US companies between 1960 and 2010. Additionally, Terjesen, Couto, and Francisco (2016) [23] studied whether gender diversity improves the independence and efficiency of boards of directors through estimation models and

robustness tests, using data from 3876 companies from 47 countries. Moreover, Cumming, Leung, and Rui (2015) [24] addressed the effects of the gender diversity of the board of directors in the materialization and severity of different corporate frauds in the Chinese stock market through hypothesis tests.

Another important line of research related to the diversity of the Board of Directors corresponds to the study of the effects of the diversity of the board of directors in the adoption of CSR practices. In this sense, McGuinness, Vieito, and Wang (2017) [25] investigated the role of gender of the board and foreign ownership in the CSR performance of Chinese companies, concluding that a more excellent gender balance in senior management supports more robust CSR performance. On the other hand, Byron and Post (2016) [26] studied how the diversity of the board, from a CSR perspective, influences the adoption of socially responsible business practices by companies, detecting that the relationship is positive and could even be more significant when companies operate in countries with better shareholder protection. Finally, Arenas, Bustamante, and Campos (2021) [17] studied how CSR is connected with the adoption of good business practices, highlighting that formalizing a CSR policy would positively affect the formation of the board of directors and even the gender diversity within this council could be the main factor of change in the adoption of corporate practices.

Regarding the possible effects of diversity in the composition of the board of directors, studies indicate that the results are not conclusive, and even these depend to a great extent on the methodology used for each investigation [5,12]. In this line, different studies indicate that the incidence of the diversity of the board of directors in the financial performance of the company could be positive, negative, or neutral, according to the socioeconomic, political, and cultural characteristics of the country or region of study [5,11,27].

Regarding the types of diversity addressed in this study, gender diversity is the one that has the most significant development in the academic literature, establishing three types of findings when combining the variables gender diversity and financial performance, these being positive, negative, and neutral. About the positive findings, the authors Isidro and Sobral (2015) [7], when studying 500 European companies, point out that a more excellent female representation in the boards of directors could increase the financial performance of the companies. Similar results were obtained by Chijoke, Boateng, and Mgbame (2020) [9] when investigating the African context. Moreover, García, García, and Martínez (2015) [28], when studying 159 banks from nine countries (Canada, France, Germany, Italy, Holland, Spain, Sweden, the United Kingdom, and the United States), point out that gender diversity in the board of directors increases the financial performance of banks. Along the same lines, Reguera, De Fuentes, and Laffarga (2017) [29], when studying these variables from the perspective of a quota law, detected in the Spanish case that the increase in the number of women on boards is positively related to better financial results. Now, Abdullah, Ismail, and Nachum (2016) [14] addressed the effects of gender diversity on financial performance from an emerging markets and economic sectors perspective, considering 841 Malaysian companies, and discovered that female directors only create value for some companies, given the cultural and market factors of each economic sector analyzed. Finally, Bennouri, Chtioui, Nagati, and Nekhili (2018) [30] studied the relationship between female management and the ROA and ROE profitability indicators of 394 French companies, concluding that female management significantly increases profitability indicators the companies analyzed.

Regarding the negative or neutral effects of gender diversity on the financial performance of firms, although there are studies that confirm these findings, their number concerning the positive effects that this link could present is much lower. In this sense, Adusei and Akomea (2017) [31], when analyzing 494 institutions from 76 countries, indicate that gender diversity in the board of directors is negatively and significantly related to the financial performance of the institutions. Pletzer, Nikolova, and Kedzior (2015) [32] obtain similar results when analyzing 3097 companies from different countries and point out that the mere representation of women on corporate boards is not related to the finan-

cial performance of the company but rather the vast majority consider other factors. On the other hand, Marinova, Plantenga, and Remery (2016) [33], when studying 186 listed companies from Holland and Denmark, detected no relationship between the diversity of the board and the company's financial performance for the set of data analyzed. Finally, Hassan and Marimuthu (2018) [5], when studying 330 companies in Malaysia, point out for reflection that companies with the highest profits must be socially responsible, and on their behalf, promote diversity of any type in the corporate governance bodies and all areas of the companies.

On the other hand, in the diversity of nationality, the heterogeneity of the results related to the subject is still present. For example, Sarhan, Ntim, and Al-Najjar (2019) [34] point out that the diversity of nationality in the board of directors has a positive effect on the financial performance of companies. Fernández and Tejerina (2020) [35] obtained similar results when conducting a longitudinal study between 2005 and 2015, which pointed out that only the diversity of nationality of internal directors positively affects the company's financial performance. On the contrary, Halcro, Ben, Chaher, and Talib (2021) [36], when studying 76 companies of the Footsie 100, of the London Stock Exchange, during the period 2010–2015, conclude that the impact of the diversity of nationality in the financial performance of the board is not significant. Similar results were obtained by García, García, and Martínez (2015) [28], who point out that the diversity of nationality inhibits an increase in the financial performance of banks.

Finally, as presented in the previous paragraphs, the relationship between the diversity of the board of directors and the financial performance of companies depends on variables related to the regulatory structure, political climate, economic system, and size of each stock market [13]. Additionally, through profitability indicators, the study of financial ratios plays an essential role in the company's financial and competitive position [37]. In this regard, this research becomes relevant when studying the Chilean stock market in a disaggregated manner, seeking to contrast the following research hypothesis, based on the general objective:

**Hypothesis 1:** *The diversity of gender, nationality, and age, individually or as a whole, positively and significantly affects public limited companies' financial performance in the Chilean stock market.*

### 3. Methods

The present investigation was of the descriptive and correlational type [38]. The study variables were analyzed through descriptive statistics, and then, using the multiple linear regression techniques, the degree of incidence of the diversity of gender, nationality, and age of the members of the board of directors was determined in the financial performance of the companies listed in the Chilean stock market in 2015–2020 [5,7,9,11–13,19,20,27,31,34–36].

Regarding the study population, this reached a total of 1271 reports, of which, through the application of a non-probabilistic sampling for convenience, a sample of 1106 observations was obtained, including 202 companies that reported General Standard. No. 386 of Social Responsibility and Sustainable Development [39], a regulation promulgated on 8 June 2015, and which obliges public limited companies, to report the composition of their board of directors annually to the regulatory body, having to date six reporting periods, which extend during the 2015–2020 five-year period. Additionally, the observations and companies were classified by economic sectors, according to the codes established by the Internal Revenue Service, the controlling body in tax matters in Chile [40].

Concerning the degree of diversity of gender, nationality, and age of the members of the board of directors, this was determined from the quotient between the number of members of each of the types of diversity and the number of total directors, later classified into quintiles (Likert) according to the degree of diversity of gender, nationality, and age that the companies present in each period studied.

Regarding the financial performance of the companies, the indicators of return on equity (ROE) and return on assets (ROA) were considered, which were classified into

five intervals depending on the mean ( $\bar{x}$ ) and standard deviation ( $\sigma$ ) of the indicators. Moreover, returns less than  $2\sigma$  of the  $\bar{x}$ ; obtained 1 point, returns less than  $1\sigma$  of the  $\bar{x}$ ; obtained 2 points, returns in the range of  $1\sigma$  of the  $\bar{x}$ ; obtained 3 points, returns greater than  $1\sigma$  of the  $\bar{x}$ ; obtained 4 points, and finally returns higher than  $2\sigma$  obtained 5 points. Table 1 shows the operationalization for each of the variables.

**Table 1.** Description of variables included in the regression model.

Variable	Element for	Operationalization by Company	Source
Dependents			
Financial performance	Measure Financial Performance	Quintile (Likert) ROE classification + Quintile (Likert) ROA classification	[5,7,9,20,31,34,35,41]
Independent			
- Gender diversity - Women proportion	Measure the degree of gender diversity	Quintile (Likert) women proportion = No. of woman members of the Board of Directors/Total No. of Board members	[5,7,9,11–13,19,20,27,31,34–36]
- Nationality Diversity - Foreigners proportion	Measure the degree of diversity of nationality	Quintile (Likert) nationality diversity proportion = No. of foreign members of the Board of Directors/Total No. of Board members	
- Age diversity - ≤50 years proportion - >70 years proportion	Measure the degree of age diversity	Quintile (Likert) age diversity proportion = (No. Directors ≤ 50 years + No. Directors > 70 years)/Total No. of Board members	
Control			
Leverage (Dummy)	Determine the level of indebtedness of the company	Total liabilities/Total Equity	[7,31,41,42]
Economic cycle (Dummy)	Determine which cycle the observation corresponds	Cycle 1 2015–2018; Cycle 2 2019–2020	
IPSA (Dummy)	Determine if the company belongs to the Selected Stock Price Index (IPSA)	Yes; No	

Finally, to respond to the proposed study hypothesis, the multivariate regression model is presented below that allows determining the degree of incidence of the diversity of the board of directors in the performance of Chilean public offering securities issuers.

$$H_1: \text{Financial Performance}_{it} = \beta_0 + \beta_1 \text{Gender diversity}_{it} + \beta_2 \text{Nationality diversity}_{it} + \beta_3 \text{Age diversity}_{it} + \beta_4 \text{Leverage}_{it} + \beta_5 \text{Economic cycle}_{it} + \beta_6 \text{IPSA}_{it} + \epsilon_{it}$$

#### 4. Results

This section is divided into three sections. The first presents the distribution by economic sectors of the study sample. In the second, a descriptive analysis of the main variables is presented, which considers dependent variables related to the financial performance of the firms and independent variables related to the degrees of the diversity of the board of directors. Finally, in the third section, the results of the multiple regressions are presented, considering each of the economic sectors of the Chilean stock market.

##### 4.1. Distribution of the STUDY Sample

Table 2 shows the sample distribution by the ten most important economic sectors of the Chilean stock market. It is observed that the economic sectors related to the manufacturing industry, investment companies, and basic supplies are the sectors that together concentrated more than 50% of the analyzed reports. On the contrary, the sectors of entertainment, mining, and forestry, agriculture, and fisheries do not manage to have, as a whole, a representation greater than 13%.



**Table 2.** Distribution of the sample by economic sector.

No.	Economic Sectors	Period Observations		Number of Companies	
		Quantity	Frequency	Quantity	Frequency
1	Retail	111	10%	20	10%
2	Hotels, restaurants and entertainment	72	7%	13	6%
3	Manufacturing industry	250	23%	45	22%
4	Real estate and construction	127	11%	27	13%
5	Mining	24	2%	4	2%
6	Forestry and fishing	39	4%	8	4%
7	Investment companies	183	17%	31	15%
8	Basic supplies	148	13%	28	14%
9	Transportation, storage and communications	104	9%	18	9%
10	Others	48	4%	8	4%
11	Total	1106	100%	202	100%

Additionally, it is observed in Table 2 that in the analyzed period, no significant differences are reflected between the observations and the number of companies existing in some economic sectors, with only variations of one or two percentage points corresponding to the opening or closing of companies during the study period. Finally, Table 2 shows a high concentration of companies that issue public offering securities in economic sectors linked to the manufacture and use of natural resources.

#### 4.2. Descriptive Statistics of the Study Variables

Table 3 shows the descriptive statistics related to financial performance and the diversity of the members of the board of directors. In this regard, during the 2015–2020 period, an average ROE of 7.89% and a ROA of 3.06% are observed, both indicators being classified on a Likert scale close to the 3.00-point category out of a maximum of 5.00 points. Additionally, concerning the number of board members, it is observed that gender diversity amounts to 7.58% (Likert of 1.15 out of 5.00 points), while the diversity of nationality reaches 10.67% (Likert of 1.58 out of 5.00 points), and the age diversity to 39.52% (Likert of 3.46 out of 5.00 points), respectively.

**Table 3.** Descriptive statistics.

Variables	Average n = 1106	Median n = 1106	Mode n = 1106	Stand. Dev. n = 1106	Minimum n = 1106	Maximum n = 1106
Profitability (Dependent)						
% Return on equity (ROE)	7.89	6.38	0.00	19.11	−90.67	186.32
% Return on assets (ROA)	3.06	2.99	0.00	9.79	−68.88	88.49
Return on equity Likert (ROE)	2.99	3.00	3.00	0.71	1.00	5.00
Return on assets Likert (ROA)	2.98	3.00	3.00	0.73	1.00	5.00
Financial Performance Likert	3.09	3.00	3.00	0.73	1.00	5.00
Board Diversity (Independent)						
No. Board Members	7.75	7.00	7.00	3.38	1.00	47.00
% Gender diversity	7.58	0.00	0.00	12.17	0.00	80.00
% Nationality diversity	10.67	0.00	0.00	20.77	0.00	100.00
% Age diversity	39.52	40.00	42.86	21.61	0.00	100.00
Gender diversity Likert	1.51	1.00	1.00	0.83	1.00	5.00
Nationality diversity Likert	1.58	1.00	1.00	1.09	1.00	5.00
Age diversity Likert	3.46	4.00	5.00	1.27	1.00	5.00

The descriptions related to diversity are observed concerning the variables gender and nationality, high homogeneity of the directories, with the median and mode being 0.00% in both cases. The same situation occurs in the Likert for the diversity of gender and nationality, which are in the lowest quintile of the defined scale.

### 4.3. Multiple Regression Analysis

Table 4 shows the results of the regressions related to hypothesis H<sub>1</sub>. In general, it is observed that the adjusted least-squares of the regressions by economic sectors (1 to 10) and regression 11, which includes the entire market, are highly disparate, limiting the reliability of the regressions to each of the coefficients of determination obtained in the calculations. In this sense, for sectors 1, 2, 3, 4, 6, 7, 8, 9, and regression 11, the adjusted R<sup>2</sup> or coefficients of determination are very low. However, the economic sectors mining (5) and others (10) have coefficients of 0.582 and 0.148, respectively, where the financial performance variable would be explained by 58.2% and 14.8% by the variations of the diversity variables previously defined in the study model.

**Table 4.** Regression of board diversity and financial performance.

No.	Economic Sectors	Const. (Est. Error)	Gender Coeff./ (Est. Error)	Nation. Coeff./ (Est. Error)	Age Coeff./ (Est. Error)	R <sup>2</sup> Fitted/ (Global Signif.)	Control Variables (Dummy)		
							Lever.	Econ.	IPSA.
1	Retail	4.182 *** 0.462	−0.282 *** 0.101	0.204 ** 0.102	−0.100 0.063	0.095 0.011	Yes	No	Yes
2	Hotels, restaurants and entertainment	4.211 *** 0.611	−0.231 * 0.126	−0.213 0.147	−0.227 ** 0.098	0.094 0.050	No	No	No
3	Manufacturing industry	4.034 *** 0.302	−0.224 *** 0.088	−0.106 ** 0.049	−0.031 0.046	0.036 0.020	No	No	Yes
4	Real estate and construction	2.746 *** 0.465	0.206 ** 0.084	−0.063 0.153	−0.035 0.057	0.056 0.043	No	No	No
5	Mining	2.544 * 1.422	−0.194 0.347	0.368 0.336	0.021 0.190	0.582 0.001	Yes	No	No
6	Forestry and fishing	3.752 *** 0.586	−0.039 0.396	−0.812 0.332	0.169 0.171	0.070 0.194	Yes	No	No
7	Investment companies	3.700 *** 0.350	−0.019 0.069	−0.055 0.090	−0.011 0.050	−0.005 0.539	No	No	No
8	Basic supplies	2.869 *** 0.282	−0.016 0.060	0.033 0.041	0.017 0.046	0.008 0.306	Yes	No	No
9	Transportation, storage and com.	3.820 *** 0.484	−0.334 0.215	−0.187 * 0.103	−0.066 0.078	0.050 0.070	No	No	No
10	Others	2.912 *** 0.732	−0.076 0.243	0.129 0.330	0.202 * 0.118	0.148 0.037	Yes	No	No
11	All economic sectors	3.166 *** 0.118	−0.024 0.027	−0.007 0.021	−0.034 ** 0.017	0.014 0.001	Yes	No	No

NOTE: “Yes” or “No” indicates whether the control variables, Leverage (Lever), Economic cycle (Econ), and IPSA (IPSA), are significant at  $p < 0.05$ . Additionally, \*  $p < 0.01$ , \*\*  $p < 0.05$  and \*\*\*  $p < 0.1$ .

About the global significance of the regressions performed in Table 4, when applying Fisher’s “F” statistical test, where  $q \leq 0.05$ , economic sectors 1, 2, 3, 4, 5, 9, and 10 have significant global statistics, while sectors 6, 7, and 8, as well as in the regression of all economic sectors (11), the significance is more significant than a  $q$  of 0.05.

Regarding the coefficients of the regressions, these were analyzed through their individual significance, applying the T-Student test [43], considering that any parameter  $\beta_t$ , with  $H_0: \beta_i = 0$  and  $H_1: \beta_i \neq 0$ ,  $H_1$  is rejected for any coefficient with a  $q \geq 0.05$ . In this sense,  $H_1$  is ultimately rejected for economic sectors 5, 6, 7, 8, 9, and 10, while in economic sectors 1, 2, 3, 4, and in the regression of all economic sectors (11), there are significant coefficients, but with mixed incidences.

When considering gender diversity, it is observed in Table 4 that in the economic sectors of commerce (1) and manufacturing industry (3), there is a negative but significant incidence, observing coefficients of  $-0.282^{***}$  and  $-0.244^{***}$ , respectively, rejecting  $H_1$  for both cases. However, the real estate and construction economic sector (4) reflects a positive incidence, with a coefficient of  $0.206^{**}$ , accepting  $H_1$  for this case. Concerning the diversity of nationality, the results indicate that in the economic sectors (1) and (3), there are significant coefficients, accepting  $H_1$  for the commercial sector (1) with a coefficient

of 0.204\*\*\*. At the same time,  $H_1$  is rejected for the manufacturing industry economic sector (3), the negative incidence being at a value of  $-0.106^{**}$ . Regarding age diversity, the significant incidences are presented in the regressions of sectors 1 and 11, being negative in both cases, rejecting  $H_1$  under the coefficients  $-0.227^{**}$  and  $-0.034^{**}$ , respectively.

Finally, it is observed in Table 4 that the variables of gender, nationality, and age diversity have a significant impact on some industries, while at the level of all economic sectors, gender and nationality diversity do not have a significant influence, while the diversity of age has a positive incidence at a value  $q \geq 0.05$ , it is weak and negative.

## 5. Discussion of Results

In general, when considering the variables of gender diversity (7.58%), nationality (10.67%), and age (39.52%), there is little heterogeneity in the composition of Chilean boards. In this regard, different investigations indicate that gender diversity in Chile is low and does not reach 5% participation [44,45]. Additionally, Arenas, Bustamante, and Campos (2021) [46] indicate that practices related to the integration of women in managerial positions could be an engine of change to improve the corporate governance of organizations. Regarding the diversity of nationality and age, there are no relevant studies for the Chilean market. However, Cuadrado, García, and Martínez (2014) [47] point out that the average number of foreign directors on the board is close to 16.00%. Given these results, the regulator should begin to evaluate measures to promote diversity within the boards of directors in Chile. In this sense, Reguera, De Fuentes, and Laffarga (2017) [29] suggest that mandatory legislation offers a framework efficient to promote diversity in the composition of these boards, this being a key factor to be strengthened within the codes of good corporate governance, above all, because the adoption of corporate governance practices in Chile is in an incipient stage, and its progress has been marginal in the last five years [48].

Concerning the impact of the diversity of the board of directors on financial performance, the results are variable and depend on each of the economic sectors analyzed. For example, significant and positive impacts are only observed in the economic sectors related to commerce and real estate and construction, with a coefficient of nationality diversity in the first case of 0.204 \*\* ( $q \leq 0.05$ ), and with a gender diversity coefficient in the second case of 0.206 \*\* ( $q \leq 0.05$ ), accepting  $H_1$  for both axes of convergence. In this regard, Conyon and He (2017) [49], when studying more than 3000 US companies, explain that the effects of the diversity of the board are not homogeneous, as could be considered in some investigations; on the contrary, the effect could be positive, neutral, or negative, depending on the economic sector as well as the distribution of the company's financial performance. Along the same lines, Low, Roberts, and Whiting (2015) [50] obtain similar results when studying Asian companies from Hong Kong, South Korea, Malaysia, and Singapore, concluding that although the results depend on each industry studied, a positive effect on the performance of companies was measured by the financial variable ROE. In this regard, Galbreath (2018) [51], when analyzing the largest listed companies in Australia, points out that the direct and positive link between the representation of women on boards of directors and the financial performance of companies is tenuous due to the relationship between the diversity of the board and performance is indirect.

On the other hand, different investigations indicate a positive and significant incidence. In this way, Isidro and Sobral (2015) [7], as in the present investigation, suggest that there could be heterogeneity in the results. However, in the European case, the greater the representation of women on the boards of directors, the greater the company's financial performance. On the other hand, when studying Islamic banks belonging to the Gulf Cooperation Council, Platonova, Asutay, Dixon, and Mohammad (2018) [52] argued that CSR actions related to promoting diversity could have a positive and long-term impact on the financial performance of Islamic banks. Additionally, Chijoke, Boateng, and Mgbame (2020) [9] conclude that female representation on boards exerts a positive and significant influence on the financial performance of firms. Finally, Opstrup and Villadsen (2015) [53]



studied the diversity in the senior management teams of public companies and its relationship with financial performance, detecting a positive and significant association. However, this only occurs in teams where there is a culture of interdisciplinary work.

Regarding negative and significant incidents, these occur in the retail sectors, with a gender diversity coefficient of  $-0.282^{***}$  ( $q \leq 0.01$ ), the hotel, restaurant, and entertainment sector with a diversity coefficient  $-0.227^{**}$  ( $q \leq 0.05$ ), the manufacturing industry with a gender and nationality diversity coefficient of  $-0.224^{***}$  ( $q \leq 0.01$ ) and  $0.106^{**}$  ( $q \leq 0.05$ ), respectively. Moreover, the regression that considers all economic sectors also presents a significant and negative incidence concerning age diversity of  $-0.034^{**}$  ( $q \leq 0.05$ ). In this sense, Adusei and Akomea (2017) [31], when analyzing 494 institutions from 76 countries, point out that gender diversity in the board of directors is negatively and significantly related to the financial performance of the institutions. At the same time, Hassan and Marimuthu (2018) [5] point out that the different types of diversity generate a negative and significant impact on the financial performance of Middle Eastern companies.

Finally, the authors Rhode and Packel (2014) [13] point out that empirical research on the effect of board diversity on company performance will not be conclusive and that the results will depend mainly on the methodology used in each investigation because the mixed results reflect the different periods, countries, economic environments, types of companies, measures of diversity, and financial performance that are being evaluated.

## 6. Conclusions

According to the analysis carried out, this research allows us to conclude that the boards of directors of the companies listed in the Chilean stock market have a low degree of diversity when considering the variables of gender, nationality, and age. During the 2015–2020 period, no significant progress was observed in board diversity, questioning the effectiveness of voluntary adoption practices in corporate governance and corporate social responsibility versus mandatory practices, such as a gender quota law.

Regarding the incidence of gender, nationality, and age diversity on the financial performance variables, hypothesis  $H_1$  is accepted, for the economic sector, trade and nationality diversity axes, the construction economic sector, and gender diversity axis; however, for the rest of the economic sectors and types of diversity, there are no positive and significant impacts at a level lower than ( $q \leq 0.05$ ).

As a contribution, this study determines negative but significant incidences when considering the axis of commerce and gender diversity, entertainment and age diversity, the manufacturing industry axis and gender diversity and nationality diversity, and finally, the axis of all sectors economic with the age diversity axis.

Additionally, the present research, by classifying each of the relationships by economic sectors, allows confirming, in the Chilean case, the heterogeneity of possible results by linking the variables of diversity and financial performance, corroborating what is specified by different authors, who point out that the mixture of results depends on the cultural, economic, and temporality factors of each of the countries and sectors studied.

Finally, regarding the limitations of this research, when analyzing only the companies that issue public securities, which reported General Norm No. 386 on Social Responsibility and Sustainable Development, it is possible that large companies that do not list their shares on the Santiago Stock Exchange were not considered in this study. Additionally, future studies should investigate whether the diversity of the board of directors affects non-financial variables of the listed companies.

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