EFFECT OF GENDER DIVERSITY ON THE RELATIONSHIP OF MANAGERIAL SKILL AND ECONOMIC PERFORMANCE

Tatiane Meurer [1]
Samuel Lyncon Leandro de Lima [2]
Marcia Zanievicz da Silva [3]

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ABSTRACT

This study analyzed the effect of gender diversity of the board of directors on the relationship between managerial skill and economic performance from the perspective of the Theory of Intersectionality. With a data sample of 1,092 companies from five countries – Germany, France, Italy, the United Kingdom and Brazil – located on the European and South American continents, direct regression and moderation models were used to analyze the relations proposed in the research. The findings showed that the diversity of the board is a determining factor to explain the economic performance, as well as that a more diversified board of directors modifies the effect of the relationship between managerial skill and the economic performance of companies. In addition, the effects found were divergent between the countries analyzed, and in Brazil and the United Kingdom the effects were positive, therefore, the more diversified the board of directors, the better the economic performance of the companies. And in Germany, France and Italy, the effects were negative, which indicates that the greater the diversity in the board of directors, the lower the economic performance of companies. Due to that, the results contribute to discussions about gender diversity and managerial skill, earning that they are two elements that significantly impact the economic performance of organizations, but their effects on the company's performance are still contradictory among the countries analyzed and instigates new research.

Keywords: Theory of Intersectionality. Managerial skill. Economic performance. Gender diversity. Board of Directors.

[1] Master in Accounting, Universidade Regional de Blumenau (FURB), Rua Antonio da Veiga, 140, Itoupava Seca, Blumenau, Santa Catarina, Brazil (47) 98497-8076, tatmeurer@furb.br.
https://orcid.org/0000-0002-6780-7824

[2] PhD in Accounting and Administration, Universidade Regional de Blumenau (FURB), Rua Antônio da Veiga, 140, Itoupava Seca, Blumenau, Santa Catarina, (48)98876-0881, samuellynconleandro@gmail.com.
https://orcid.org/0000-0003-3956-3575

[3] PhD in Accounting and Admministration , Universidade Regional de Blumenau (FURB), Rua Antônio da Veiga, 140, Itoupava Seca, Blumenau, Santa Catarina, (47)98818-3388, mzsilva@furb.br.
https://orcid.org/0000-0003-1229-7705

EFEITO DA DIVERSIDADE DE GÊNERO NA RELAÇÃO DA HABILIDADE GERENCIAL E DESEMPENHO ECONÔMICO

RESUMO

Este estudo analisou o efeito da diversidade de gênero do conselho de administração na relação entre habilidade gerencial e desempenho econômico sob a perspectiva da Teoria da Interseccionalidade. Com uma amostra de dados de 1.092 empresas de cinco países – Alemanha, França, Itália, Reino Unido e Brasil – localizadas nos continentes europeu e sul-americano, empregaram-se modelos de regressão direta e moderação para analisar as relações propostas na pesquisa. Os achados evidenciaram que a diversidade do conselho é um fator determinante para explicar o desempenho econômico, bem como que um conselho de administração mais diversificado modifica o efeito da relação entre a habilidade gerencial e o desempenho econômico das empresas. Além disso, os efeitos encontrados foram divergentes entre os países analisados, sendo que no Brasil e no Reino Unido os efeitos foram positivos, portanto, quanto mais diversificado o conselho de administração, melhor o desempenho econômico das empresas. E, na Alemanha, França e Itália, os efeitos foram negativos, fato que indica que quanto maior a diversidade no conselho de administração, menor o desempenho econômico das empresas. Diante disso, os resultados contribuem com discussões acerca da diversidade de gênero e da habilidade gerencial, auferindo serem dois elementos que impactam significativamente o desempenho econômico das organizações, porém seus efeitos sobre o desempenho da empresa ainda são contraditórios entre os países analisados e instiga novas pesquisas.

Palavras-Chave: Teoria da Interseccionalidade. Habilidade gerencial. Desempenho econômico. Diversidade de gênero. Conselho de administração.

1 INTRODUCTION

Issues related to gender diversity in the board of directors are discussions that stand out in the business and academic context. In the United Kingdom, women's representation increased significantly in managerial positions from 53% in 1971 to 70% in 2018 (Catalyst, 2018; Nadeem et al., 2019). Regarding gender exclusively in its biological perspective, the increase in the proportion of female representation in corporate councils in several countries, such as Germany, France and Spain, stems from the existence of policies for women's representation for these organizational positions (Ahern & Dittmar, 2012). However, despite the adoption of policies to heterogeneous gender diversity in high-ranking positions, male representation still prevails, making the discussion about gender diversity a relevant subject among regulators, professionals and researchers (Mohan, 2014; Nadeem et al., 2017; Nadeem, 2020).

The literature of this field in the organizational context has the theoretical concept of intersectionality to investigate the different categories about diversity (e.g. Dennissen et al., 2020). Intersectionality sheds light to explore multiple identities and how these identities clash in different ways (favorable and unfavorable) in the organizational scenario (Dennissen et al., 2020). At this juncture, the characteristics of high-ranking managers reinforce positions that generate diversity in the organization (Alan et al., 2020).

Although there is a significant amount of research investigating the impact of gender diversity among board members on organizational performance (Nadem et al., 2019), the results are mixed. There are results with positive associations (Gomez-Mejia et al., 2019; Fernando et al., 2020) and negative or without significant effect (Dixon-Fowler et al., 2013; Post & Byron, 2015). These results indicate that it is necessary to focus attention on empirical evidence of the impact of female presence on performance (see Bogdan et al., 2023). A possible explanation for the mixed results may result from the inadequacy of the statistical procedures employed to measure performance (such as ROA or market measures), as well as the complex contextual interaction between gender diversity, performance and other variables involved (Fernando et al., 2020).

In addition, most studies investigate only one country or region (Melmusi, et al., 2019; Gordini & Rancati, 2017), neglecting similarities and differences between countries. Thus, studies such as by Fernando et al. (2020) report that there is still no consensus in the literature about the effect of gender diversity on performance, especially moderated by managerial skill. That said, there is a research gap involving the combination of the three constructs, that is, gender diversity in advisory positions, economic performance in different contexts (countries).

The economic performance of the company becomes a relevant issue to investigate the effect of diversity on the board, because it is a result that can be managed by managers (see Fernando et al., 2020). Mainly, if there are benefits related to economic performance established in contract. Therefore, in order to avoid exposures and risks to organizations, Forte et al. (2021) state that diversity in the board of directors involves different particularities and perceptions, which are generated by the coexistence of the members of the board. And, as a result, they influence the decision making that contribute to the organization, which in this case should avoid expropriation for the benefit of managers.

Empirical research reveals that the diversity of the council resonates with different problem-solving skills (Lara et al., 2017), since the counselors have visions and experiences of socialization and networking, and can improve the level of decision-making in the council (Lara et al., 2017; Liu et al., 2014; Nadeem, 2020). Nevertheless, managerial skills are recognized as one of the main human resources that impact organizational value, since managers' ability to use innovative practices to optimize resources and develop initiatives can promote more adaptive environments (Inam Bhutta et al., 2021; Thompson, 2003).

Therefore, this study aims to analyze the effect of gender diversity on the relationship between managerial skill and economic performance of Brazilian and European companies. Our conjecture affirms that gender diversity moderates managerial skill and economic performance. This is because gender diversity in the board should moderate the effect of asset return, because companies with gender diversity have managers who avoid exposing the organization to excessive risks, a fact that occasionally improves the performance of the organization (Nadeem et al., 2019).

Despite being an expressive subject for the success of the organization, until the classic seminal study by Demerjian et al. (2012), the researchers limited themselves to measuring managerial skills based on performance (Inam Bhutta et al., 2021). Thus, from Demerjian et al. (2012), quantifiable models emerged to measure managerial skills in organizations, with the possibility of analyzing observable factors, such as the training and experience of managers and also the non-observable managerial skills, being emotional and cognitive intelligence (Inam Bhutta et al., 2021).

Given the above, the present study is distinguished by analyzing, from the perspective of the Theory of Intersectionality, in a quantitative way and based on public data, the effect of gender diversity of the council on managerial skill and economic performance. With this research purpose, this study offers two main contributions to the literature. Initially, our evidences reinforce the importance of female representation on the board of directors, aligning with previous studies such as Fernando et al. (2020) and, under the view of the theory of intersectionality, it was explored not only the importance of equity, but the positive influence of the diversification of the council for economic performance. Thus, this research contributes to the literature of the Theory of Intersectionality by expanding the scope of research on gender diversity in the council, presenting findings from a quantitative analysis that aims to contribute to the advancement of studies in this line of research (see Bauer et al., 2021).

Thus, practical contributions to organizations regarding management strategies, with adaptable and flexible approaches to the composition of the board of directors according to its business context, which can positively or negatively impact economic performance. In addition, the results provide social contributions, aligned with the UN Agenda 2030, in which one of the objectives is gender equality and women's empowerment (Bogdan et al., 2023), as well as with the Sustainable Development Goals (SDGs), related to gender equality (SDG 5) and economic growth (SDG 8), highlighting how greater gender diversity has positive effects on economic performance in certain countries.

2 THEORETICAL REFERENCE

Intersectionality, first coined by Crenshaw (1989), is defined as the interaction between different categories of diversity (Bauer et al., 2021; Dennissen et al., 2020). Initially, the term intersectionality was used to investigate the intersections between race and gender associated with the effects of disadvantages (Dennissen et al., 2020; Mik-Meyer, 2015). With the development of the concept in organizational studies, intersectionality is used with a broader approach, covering multiple categories of diversity, such as age, religion, sexual orientation, occupational status and physical disabilities (Dennissen et al., 2020; Mik-Meyer, 2015).

At this juncture, there is an increasing attention of psychology scholars who demand empirical research to incorporate the theory of intersectionality into the holistic understanding of the various ways in which marginalized groups are impacted by race, gender and social class issues (McConnell et al., 2018). Although there are multiple categories that are included in the discussion of the theory of intersectionality, there is no consensus on the use of a certain set of variables to represent intersectionality (Bogdan et al., 2023; Winker & Degele, 2011). Therefore, given the insipience of the theoretical discussions on intersectionality, factors associated with the theme are investigated both jointly and individually (see Bogdan et al., 2023). Additionally, while most of the research that adopted this theory has been qualitative, recently quantitative studies also contribute to a more comprehensive analysis of the complex dynamics of multiple identities in various social contexts (see Bauer et al., 2021).

In this study, intersectionality was measured by the variable gender diversity in the board of directors, similar to studies that explored and identified intersections between gender (e.g. Dennissen et al., 2020). Although aware that gender identity is not confused with biological characteristic of birth (man/woman), given the limitations and even unavailability of public data, in this study the word gender is used as a synonym of sex and as a binary male or female/male, or female (see Fernando et al., 2020).

Among the factors associated with intersectionality, the discussion about gender diversity in high-ranking corporate positions stands out in the literature. Gender diversity in the Board of Companies is approached in different countries, observed almost exclusively from the gender perspective (male and female) (Fernando et al., 2020). In Brazil, with a sample of 339 Brazilian companies, the Brazilian Institute of Corporate Governance (IBGC, 2016) found that female representation in boards of directors is still low, with only 7.9% of the total seats on boards.

In European countries, the presence of women increased from 8% of board and board positions (Adams & Ferreira, 2009) to 21.2% of board seats (Cataylst, 2019). This is due to the legislation used in some European countries to contain low female representativeness (Kakabadse et al., 2015; Tatli & Özbilgin, 2012). However, for the most part, the selection of board members does not occur by an exogenous process. Instead, the peculiarities regarding the board of directors are determined endogenously, as a result, issues that compete for the appointment of women on the board are succeeded by the choice of the company (Wintoki et al., 2012; Sila et al., 2016).

For the board of directors, gender diversity is a significant category, due to the possibility of providing greater knowledge, skills and experience for the execution of the role of this corporate body (Amran et al., 2014). The literature has evidence in different contexts, which converge in the idea that gender heterogeneity in the council increases the effectiveness of the information flow, provides beneficial decision-making for the organization and improves organizational performance (Pathan & Faff, 2013; Melmusi et al., 2019; Willows & Van der Linde, 2016).

In addition, the advocates of the formation of a more diverse board of directors in the gender issue express the conception that, increasing diversity tends to establish a greater number of members with different monitoring capabilities (Wahid, 2019). With this, the expectation is of a more qualified board of directors for monitoring corporate management (Wahid, 2019). Nevertheless, Adams and Ferreira (2009) claim that female representation on the board has a significant impact on the company's results and on the tasks assigned to the board. In addition, the authors reinforce that counselors have higher rates of attendance in meeting rooms than males, and are more effective to participate in the monitoring of the board.

In this sense, through Wahid's findings (2019) on the impact of gender diversity on the board of directors of 6,132 companies listed in the US, it was possible to verify that a more diverse board of directors, reduces the occurrence of errors in financial reports and the involvement of advisors in corporate fraud. Melmusi et al. (2019) explain that characteristics associated with the personality that women have contribute to reinforce the findings that a more diverse board benefits corporate performance. That is, to be more disciplined, transparent and balanced than the male sex in solving problems (Melmusi et al., 2019).

Moreover, in the Italian scenario investigated by Gordini and Rancati (2017), gender diversity in the council is not simply a game of numbers between the male or female gender, but is recognized as an economic gain to the organization. While organizations increase the number of directors' representation, there is an expectation of value generation by investors (Gordini & Rancati, 2017). The positive expectation of investors about a more diversified board is associated with the purpose that it can effectively contribute to the reporting of sustainable results, with the capacity to generate future growth for the organization (Gordini & Rancati, 2017).

However, the positive effects of the diversity of the board of directors are not a consensus. For example, in the context of Chinese companies, Cheng et al. (2010) they found that companies chaired by female managers have a negative influence on the return of assets and the growth potential of organizations is lower than that of male-dominated companies. The divergence found in the results of gender diversity in the council and the economic performance of companies should be analyzed considering the biases of this corporate result. In particular, corporate performance measured by asset return can be managed both for the production of a higher or lower result (Nezlobin, Sloan, & Zha Giedt, 2022) mainly if the management contract is associated with the company's economic performance (Park & Nwaeze, 2023).

In view of the above, it is expected that companies with greater gender diversity will have superior economic performance. Thus, the first hypothesis of the study is presented:

H_1: There is a positive relationship between gender diversity and the economic performance of companies.

In addition to gender diversity, the managerial skill of managers stands out as a factor that enhances economic performance. Conceptually, managerial skill refers to the ability that managers have to understand available corporate resources and make economic, sensible and timely decisions to improve corporate results in a sustainable way (Hasan, 2018). In view of this, empirical research indicates the relevance of the intellectual characteristics of verified managers, such as capacity, style and talent, which significantly impact the economic results of companies. And, as a result, it is verified as a theme in evidence in research in finance, accounting and administration (Demerjian et al., 2012).

Nevertheless, Inam Bhutta et al. (2021) cite the positive impact of managerial skill on the performance of the organization, whose managers are recognized as valuable intangible assets to overcome restricted and challenging environments. According to the authors, this proposal can be described, because the most skilled managers manage better enjoy the technology and reliably predict the demands related to the products. In addition, they lead their subordinates with better aptitude and efficiency and are members who invest in corporate projects that better generate values for the organization, compared to less skilled managers (Demerjian et al., 2012). However, studies such as by Melmusi et al. (2019) find contradictory results in the corporate scenario in Indonesia and verified that the diversity of skills and gender diversity do not positively impact performance.

In the study by Fernando et al. (2020), the authors evaluate the mediation of managerial skill in gender diversity and performance, which highlighted the crucial role of managerial skill in this context. This discovery underlines the importance of considering not only female representation in the board, but also management skills as possible factors associated with the performance of the organization. Given the findings in previous studies, it is assumed that managerial skill influences the economic performance of the investigated organizations and that gender diversity in the board of directors moderates the relationship between managerial skill and the economic performance of companies. Thus, they declare themselves as hypotheses of this research:

H_2: There is a positive relationship between the managerial ability of managers and the economic performance of companies.

H_3: The diversity of the board positively moderates the relationship between management skills of managers and the economic performance of companies.

3 METHODOLOGICAL PROCEDURES

The study population is made up of 4,088 Brazilian publicly traded companies, as detailed in Table 1. Data were collected in Refinitiv Eikon® database, covering non-financial companies listed on stock exchanges in Germany, Brazil, France, Italy and the United Kingdom from 2012 to 2021. The strategy of selection of the analyzed companies was given by two perspectives. Firstly, for the purpose of comparing the gender diversity scenario on the board of directors of Brazilian companies in relation to companies in developed countries, whose capital markets are more diversified.

The Brazilian market is considered emerging in terms of economic development and is the main Latin American market, measured by the Gross Domestic Product - GDP. With regard to the selection of companies listed on the European Union stock exchanges, there was a greater diversification of stock exchange assets and higher GDP. Moreover, by integrating an economic block, the countries of the European Union have close trade relations and benefit from greater ease in transactions with each other, promoting more efficient economic integration and enhanced mutual cooperation.

Regarding the time frame, it represents the availability of data related to the gender diversity variable on the board of directors, in which selecting previous periods would make it impossible to maintain several listed assets. Therefore, it would be necessary to exclude some countries examined. It should be noted that this information is not mandatory, therefore, the collection results in several null observations. Secondly, because it is an incipient discussion in the literature, the number of companies that have observations regarding issues of intersectionality is reduced. Thus, by analyzing data using statistical methods, the number of observations was a determining factor in the selection of countries. Table 1 presents the details of the procedures performed in the data collection, as well as the population and sample of the research.

Table 1
Population and research sample

Country	Companies Population	Financial Companies	Remarks "NULL"	Companies Sample	Remarks Sample	% of Remarks
Germany (AL)	812	149	410	253	1,183	20.49%
Brazil (BR)	478	80	283	115	699	12.11%
France (FR)	715	57	490	168	983	17.02%
Italy (IT)	442	83	268	91	345	5.97%
United Kingdom (UK)	1,641	476	700	465	2,564	44.41%
Total	**4,088**	**845**	**2,151**	**1,092**	**5,774**	**100%**

Source: Elaborated by the authors.

According to Table 1, exclusion filters were applied in the population of 4,088 companies: i) financial companies (845); and ii) companies with null observations (2,151). Thus, the sample of the research was composed of 1,092 companies with 5,774 observations, characterized, therefore, as an unbalanced sample. Table 2 presents the methodological construct of the research.

Table 2
Methodological construct of the research

Variable	Description	Equation
DE	Economic Performance	*Operating* Profit$_{it}$ ÷ *Asset total$_{it}$*
HG	Managerial Skill	ε_{it} = equation 2 residue(proxy for managerial skill)
BG	Gender Diversity in the Council	Percentage of female counselors in relation to the total of counselors
TAM	Size	Ln(*Total Asset$_{it}$*)
END	Indebtedness	*Onerous liability ÷ Total asset*

Source: Elaborated by the authors.

The managerial ability is measured by the regression residues expressed in equation 2, proposed by Demerjian et al. (2012). For this, according to Demerjian et al. (2012) the company efficiency was calculated using the *Data Envelopment* Analysis (DEA) method according to Equation 1.

$$max_v\theta = \frac{Vendas}{v_1CPV+v_2DVA+ v_3IMO+v_4LEO+v_5P\&D+v_6AGI+v_7OAIN} \quad (1)$$

Where, *CPV* refers to the cost of products sold, *DVA* refers to sales and administrative expenses, IMO refers to immobilization, *LEO* refers to operational leasing, *R&D* refers to research and development expenses, *AGI* refers to the acquired premium and *OAIN* refers to other intangible assets. This means that efficiency is expressed by a value between 0 and 1, responsible for indicating the degree to which the company is efficient.

Therefore, 1 scores represent the most efficient and the set of companies with such efficiency establishes an efficient boundary based on the efficient set of combinations with inputs. On the other hand, efficiency observations below 1 are positioned below the efficient frontier. Therefore, managers of a company with a score of less than 1, need to make decisions to reduce costs or increase revenues to improve corporate efficiency.

After calculating the efficiency of the company, the equation 2 was estimated, with the purpose of obtaining the data for the variable managerial skill. Due to the efficiency of the company it is a censored variable (lower and higher values of the dependent variable), equation 2 was estimated by the Tobit model.

$$EE_{it} = \alpha_0+\alpha_1LN(AT)_{it}+\alpha_2PM_{\ it}+\alpha_3FCL_{\ it}+\alpha_4LN(ID)_{it}+\alpha_5CSN_{it}+\alpha_6IVC_{it}+\Sigma ef_{\_setor}+\varepsilon_{it} \quad (2)$$

Where: EE $_{it}$ refers to the efficiency of the company, LN*(*AT) $_{it}$ refers to the natural logarithm of the total asset, PM $_{it}$ refers to the market share,FCL_{it} refers to free cash flow, LN (ID) $_{it}$ refers to natural age logarithm,CSN_{it} refers to the concentration indicator of the business segment IVC_{it} refers to the exchange rate adjustment indicator of *company i* in the *t period*;ε_{it} refers to the residual equation*(* proxy for managerial skill).

The analysis carried out in the research was panel data, because observations were analyzed both at temporal and cross-sectional level. In this sense, the regression models proposed in the research are presented in equation 3 and equation 4

$$DE_{i,t} = \beta_0 + \beta_1HG_{i,t} + \beta_2BG_{i,t} + \beta_3TAM_{i,t} + \beta_4END_{i,t}\ \varepsilon_{i,t} \quad (3)$$

$$DE_{i,t} = \beta_0 + \beta_1HG_{i,t} + \beta_2BG_{i,t} + \beta_3INT[HG_{i,t} \cdot BG_{i,t}] + \beta_4TAM_{i,t} + \beta_5END_{i,t}\ \varepsilon_{i,t} \quad (4)$$

Where DE refers to economic performance, β_0 refers to constant, *HG refers* to managerial skill, *BG* refers to gender diversity,*INT* refers to the interaction between HG *and* BG , *TAM* refers to size, *NDT* refers to indebtedness and ε refers to the term of error. For data analysis, *Microsoft* Excel software was used for data organization and *the Stata IC/15 software* to estimate the models proposed in the research. The quality and adjustment tests of the models analyzed were performed according to Fabio and Belfiore (2017).

Regarding the data normality, the amount of observations of the research exceeds the minimum of necessary observations, according to Fabio and Belfiore (2017), which is why no normality test was performed. For multicollinearity, tests of variance inflation factor (VIF) were performed, and the results showed no evidence of problem with multicollinearity, for values below 5, suggested by Fávero and Belfiore (2017). To treat heteroscedasticity problems, when necessary, the parameters of the regression models were estimated, using the robustness method to estimate robust standard errors, according to Fávero and Belfiore (2017). (2017), in order to guarantee the validity of statistical inferences.

4 ANALYSIS AND DISCUSSION OF RESULTS

Table 3 presents the descriptive statistics of the variables analyzed in the research, organized in each country.

Table 3
Descriptive statistics of the variables analyzed in the research organized in each country

Variable	Obs	Average	Standard Deviation	Minimum	Maximum
GERMANY					
Return on Asset	1,177	0.05813	0.09615	-0.92611	0.96835
Managerial Skill	1,177	4.11323	2.41030	2.16999	29.92222
Gender Diversity	1,177	23.85174	13.58132	0.00000	75.00000
Company Size	1,177	22.02458	1.88803	17.26184	26.99350
Indebtedness	1,177	0.23916	0.15492	0.00000	0.89399
BRAZIL					
Variable	Obs	Averag e	Standard Deviation	Minimum	Maximum
Return on Asset	699	0.07305	0.13562	-1.44199	2.21505
Managerial Skill	699	2.45239	1.36535	1.32914	17.65443
Gender Diversity	699	9.47401	9.75814	0.00000	50.00000
Company Size	699	23.50967	1.27822	18.62525	27.61834
Indebtedness	699	0.35526	0.20216	0.00000	0.92969
FRANCE					
Variable	Obs	Averag e	Standard Deviation	Minimum	Maximum
Return on Asset	977	0.05067	0.09761	-0.99492	0.64657
Managerial Skill	977	3.58368	2.06508	1.86700	20.20989
Gender Diversity	977	39.25505	10.92407	0.00000	80.00000
Company Size	977	22.73238	1.67322	16.69133	26.44652
Indebtedness	977	0.28221	0.15395	0.00000	0.80986
ITALY					
Variable	Obs	Averag e	Standard Deviation	Minimum	Maximum
Return on Asset	345	0.05462	0.07140	-0.38001	0.28883
Managerial Skill	345	2.79811	1.44067	1.43331	13.35958
Gender Diversity	345	32.04179	13.03982	0.00000	62.50000
Company Size	345	21.77105	1.77555	16.94260	26.05550
Indebtedness	345	0.32451	0.16122	0.00233	0.98077
United Kingdom					
Variable	Obs	Averag e	Standard Deviation	Minimum	Maximum
Return on Asset	2,560	0.07050	0.10856	-1.24672	1.04402

Managerial Skill	2,560	4.43808	3.09860	2.46392	41.30275
Gender Diversity	2,560	22.66999	12.99094	0.00000	66.66667
Company Size	2,560	21.27577	1.76803	14.72887	26.92195
Indebtedness	2,560	0.24413	0.17544	0.00000	0.98527

Source: Research data.

Observing the individual averages of economic performance in each country, there seems to be no difference in performance between them, even considering that Brazil has macro and microeconomic characteristics distinct from European countries. As an emerging country, Brazil is committed to improving its scenario to attract investors in the capital market, while the countries of the European Union benefit from the influence of the economic bloc they are part of.

Similarly, managerial skills do not seem to differ among the countries analyzed. In Brazilian companies, even with lower average result, there was a lower standard deviation, a fact that suggests a more homogeneous managerial ability among Brazilian managers. These findings are relevant, since Brazilian managers need to deal with a concentrated financial market, while managers of European companies work in a more diversified financial environment, which results in lower capital costs.

Gender diversity also presented, on average, an approximate ratio between the sample companies, with lower standard deviation, verified in Brazilian companies. It should be noted that gender diversity on boards of directors is a legally established practice in the European Union, whose initiatives aim to ensure greater gender equality and a more equitable representation in decision-making levels of companies within the Member States.

Table 4 shows, by country, the correlation coefficients obtained between the variables analyzed in the study.

Table 4
Correlation between the analyzed variables

GERMANY					
Variable	(1)	(2)	(3)	(4)	(5)
(1) Return on Asset	1.0000				
(2) Managerial Skill	-0.1238	1.0000			
(3) Gender Diversity	-0.0502	-0.0407	1.0000		
(4) Company Size	-0.0608	0.3969	0.2155	1.0000	
(5) Indebtedness	-0.1064	0.1004	0.0155	0.2040	1.0000
BRAZIL					
Variable	(1)	(2)	(3)	(4)	(5)
(1) Return on Asset	1.0000				
(2) Managerial Skill	-0.0621	1.0000			
(3) Gender Diversity	0.0269	0.1134	1.0000		
(4) Company Size	-0.0530	0.2653	-0.0611	1.0000	
(5) Indebtedness	-0.1192	-0.1906	-0.0345	0.1371	1.0000
FRANCE					
Variable	(1)	(2)	(3)	(4)	(5)
(1) Return on Asset	1.0000				
(2) Managerial Skill	-0.1785	1.0000			
(3) Gender Diversity	-0.0502	-0.0379	1.0000		
(4) Company Size	-0.1285	0.5298	-0.0697	1.0000	
(5) Indebtedness	-0.3367	0.0672	0.0449	0.0691	1.0000
ITALY					

Variable	(1)	(2)	(3)	(4)	(5)
(1) Return on Asset	1.0000				
(2) Managerial Skill	-0.1168	1.0000			
(3) Gender Diversity	-0.0027	-0.1365	1.0000		
(4) Company Size	-0.1427	0.3426	0.0198	1.0000	
(5) Indebtedness	-0.2205	0.1669	0.0810	0.1791	1.0000
United Kingdom					
Variable	(1)	(2)	(3)	(4)	(5)
(1) Return on Asset	1.0000				
(2) Managerial Skill	-0.0934	1.0000			
(3) Gender Diversity	0.0016	0.0988	1.0000		
(4) Company Size	-0.1088	0.2946	0.2711	1.0000	
(5) Indebtedness	-0.2604	0.1117	0.1117	0.3559	1.0000

Source: Research data.

There is no strong correlation between the analyzed variables, suggesting that there is no strong dependence between the analyzed variables. The highlight observed in the correlation pairs was between the size of the company and the managerial skill, which, even though it is a weak positive correlation, are the highest coefficients obtained among the pairs of variables analyzed.

Thus, there is a trend of improvement in managerial skill, as the size of the company increases. Moreover, it is verified that, although it is a weak positive correlation, in companies in Germany and the United Kingdom, the trend is that gender diversity in the council is greater, as the size of the company increases. On the other hand, even though it is a weak negative correlation, in companies in Brazil and France, the trend is that gender diversity in the council is lower, in relation to the increase in the size of the companies analyzed.

In this sense, the absence of a strong correlation between the pairs of analyzed variables contributed to the specification and estimation of the model, whose results are presented in Table 5.

Table 5
Results of the regression model with direct relation

VARIABLE	ALE	BRA	FRA	ITA	RUN
HG	-0.00474*** (-2.60)	-0.00412** (-2.41)	-0.00378* (-1.80)	0.00513* (1.71)	0.00549*** (3.36)
BG	-0.00111*** (-4.81)	0.00014** (1.83)	-0.00091*** (-4.89)	-0.00058** (-2.35)	-0.00038*** (-2.10)
TAM	0.011773*** (4.07)	-0.00246 (1.83)	0.016130*** (4.58)	-0.00470 (-0.64)	-1.34012*** (-4.01)
END	-0.19176*** (-8.53)	-0.03042*** (-2.89)	-0.06717*** (-4.00)	-0.195875*** (-5.94)	-0.28012*** (-15.22)
CON	-0.10813** (-1.83)	0.14726*** (3.53)	-0.24822*** (-3.28)	0.22862* (1.96)	0.13658*** (14.34)
F(Stat)	6.99000***	5.620000***	52.99000***	11.92000***	72.37000***
OBS	1,177	699	977	345	2,560

Note: ALE, BRA, FRA, ITA and RUN refers to Germany, Brazil, France Italy and the United Kingdom respectively. HG refers to managerial skill; BG refers to the gender diversity of the board; TAM refers to the size of the company; END refers to indebtedness; and CON refers to constant. F(Stat) refers to the statistical significance of the model and OBS refers to the number of observations. * p value < 0.10; ** p value < 0.05; and *** p value < 0.01.
Source: Research data.

The results summarized in the table were obtained in a segregated way by country, since idiosyncratic characteristics prevalent in certain countries may skew the results given in terms of sample mean.

All coefficients associated with the variables of interest in the research, whether managerial skill and gender diversity in the council, were statistically significant. This means that both managerial skill and gender diversity influence the return on business assets, supporting H1 and H2. These findings corroborate the study by Inam Bhutta et al. (2021), which highlight the relevance of managerial skill in the economic performance of the organization, whose managers represent key pieces as intangible assets to overcome challenging organizational environments. These results are relevant, since the theory of intersectionality advocates that individual experiences cannot be fully understood when analyzing only one dimension of identity alone (Bogdan et al., 2023; Winker & Degele, 2011).

Similarly, when it comes to gender diversity, Gordini and Rancati (2017) emphasize the significant impact that female representation has on the generation of economic return. However, it should be noted that the effects found in the coefficients associated with managerial skill and gender diversity in the council were divergent to explain the variation in the return on the assets of companies between the countries analyzed. These findings pave the gap for investigations into the factors associated with executive contracts, since the economic performance of companies, measured by accounts extracted from the statement of results of the exercise can be managed.

Therefore, it was found that in German, Brazilian and French companies the effect found in the coefficient associated with managerial skill was negative, while in Italian and British companies the effect was positive in the relationship with return on the asset. While in those companies the greater the managerial skill of managers, the lower the return on the asset, in these companies the greater the managerial skill of the managers, the greater the return on the asset. A possible explanation is given by the fact that the greatest return on the asset can be influenced by the managerial capacity of the managers. That is, more skilled managers manage better enjoy the incorporation of technology, lead their subordinates with aptitude and effectiveness, and generally introduce higher value investments in corporate projects (Demerjian et al., 2012).

It should be noted that due to the existence of the effect between managerial skill and return of assets, other factors can influence the decision making of managers, such as the management of results through improvement of usefulness, which can be observed in the contractual relations established. This perspective becomes clearer when the results observed in the coefficients associated with gender diversity in the council were verified. All coefficients associated with gender diversity in the council were statistically significant to explain the variation in return on the asset. Although gender diversity has a significant direct relationship with economic performance, the theory of intersectionality advocates that this influence can be complex and interdependent (Dennissen et al., 2020), reflecting how different perspectives interact to shape organizational results.

In this sense, with the exception of Brazilian companies, in the other companies analyzed, the coefficients related to gender diversity in the council had a negative effect on the relationship with the return on the asset. In light of the theory of intersectionality, the variations found in the results can be explained by the fact that gender diversity affects the organizational environment in different ways. This perspective considers that the influence of gender diversity is associated with multiple interrelated contexts, as proposed by Dennissen et al. (2020). Therefore, the interaction between gender diversity and other contextual factors can generate different impacts on the organizational scenario. Studies highlight that the negative effect of gender diversity occurs when governance is strong and the positive effect on performance is related to poor organizational governance (Adams & Ferreira, 2009; Fernandes & Machado, 2023).

The results obtained in this research converge with Melmusi et al. (2019), in which the diversity of skills and gender diversity do not positively impact the performance of Indonesian companies. In this same line, in the study by Cheng et al. (2010), the authors found that in Chinese companies chaired by women, there is a negative influence on the return of assets and a lower growth potential when compared to male-dominated companies. However, it should be noted that a lower percentage of return on assets does not mean that managers are not efficient, because the result refers to the period analyzed, therefore, a management with a long-term vision can achieve lower returns in the period in the face of an investment opportunity that will provide better future returns. In addition, the years 2020 and 2021 can somehow affect the results as a result of the crisis generated by the world health crisis.

In view of the purpose of verifying the effect of moderating gender diversity in the council on the relationship between managerial skill and return on the asset, the model by which the results are presented in Table 6 was estimated by country.

Table 6
Results of the regression model with moderation

VARIABLE	ALE	BRA	FRA	ITA	RUN
HG	-0.01263*** (-4.61)	0.00840* (1.90)	0.04411 (1.52)	-0.00419 (-0.55)	0.00015 (0.10)
BG	-0.00135*** (-3.02)	0.00048** (2.49)	0.00476*** (1.78)	-0.00102*** (-2.95)	-0.00067*** (-2.64)
INT	0.00026** (2.49)	0.00016** (-2.27)	-0.00156** (-2.14)	0.00013* (1.81)	0.00007** (1.68)
TAM	0.00581*** (3.30)	0.00325* (-1.69)	0.02133*** (4.51)	-0.00404 (-0.54)	-0.00186 (-0.83)
END	-0.04807*** (-2.85)	-0.04884*** (-4.34)	-0.04995*** (-2.76)	-0.19010*** (-5.71)	-0.21912*** (-14.55)
CON	0.00122*** (0.03)	0.14609*** (3,23)	-0.11751** (-2.29)	0.24024** (2.03)	0.15750 (3.51)
F(Stat)	20.83000***	6.53000**	7.34000***	9.63000***	249.26000***
OBS	1,177	699	977	345	2,560

Note: ALE, BRA, FRA, ITA and RUN refers to Germany, Brazil, France Italy and the United Kingdom respectively. HG refers to managerial skill; INT refers to moderation between gender diversity of the board and the managerial skill; TAM refers to the size of the company; END refers to indebtedness; and CON refers to constant. F(Stat) refers to the statistical significance of the model and OBS refers to the number of observations. * p value < 0.10; ** p value < 0.05; and *** p value < 0.01.
Source: Research data.

In the results, it is possible to verify that in all the coefficients associated with managerial skill, statistical significance was obtained, therefore, the effect of the managerial skill of the managers on the return on the assets of the companies is revealed. In addition, there was divergence in effects, as well as changes in relation to the model with direct effect of the managerial ability on the return of assets. In the model with moderation, only German companies had the same negative effects as previously found.

It is also noteworthy that, with the introduction of moderation, the effects found in the coefficients of gender diversity in Brazilian companies remained positive, similar to French companies, which was also positive, therefore, divergent from the model analyzed previously. These results are relevant, because according to the theory of intersectionality, this relationship cannot be analyzed in isolation, but must be understood within the social, economic and cultural contexts in which these companies operate (Bauer et al., 2021; Bogdan et al., 2023; Dennissen et al., 2020).

In addition, all coefficients associated with moderating gender diversity in the council in the relationship between managerial skill and asset return were statistically significant. Therefore, moderation of gender diversity in the board and managerial skill is relevant to explain the economic performance of companies. These results show not only the relevance of gender diversity as an explanatory factor for changes in return on business assets, but also its role as a moderating variable of other variables that influence the performance of companies.

Thus, according to Gordini and Rancati (2017), gender diversity represents not only a mere statistical numbering, but, with the increase of female representation in the board of directors, significant economic gains emerge, particularly in this study, for the context of Brazil and the United Kingdom. In light of the theory of intersectionality, the results suggest that these dimensions, although distinct, do not act in isolation. They overlap and influence the decision-making of individuals within the organization (Dennissen et al., 2020; Mik-Meyer, 2015), contributing to explain the variations in the performance of companies.

Nevertheless, in the study of Nascimento et al. (2022), the authors suggest that boards with greater gender equality have positive results for the market value of companies in certain countries of Europe and Latin America. These results, when analyzed in the light of the theory of intersectionality, become even more relevant due to the nuances that this theory allows to approach (Bauer et al., 2021; Bogdan et al., 2023; Dennissen et al., 2020). This is because a woman on a board of directors in Europe can face different challenges from those faced by a woman in Latin America, due to historical, social and cultural factors that affect her participation in the market differently in each region.

In this perspective, the results showed a divergence in the coefficients of all the analyzed cases. This means that, in German, Brazilian, Italian and British companies, the coefficients associated with moderation had positive effects, while in French companies the coefficient associated with moderation had a negative effect. The results show the relevance of moderation, because in the case of German, Italian and British companies, the direct effect of gender diversity on economic performance was negative.

The results found in the model with the introduction of moderation show that gender diversity in the council is a factor that explains not only the variation, but also the effect of this variation on the return on assets. Therefore, the results pave the gap on the possibility of altering the effects to explain the return on assets, with the presence of moderation, to be explained by the behavior of the perspective of short or long-term management. Or, to be explained by more conservative or more aggressive management regarding investments. In both cases, the effects are direct on the values of the assets, therefore, on the percentage of return of these assets.

5 CONCLUSIONS

Although numerous researches show that the gender diversity of the council reports a positive effect on economic performance, there are limitations in discussions about comparisons between countries and regions that explain the variation that this variable can predict. At this juncture, to fill the gap in the literature, this study analyzed the effect of gender diversity of the board of directors on the relationship between managerial skill and economic performance. The findings showed that board diversity is a determining factor in explaining asset returns, and that a more diverse board modifies the explanatory effect on the variation in return on assets. It should be noted that, although the coefficients were significant in all cases analyzed, the effects found were divergent between positive and negative to explain the return of assets.

Thus, there are theoretical and practical implications that the study reports. Initially, our results contribute theoretically to the discussion about gender diversity from the perspective of the theory of intersectionality in the five analyzed scenarios (Germany, Brazil, France, Italy and the United Kingdom), demonstrating in a more comprehensive analysis of the similarities and differences between the countries analyzed. Therefore, comparing an emerging market with developed markets is relevant mainly to highlight the practices that can be improved. In particular, the European Union has actively promoted policies and guidelines to increase the representation of women in corporate leadership positions, including boards of directors. In the light of this approach, the results of the research show that the increase in gender diversity in the council increases the performance of the company.

As practical implications, our findings highlight the possibility of contractual relations between participants determine the change in explanatory effect as seen with the introduction of gender moderation in the council in the relationship between managerial skill and return on assets. Thus, the importance of this research for companies is highlighted, by offering empirical explanations on how economic performance can suffer positive and negative impacts with gender diversity.

It is noteworthy that the results need to be considered within the scope of the analyzed companies. Therefore, it should not be generalized to all companies or countries, because even among the countries analyzed, the need to apply filters in the organization of data resulted in the deletion of several companies, whose data could alter the results of the research. This fact does not minimize the results, but it is expected that it can encourage managers to promote transparency by disclosing the necessary information and researchers to develop other models that reduce the impact of the unavailability of corporate data.

Additionally, another limitation of the study is the lack of analysis of other factors that may impact the ROA, for example, macroeconomic factors (such as government economic policies) that may create certain barriers that affect the relationship between gender diversity in councils and economic performance. In addition, the results were discussed in the context of the theory of intersectionality to deal with gender diversity in the male and female spheres, as explained in detail in the methodology. However, it is important to consider that intersectionality also goes beyond gender issues by itself, such as race issues, economic status, among other issues that cover the micro individual level and social structural macro (Thomas et al., 2021).

For future studies, it is suggested to extend the analysis to micro and macroeconomic factors in gender diversity in the council to capture the effects on the management characteristic of companies. The management feature can contribute both to explain the relevance of a more diverse board, and to explain possible returns on smaller assets in certain periods. From a theoretical point of view, future research is suggested to explore how more inclusive policies of gender diversity in the council can be developed to better address the overlap of different dimensions advocated by the theory of intersectionality (see Thomas et al., 2021).

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