

The Relationship between Profitability and the Participation of Women in the Board of Directors of Listed Companies in Mexico*

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Keywords

Gender, board of directors, profitability, leverage

JEL Classification

D63, J15, L25

Abstract

The objective of this work was to determine if there is a relationship between profitability and the participation of women in the Council of Administration (CA) in companies listed on the Mexican Stock Exchange (BMV). We worked with a sample of 37 companies with the participation of women in the CA and with 32 companies where there is no participation of women in the CA; indicators were calculated for profitability and financial leverage. The findings show that the performance of the companies with the participation of women in the CA is more often measured with the Return on Invested Capital, and that they have less financial leverage at these companies, thus proving women's aversion to taking risks, a variable that is linked to profitability and which would also explain the lower yield shown by the other three indicators of profitability.

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La relación entre la rentabilidad y la participación de las mujeres en el consejo de administración de las empresas que cotizan en la bolsa

Resumen

El objetivo de este trabajo fue determinar si existe una relación entre rentabilidad y la participación de mujeres en el Consejo de Administración (CA) de las empresas listadas en la Bolsa Mexicana de Valores (BMV). Trabajamos con una muestra de 37 empresas con la participación de mujeres en el CA y con 32 empresas donde no hay participación de mujeres en el CA; se calcularon indicadores de rentabilidad y apalancamiento financiero. Los resultados muestran que el desempeño de las empresas con participación de mujeres en el CA con mayor frecuencia se mide con el Retorno sobre el capital invertido y que tienen menos apalancamiento financiero en estas empresas, lo que demuestra la aversión de las mujeres a tomar riesgos, una variable que está vinculado a rentabilidad, y que también explicaría el menor rendimiento mostrado por los otros tres indicadores de rentabilidad.

Palabras clave

Género, consejo de administración, rentabilidad, apalancamiento

A relação entre a rentabilidade e a participação das mulheres no conselho de administração das empresas que cotam na bolsa

Resumo

O objetivo deste trabalho consistiu em determinar se existe uma relação entre a rentabilidade e a participação da mulher no conselho de administração (CA) nas empresas que cotam na Bolsa Mexicana de Valores. Se trabalhou com base em uma mostra de 37 empresas que contam com a participação de mulheres no CA e com 32 empresas que não contam com a participação de mulheres no CA, se calcularam indicadores financeiros de rentabilidade e de alavancagem. Os resultados mostram que o rendimento das empresas que contam com a participação de mulheres no CA é maior medido com o retorno sobre o capital investido, a alavancagem financeira nestas empresas é menor, provando assim a aversão das mulheres a assumir riscos, variável que se encontra ligada à rentabilidade e que explicaria também o menor rendimento, mostrado pelos outros três indicadores de rentabilidade.

Palavras chave

Gênero, conselho de administração, rentabilidade, alavancagem

Introduction

The mission of a board of directors (BofD) is to ratify and check the important decisions of the company, as well as the mechanisms that enable the effective separation of the management and control of decisions (Simon & Wong, 2001). The BofD comes as a solution to the problem of agency created by the separation of ownership and control as a mechanism of governance and control for the proper functioning of organizations (Simon & Wong, 2001).

Gender diversity in economic power and, in particular, on the BofD of listed companies, is reduced at a global level. However, there is a debate about whether the participation of women in these boards could have an impact on the company's performance (Gómez & Sánchez, 2009). In Mexico, the Code of Best Corporate Practices notes that a diverse composition in the BofD is desirable to achieve its functions and that it is important to consider the inclusion of independent directors (Deloitte, 2014a). Esteban (2007) has pointed out that gender diversity BofD is justified for different reasons, including: Gender diversity is an indicator of corporate social responsibility; it generates greater creativity in decision-making and represents reality better; and it increases the responsibility of the company, among others.

However, Mexico is the country with the lowest representation of women in top management positions in Latin America, and current studies show that having at least three women on the BofD of a company means better economic performance and a greater margin of profits, as well as an increase in sales and return on investment (Deloitte, 2014a).

The existence of a diverse BofD is valued positively by the interest groups—including customers, shareholders, employees, and suppliers, who believe it will somehow contribute to the commercial success of companies to incorporate different perspectives and opinions (Acero & Alcalde, 2010). Therefore, it is time for the companies to value the involvement of various types of directors and the incorporation of women in the government bodies and in decision making, in order to provide a counterweight to gender and diversity of points of view (Deloitte, 2014b). However, women who break the “glass ceiling” in organizations are those who become part of the board (Francoeur, Labelle, & Sinclair-Desgagne, 2007).

The research question to be answered is: Does the participation of women in the BofD of the companies listed on the Mexican Stock Exchange (BMV, for its initials in Spanish) have an impact on the profitability? As such, the objective of

this work is to determine if the participation of women in the BofD of the companies listed on the BMV has an impact on profitability.

36 This work is divided into three parts: (1) the theoretical framework, where the topics of gender diversity, participation of women in the board, and its relationship with corporate profitability are developed; (2) the methodology, which presents the conceptualization of variables, the determination of the sample, and the formulation of hypotheses; and (3) the results, which present the analysis and interpretation of data, as well as the conclusions.

Theoretical Framework

Gender diversity in organizations

Gender diversity in the workforce, the heterogeneity of the equipment managers and diversity in the leadership styles bring new values and have benefits for people and for social progress, in addition to being able to be evaluated for their economic profitability (Gómez & Sánchez, 2009).

However, the access of women to the boards of family businesses is often associated with kinship; in this regard, Mateos de Cabo, Gimeno, and Escot (2010) found that the probability of a director being a woman goes from 4.58% to 14.02% if the company is a family business. The opposite happens with non-family businesses, where the election of the members of the board is more objective and is based to a greater extent on the qualifications of the nominees. Therefore, it is considered that it is important to include women in the board, but that this inclusion should be based on economic and non-affective reasons, because it is necessary to select qualified women to provide their views for better decision-making (Martín & Minguéz, 2014).

It is worth mentioning that there are several theories on the role of women in managerial positions. In this regard, Mateos de Cabo, Iturrioz, and Gimeno (2008) describe the following:

1. The human capital theory establishes that there is less investment in human capital (education and training) by women, because they give priority to the family.

2. The theories of labor market segmentation provide that employers, trade unions and mobility cause several sectors to have different wage conditions and different possibilities of promotion and stability to be distinguished. In this case, the family situation is what makes women tend to interrupt their work and focus on not demanding sectors in terms of financial, human capital, and technology.
3. The Marxist theory explains the differences in the role of women in the capitalist system as a key element in the socialization of minorities and in the reproduction of the labor force; it also claims that they act as a potential reserve in the labor market that puts pressure on workers to accept worse wages and conditions.
4. Gender theories focus on the role of women in the values of society (stereotypes) that differentiate traditionally male and female jobs. This explains the greater presence of women in part-time jobs or in certain occupations, such as domestic service or health and social services.
5. Institutionalism theories are based on the interest of certain groups to institutionalize inequalities through the legal norms reflected in aspects such as contracts of employment or marriage. The stakeholders range from businessmen to political parties, although women influence their own discrimination by accepting the conditions imposed on them.

It is important to note that discrimination occurs both in the difficulties to access high-level posts and Management Board membership and in the remuneration that women receive for their work. Table 1 shows that, in most of the occupational groups, women are paid less per hour worked than men; thus, it is noted that, in high-level posts (officials and executives), the difference is of 22 pesos less for women, which is much greater than that of other groups of people, thus showing that, the higher the position, the higher the salary discrimination.

Table 1. Average income per hour worked

Occupational groups	Men	Women
Professionals, technicians and art workers	67.09	60.70
Education workers	76.47	70.96
Staff and managers in the public, private and social sectors	99.76	77.55
Workers in agricultural activities, livestock, forestry, hunting and fishing	19.03	20.92
Industrial workers, craftsmen and assistants	30.72	24.13
Drivers and driver assistants of mobile machinery and means of transportation	29.86	28.66
Office workers and clerks	40.74	39.65
Merchants	29.79	27.04
Workers in personal services	25.66	26.8
Workers in protection and surveillance services and armed forces	32.26	35.56

Source: INEGI (2016).

The participation of women in the board of directors

In most member countries of the Organization for Economic Co-operation and Development (OECD), efforts to expand opportunities for women in the labor market and to establish gender equality in the workplace have been part of the policy objectives in recent decades (Casey, Skibnes, & Pringle, 2011). For example, female representation in the boards of directors in Spain has increased in recent years, one of the main reasons being the Gender Equality Act, which provides that corporations with more than 250 workers must develop a plan of equality (Informa D&B, 2010) to balance the participation of men and women in the board by establishing, among other strategies, a gender quota. However, the adoption of gender quotas is effective for gender equality only when used in combination with other measures, including the access to managerial positions and to the boards of directors of the companies (Adriaanse & Schofiel, 2014).

One of the variables that have been linked to the presence of women in the BofD is the level of disclosure of information (Gul, Srinidhi, & Ng, 2011). In this regard, gender diversity in the BofD could improve the quality of the discussions in the board and increase its capacity to supervise the process of disclosure of

corporate information. This is something that McNerney-Lacombe, Bilimoria, and Salipante (2008) coincide in, suggesting that gender diversity in the BofD is associated with a higher quality of deliberations of the board and a more effective communication, which contributes to a better quality of information to shareholders. On the other hand, female participation in the BofD generates a greater control over management actions and corporate transparency through a greater presence in the meetings of the board and audit committees and the increase of good governance practices adopted (Hillman, Shropshire, & Cannella, 2007).

About the participation of women in the BofD of the companies, Hernández, Camarena, and Castanedo (2009) found that, in a sample of 50 companies listed on the Mexican Stock Exchange, only 7% of the members are women. This percentage increases to 12% when the members are alternates. Moreover, Camarena and Saavedra (2018) found that, in a sample of 107 companies listed on the BMV, only 4.56% of the members of the council on average are women, and that, analyzing the reports of the companies, the majority of women who participate in these councils were found to be related to the main shareholder of the company—that is, that they are their wives, daughters, or sisters.

Helke and Kirch (2015) analyzed the composition of the BofD of the 100 largest European banks and the 60 largest insurance companies in Europe, where more than half of the employees are women, and found that only 8.5% of the members of the BofD in insurance companies are women, while in banks this percentage is higher, at 18%. Although these percentages are low, four of the banks analyzed and five insurance companies showed a significant increase in the ratio of female members of the BofD.

Deloitte (2013), for its part, conducted a study with a sample of 299 companies in Mexico and found that slightly more than half of the BofD (51%) have female members, which is lower than the percentage obtained in previous assessments. There is also a decrease in the proportion of women who make up the board: in 2011, some progress was made in this regard, with almost 25% female members; however, in 2012, 85% of the board members of Mexican companies were men and only 15 were women. As for those boards of directors that do have female members, the average number of women was 1.68, when it used to be 1.8 in 2011. On the other hand, only 11% of the members of the BofD of public enterprises were women, while in family enterprises the proportion reaches 19% and in private companies 18%. However, this contrasts with the findings of Dalton and Dalton (2010), who found that 57.3% of the companies in the *Fortune 500* list had two

women in the BofD, while 19.5% had three or more, showing the great progress in the participation of women in large companies at the international level.

40 In a study conducted in Spain, Mateos de Cabo, Iturrioz, and Gimeno (2008) found that favorable and close environments between workers and managers—such as those found in small companies or family businesses—that apply and promote measures of conciliation facilitate the presence of women in their BofD. These findings are consistent with those of Mateos de Cabo, Gimeno, and Escot (2010) about the probability of a board member being a woman increasing from 4.58% to 12.58% if the company were a cooperative.

Mateos de Cabo, Gimeno, and Escot (2010) found that the proportion of women on the BofD of Spanish companies is low due to some evidence of discrimination: the proportion of women is greater when there are more *asientos dominicales* available¹; in fact, there are exclusionary companies in which homogeneity prevails within the board and some companies are systematically underestimating the capacities of women, but this situation is likely to disappear if companies already have female board members.

Nelson and Levesque (2007), for their part, found that, in large corporations in the United States, women don't have a role in either senior management or the BofD; there are also no women in this position in companies funded by venture capital and high-tech companies. However, these corporations should consider what Martín and Minguez (2014) found in a sample of non-financial companies in Spain between 2003 and 2008, which is that the presence of women in the BofD has a positive effect.

Corporate profitability and its relationship with the participation of women in the board of directors

Several studies have analyzed the relationship between women's participation in the BofD and the measurement of financial performance, such as the performance and value of the company, as seen in Table 2 below.

1 Proprietary membership, whereby the director is a member of the B or D, on account of being a shareholder of the company.

Table 2. Relationship between the participation of women in the board of directors and financial performance

Variable		Relationship	Author
Gender	Percentage of women participating in the board with respect to the total number of directors.	N/A	Hillman, Shropshire and Cannella (2007); Adams and Ferreira (2007); Gul, Srinidhi, and Ng (2011).
Performance	Percentage of women participating in the board and its relationship with the performance of the company	+	Martin and Miguez (2014), Francoeur, Labelle, and Sinclair-Desgagne (2008).
Value of the company	Percentage of women participating in the board and its relation to the value of the company in the primary sector.	-	Martín and Miguez (2014).
Value of the company	Percentage of women participating in the board and its relationship with the value of the company in the secondary and tertiary sectors.	+	Martín and Miguez (2014).
Value of the company	Percentage of women participating in the board and its relationship with the value of the company.	+	Adler (2001), Carter et al. (2003), the Catalyst (2004).
Company listed on the stock exchange	Percentage of women participating in the board in companies listed on the stock exchange.	-	Mateos de Cabo, Gimeno, and Escot (2010).

Source: Own elaboration based on the cited authors.

As you can see in Table 2 above, the majority of research shows a positive relationship between the participation of women in the B or D and the company's performance or value, but not so much when it comes to companies in the primary sector, or when the relationship is established by the fact that the company is listed on the stock exchange, because women are generally present in small businesses that do not have the possibility of listing.

Methodology

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A quantitative research with transversal design was conducted using data from two groups of companies—those with female participation in the BofD and those without, and a t-test was used to calculate the mean difference between the two groups.

Furthermore, a number of financial variables were calculated for each company, namely the net profit margin, return on assets, return on assets, return on investment, and leverage.

Conceptualization of variables

The following section includes the definitions of the variables that will be used to measure financial performance.

Net margin. It is the remnant that a company has after deducting the operating and financial expenses. It is expressed as a percentage.

Return on equity. It is the company's performance with regard to equity, and it is obtained by dividing the net profit by shareholders' equity. It is expressed as a percentage.

Return on assets. It is the performance of the company with respect to investment in assets, and it is obtained by dividing the net income by the net assets. It is expressed as a percentage.

Return on investment. It is the return on investment of the capital (ROIC) of the company, and it is calculated with the following formula:

$$ROIC = \left(1 - \frac{a}{100}\right) * \frac{b}{c} * 100$$

Where:

a: Income tax

b: Operating result (EBIT, or earnings before interest and taxes)

c: Capital investment

Capital investment. Total assets (cash and cash equivalents), current liabilities, financial liabilities, and other credits without cost in the short term.

Financial leverage. It is a measure of the financial risk, and it is directly related to the long-term debt of the company and its effect on profits. The higher this indicator is, the higher the financial risk. It is expressed in times.

Total leverage. It is a measure of the total risk, and it is obtained by dividing the total liabilities by the total assets. The higher this indicator is, the higher the risk of the company. It is expressed as a percentage.

Number of employees. The number of active employees at the end of 2015.

Value of assets. The value of total assets at the end of the year 2015, expressed in thousands of pesos.

Capital value. The value of the company's equity at the end of the year 2015, expressed in thousands of pesos.

Hypothesis

The hypotheses to be proved in this research are:

Ho1: The net margin of companies with women on the BofD is equal to that of companies with no women on the BofD.

Ho2: The return of active companies with women on the BofD is equal to that of companies with no women on the BofD.

Ho3: The return on equity of companies with women on the BofD is equal to that of companies with no women on the BofD.

Ho4: The return on investment of companies with women on the BofD is equal to that of companies with no women on the BofD.

Ho5: The financial leverage of companies with women on the BofD is equal to that of companies with no women on the BofD.

Ho6: The total leverage of companies with women on the BofD is equal to that of companies with no women on the BofD.

Ho7: The number of employees in companies with women on the BofD is equal to that of companies with no women on the BofD.

44 Ho8: The value of the assets of companies with women on the BofD is equal to that of companies with no women on the BofD.

Ho9: The equity value of companies with women on the BofD is equal to that of companies with no women on the BofD.

Sampling

The sample is made up of all companies listed on the BMV as of the year 2015— that is, an analysis was carried out using 100% of the companies listed in that year, only removing companies from the financial sector and companies with incomplete information, for a total of 69 companies, 37 of which have women in the B or D and 32 of which do not.

Results

The first step in the analysis of the data was to determine the financial indicators of both groups of companies, the results of which are presented in the following tables. Table 3 shows the financial indicators of companies with participation of women in the CA.

Table 3. Companies with the participation of women in the board of directors

	Company	Net margin	Return on assets	Return on equity	ROIC	Financial leverage	Total leverage of IENFO	Number of employees	Assets (thousands of pesos)	Equity (thousands of pesos)
1	ACCEL, SAB de CV (ACCELSA)	4.3	6	9.6	6.5	1.6	37.3	3823	4,689,608	2,319,046
2	Grupo Aeroméxico, SAB de CV (AEROMEX)	2.5	2.3	10.8	7.1	-3.5	78.4	13,392	60,477,003	12,980,661
3	Consorcio ARA, SAB de CV (ARA)	8.8	3.5	5.3	3.7	1.7	33.5	872	18,085,673	11,712,368
4	Internacional de Cerámica, SAB de CV	4.7	6.2	12.5	12.9	-90.7	50.2	4087	7,867,167	2,710,903
5	Grupo Aeroportuario del Pacífico, SAB de CV (GAP)	34.2	8.8	12.5	10	2.3	29.6	885	35,122,665	20,151,264
6	Grupo Industrial Saltillo, SAB de CV (GISSA)	5.7	3.9	6.5	5.8	29.6	39.1	6851	17,557,477	10,979,864
7	Grupo Sanborns, SAB de CV (GSANBOR)	7.8	8.4	11.8	12.3	1.6	28.9	48,125	42,144,595	28,301,021
8	Promotora Ambiental, SAB de CV (PASA)	4.3	3.4	6.7	4.8	25.5	49.3	5338	4,650,422	2,180,682
9	Grupo TMM, S.A. (TMM)	-32.6	-8.2	-23.6	3.2	16.2	96.5	1779	11,901,444	-224,184
10	Corporación Inmobiliaria Vesta, SAB de CV	-4.9	-0.3	-0.4	3	0.1	34.0	61	31,012,428	19,824,732
11	Altos Hornos de México, S.A. de CV (AHMSA)	-10.4	-6.9	-24.3	-5.2	2.5	71.7	20,435	64,358,240	23,228,591
12	Compañía Minera Autlán, SAB De CV	1.2	0.6	1.2	1.8	-0.4	52.5	2017	9,881,617	4,574,704
13	Cydsa, SAB de CV (CYDSASA)	6.4	2.1	3.8	3.9	21.2	49.9	1416	18,904,410	9,343,011
14	Grupo Lamosa, SAB de CV (LAMOSA)	6.6	4.4	10.8	10.1	45.5	59.0	4663	23,075,004	7,086,322
15	Mexichem, SAB de CV (MEXCHEM)	2.3	1.5	3.6	5.5	-1.9	57.6	18,803	176,264,441	60,609,972
16	Industrias Peñoles, SAB de CV (PE&BACE)	-0.8	-0.4	-0.8	2.8	0.2	42.3	11,555	133,522,439	61,054,852
17	Grupo Bimbo, SAB de CV (BIMBO)	2.7	3	9.6	5.9	20.8	69.0	127,152	237,468,546	70,850,558
18	L'Organización cultiba, SAB de CV (CULTIBA)	0.4	0.5	0.9	3.7	-0.7	41.6	37,767	31,129,110	9,308,037
19	Fomento Económico Mexicano, SAB de CV	7.5	5.7	9.6	6.7	3.1	40.9	187,642	492,850,032	200,213,978
20	Grupo Gigante, SAB de CV (GIGANTE)	5.9	3.9	8.9	7.1	-3.5	56.2	25,000	40,335,869	18,653,638

Continues

	Company	Net margin	Return on assets	Return on equity	ROIC	Financial leverage	Total leverage of I'ENTO	Number of employees	Assets (thousands of pesos)	Equity (thousands of pesos)
21	Gruma, SAB de CV (GRUMA)	1.9	2.4	5.8	15.2	-115.4	58.1	19,117	52,771,756	21,790,534
22	Grupo Herdez, SAB de CV (Entreprise)	7.9	5.3	9.3	6.5	-1.2	43.0	8304	25,983,686	7,082,462
23	Kimberly Clark de México SAB de CV	13.5	12.7	64.3	25.7	7.2	80.2	8039	39,919,541	5,735,251
24	Le Coca-Cola Femsa, SAB de CV (KOF)	6.8	4.9	9.5	8.6	10.3	48.3	83,712	240,162,099	113,941,865
25	Grupo Lala, SAB de CV (LALA)	8.2	11.5	15.4	19.1	1.5	25.6	29,770	39,772,818	27,206,734
26	Organización Soriana, SAB de CV (SORIANA)	3.4	3.7	7.4	6.2	2.6	47.3	81,800	123,996,343	52,801,573
27	Wal-Mart de México, SAB de CV (WALMEX)	5.4	10.4	17.4	15.4	1.8	40.1	121,000	287,930,302	167,026,016
28	Corporativo Fragua, SAB de CV (FRAGUA)	2.7	6	10.9	13	2.4	45.1	29,540	16,292,569	9,513,549
29	Genomma Lab. Internacional, SAB de CV (Travaux pratiques)	-9.2	-5.7	-10.9	-4.4	1.2	47.5	894	18,203,079	9,487,701
30	América Móvil, SAB de CV (AMX)	4.1	2.9	23	10	-3	87.6	195,475	1,515,897,614	208,915,243
31	Axtel, SAB de CV (Artsonic)	-16.9	-7.6	-41.7	2.8	1.9	81.7	7000	32,167,317	2,646,629
32	Telecomunicaciones Maxcom, SAB de CV	-29.3	-12.4	-24.8	-2.9	1.1	49.9	1133	3,892,804	800,552
33	Grupo QUMMA, S. A. de CV (QUMMA)	0.5	0.2	0.3	0.4	-0.2	42.6	4900	1,206,122	643,742
34	Grupo Radio Centro, SAB de CV (RCENTRO)	-4.1	-0.9	-1.9	7.6	0.1	50.7	434	5,376,400	2,830,035
35	Grupo Televisa, SAB (TLEVISIA)	14	4.4	12.4	6.7	-7.1	64.6	43,964	293,270,028	85,125,941
36	El Puerto de Liverpool, SAB de CV (LIVEPOL)	10.1	8	13	10.1	1.9	38.4	55,000	134,911,371	74,936,739
37	Grupo Posadas, SAB de CV (Buenos Aires)	6.8	-3.4	-13	5.3	4.4	73.7	14,461	15,720,722	3,266,223

Source: Own elaboration, based on data from the Mexican Stock Exchange.

Table 4 shows the indicators of companies with no participation of women in the board.

Table 4. Companies with no participation of women in the board of directors

	Company	Net margin	Return on assets	Return on equity	ROIC	Financial leverage	Total leverage of I'EN/TO	Number of employees	Assets (thousands of pesos)	Equity (thousands of pesos)
1	Infraestructura Energética Nova, SAB de CV (IENOVA)	20.9	4	6.4	4.1	1.8	37.8	639	118,766,561	52,908,659
2	Alfa, SAB de CV (ALFA)	2.3	2.2	7.3	8.7	-2	70.1	40,000	348,938,705	76,151,209
3	Corpoeal SAB de CV (CADU)	12.2	7.8	13.3	10.3	1.9	41.5	2802	6,076,608	3,357,904
4	Diner, SAB de CV (Diner)	22.7	2.3	3.6	-2.1	-2.1	37.6	43	6,540,905	3,579,935
5	Grupo Carso, SAB de CV (GCARSO)	8.5	8	11.8	10.4	2	32.3	73,000	102,967,183	59,375,987
6	Grupo Mexicano de Desarrollo, SAB (GMD)	4.9	1.8	4.3	5.4	-1.8	58.2	1735	8,560,351	2,921,469
7	Le Mexique, l'OHL SAB de CV (OHLMEX)	49.7	6.2	11.1	7.6	3.9	43.8	1506	127,085,143	65,489,827
8	Sare Holding, SAB de CV (SARE)	-20.8	-1.7	-4.2	-0.4	1.1	60.1	46	2,586,129	987,125
9	Vinte Viviendas Integrales, SAB de CV (VINTE)	12.6	9.6	21.8	12.9	2.7	55.8	2018	3,957,481	1,581,257
10	Alpek, SAB de CV (ALPEK)	4.4	4.9	10.6	9.4	8.4	53.9	5096	91,500,444	37,072,528
11	Cemex, SAB de CV (CEMEX)	0.9	0.4	1.3	3.4	-0.3	69.8	11,064	599,728,320	167,774,547
12	La Corporación Moctezuma, SAB de CV	25.9	23.8	29.9	34.6	1.3	20.3	1121	13,616,888	11,250,340
13	Industrielle Convertidora, SAB de CV (Conversion)	0.4	0.2	0.6	4	0	59	1102	1,686,218	631,027
14	Grupo Cementos de Chihuahua, SAB de CV	7.6	3.4	6.2	5	5.9	45.4	2694	30,567,490	16,997,155
15	Grupo México, SAB de CV (GMEXICO)	15.8	5.8	10.9	9.3	2.8	46.8	30,271	471,633,338	217,826,911
16	Minera Frisco, SAB de CV (MFRISCO)	-27.7	-7.9	-22.7	-0.3	1.2	65.1	6136	51,010,439	15,718,285
17	Grupo Pochteca, SAB de CV (POCHTEC)	0.6	0.9	2.8	7.2	-0.6	68.6	1464	3,710,060	1,245,677
18	Proteak Uno, SAB de CV (Teck)	13.1	1.1	1.8	1.5	-0.3	40.1	113	5,712,997	3,153,611

Continues

	Company	Net margin	Return on assets	Return on equity	ROIC	Financial leverage	Total leverage of I'ENTO	Number of employees	Assets (thousands of pesos)	Equity (thousands of pesos)
19	Industrias Bachoco, SAB de CV (BACHOCO)	8.3	9.4	13.7	16.8	1.8	31.3	21,964	45,101,509	31,662,142
20	Grupo Bafar, SAB de CV (BAFAR)	3.8	4.3	8.2	6.6	-2.7	47.6	9771	9,493,085	4,461,021
21	Grupo Comercial Chedraui, SAB de CV	2.3	3.6	7.1	7.9	5.1	49	42,096	50,741,186	26,033,202
22	Grupo Minsa, SAB de CV (MINSA)	3.4	4.7	6.3	5.5	2.3	26.3	1668	4,363,843	3,010,444
23	Farmacías Benavides, SAB de CV (BEVIDES)	0	0.1	0.3	2.9	-0.5	71.4	8706	5,415,864	1,532,752
24	Empresas Cablevision, S.A. de CV (Cable)	8.6	4.7	7.4	8.6	-2.6	36.1	3240	21,389,127	12,249,649
25	Megaable Holdings, SAB de CV (MEGA)	22.6	11.3	16.2	11.8	1.5	30.0	16,010	31,390,771	20,820,211
26	Telesites, SAB de CV (SITES)	-10.1	-1.1	-5.5	0	1.9	80.5	171	43,624,645	9,836,082
27	Alsea, SAB de CV (ALSEA)	3.2	3.1	10.5	6	19.8	70.0	61,822	37,995,141	8,910,623
28	CMR, SAB de CV (CMR)	1.5	1.8	3.5	3.1	6.8	48.5	5843	2,043,350	932,582
29	Hoteles City Express, SAB de CV (HCITY)	12.1	2	2.7	2.7	419.6	24.6	2516	11,274,431	7,267,853
30	Hilasal Mexicana SAB de CV (HILASAL)	-12.5	-6.5	-15.1	-3.7	1.4	56.7	589	652,122	253,869
31	Rassini, SAB de CV (RASSINI)	6.4	6.9	20.8	13.2	4.9	66.6	5797	13,833,940	5,045,930
32	Grupo Vasconia SAB (VASCONI)	3.3	2.7	5.3	3.5	4	49.9	1629	3,385,922	1,772,167

Source: own elaboration, with data from the Mexican Stock Exchange.

To test the first hypothesis raised, we calculated the average and standard deviation of each indicator from the two groups of companies under study (Table 5).

Table 5. Average and standard deviation of financial indicators

Indicators	Women in the (BofD)	N	Media	Standard deviation
Net margin	With directors	37	2.2270	11.3355
	Without directors	32	6.4656	13.9329
Return on assets	With directors	37	2.4541	5.2719
	Without directors	32	3.7438	5.5225
Return on equity	With directors	37	-1.1081	42.8119
	Without directors	32	6.1938	9.8920
ROIC	With directors	37	6.9432	6.0811
	Without directors	32	6.7469	6.9093
Financial leverage	With directors	37	-0.5216	27.1819
	Without directors	32	15.2875	73.8969
Total leverage	With directors	37	52.4838	17.3065
	Without directors	32	49.8344	15.7334
Number of employees	With directors	37	33.410	50.105
	Without directors	32	11.333	18.443
Value of assets (thousands of pesos)	With directors	37	116,453,317	259,771,606
	Without directors	32	71,104,756	139,715,211
Value of equity (billions pesos)	With directors	37	37.022567	54,428,742
	Without directors	32	27,244,124	48,492,215

As seen in Table 5, the indicators of profitability (net profit margin, return on assets, and return on equity) of the companies with female members of the BofD are lower compared to companies with no participation of women in the board. However, the ROIC is greater in companies with women in the BofD, coinciding with the findings of Martín and Minguez (2014), Francoeur, Labelle, and Sinclair-Desgagne (2007), who found a positive relationship between the companies' performance and the percentage of women in their BofD. These results would indicate that companies with female directors have a better leverage on capital investment (inventory, accounts receivable, and fixed assets minus short-term debts)

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to generate returns. In this sense, it is important to mention that this is one of the most rigorous tests for determining corporate performance, since it takes into account the companies' capital turnover.

On the other hand, this result shows that, in terms of financial leverage, the companies with female members of the BofD have much lower results than enterprises where women are not part of the board, thus confirming women's aversion to risk, which matches the findings of the BIRF (2010), Escandón and Arias (2011), and Díaz and Jiménez (2010), according to whom women take less financial risk than men. However, leverage is greater in companies with female directors, which would be due to the fact that they have a greater operating leverage.

Table 5 shows that there is a large dispersion of data in almost all the variables, since in most cases the standard deviation is greater than the mean, such that it will be necessary to use non-parametric testing to contrast the hypothesis of difference between the groups.

Table 6 shows the verification of the hypotheses with the calculation of the Mann-Whitney U-test, with a confidence level of 96%; the null hypothesis of the research is rejected if p (significance level) is less than 0.05.

Table 6. Hypothesis testing (Mann-Whitney Test)

Hypothesis	Range average	Statistical significance / decision
Ho1: The net margin of companies with women in the BofD is equal to that of companies with no women in the BofD.	(1) 32.28	0.227
	(2) 38.14	It is not possible to reject Ho1
Ho2: The return on assets of companies with women in the BofD is equal to that of companies with no women in the BofD.	(1) 34.14	0.700
	(2) 36.00	It is not possible to reject Ho2
Ho3: The return on equity of companies with women in the BofD is equal to that of companies with no women in the BofD.	(1) 34.73	0.904
	(2) 35.31	It is not possible to reject Ho3
Ho4: The return on investment of companies with women in the BofD is equal to that of companies with no women in the BofD.	(1) 35.81	0.718
	(2) 34.06	It is not possible to reject Ho4
Ho5: The financial leverage of companies with women in the BofD is equal to that of companies with no women in the BofD.	(1) 34.38	0.782
	(2) 35.72	It is not possible to reject Ho5

Hypothesis	Range average	Statistical significance / decision
Ho6: The total leverage of companies with women in the BofD is equal to that of companies with no women in the BofD.	(1) 35.89 (2) 33.97	0.691 It is not possible to reject Ho6
Ho7: The number of employees in companies with women in the BofD is equal to that of companies with no women in the BofD.	(1) 40.32 28.84 (2)	0.018 It rejects Ho7
Ho8: The value of the assets of companies with women in the BofD is equal to that of companies with no women in the BofD.	(1) 39.03 (2) 30.34	0.073 It rejects Ho8
Ho9: The value of the equity of companies with women in the BofD is equal to that of companies with no women in the BofD.	(1) 37.68 (2) 31.91	0.234 It is not possible to reject Ho9

(1) Companies with the participation of women in the BofD.

(2) Companies with the participation of women in the BofD.

Source: Own elaboration.

According to the results of the statistical test shown in Table 6, the financial indicators (net profit margin, return on assets, return on equity, ROIC, total leverage, financial leverage, as well as the number of employees, the value of the assets, and the value of sales) are different (average range) between companies with women in the BofD and those without.

The results also show that the financial indicators of performance (net profit margin, return on assets, and return on equity) are higher in companies without women in the BofD than those with female members. These findings are consistent with those of Martín and Minguez (2014), who found that there is a negative relationship between the percentage of women in the BofD and performance in companies in the primary sector, given the limitations of female participation. On the other hand, the indicator is higher in the ROIC of companies with female directors, which is consistent with the findings of Martín and Minguez (2014), who found a positive relationship between the percentage of women participating in the board and the performance of businesses in the secondary and tertiary sectors. It is also consistent with the findings of Francoeur, Labelle, and Sinclair-Desgagne (2007), Adler (2001), Carter, Simkins, and Simpson (2003), and the Catalyst (2004), who found a positive relationship between the percentage of women in the BofD

and the company's performance. These last findings are relevant, insofar as it is a rigorous test for determining a company's performance, as it takes into account variables such as rotation of capital investment, tax burden, and operating result.

Financial leverage, for its part, is greater in companies with no women in the BofD, because women have a higher aversion to risk than men. These findings are corroborated with the work of BIRF (2010), Escandón and Arias (2011), Diaz and Jimenez (2010), and Briano and Saavedra (2015).

As far as total leverage is concerned, the average indicator is higher in companies with female directors, since they have a greater operating leverage (fixed costs), due to being larger companies, as corroborated by the average results in the number of employees, the value of the assets, and the capital accounting, where all these values are higher in enterprises with female participation in the BofD.

On the other hand, there were no statistically significant results to reject the hypothesis of mean differences between the groups, since there was such a high dispersion of the data; only in the case of two hypotheses it was possible to make the statistical decision to reject the null hypothesis on the number of employees (Ho7) and on the value of the assets (Ho8).

Conclusions

Despite the progress made on gender equity in the workplace, women still face restrictions when trying to ascend to leadership positions. In this work, we sought to establish the relationship between the participation of women in the BofD and profitability. We also aimed to determine, for the Mexican case, that it is related to profitability being measured with the ROIC, which is a relevant finding consistent with previous literature, as it is one the most rigorous tests for determining a company's performance, even if, with the indicators (net margin, return on assets, and return on equity), the profitability of companies without female participation in the BofD is greater than that of companies with women in the BofD. However, not only is it worth noting that there are economic benefits to having women in the BofD, but it should also be considered from the point of view of gender diversity as an indicator of corporate social responsibility that affects, among other things, the company's image of the company. It also generates greater creativity in decision-making and represents reality better by accepting that organizations are made up of men and women who have the same rights and capabilities.

On the other hand, a lower financial leverage was found in companies with participation of women in the BofD, which matches the findings in the literature, that women have more aversion to risk than men, which is why men have a higher performance and which would also explain the findings of this study about the lower profitability in companies with women in the BofD. The opposite happened with the total leverage, which is greater in the case of companies with female directors, given that they have a greater operating leverage due to being larger companies, as corroborated by the results of the operational indicators, such as number of employees, value of assets, and capital value.

The limitations of this study were that, with such a small sample, it was not possible to separate the companies by sector; moreover, a longitudinal analysis that could have yielded more compelling results was not made either.

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