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Does the Female Presence in Corporate Governance Influence the Level of Indebtedness in Agri-Food Family Firms?

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Abstract: Family firms form the backbone of most of the world's economies. While the issues surrounding family firms are diverse, gender diversity and its impact on the strategic and financial decisions of such firms is a topic that has generated significant debate in recent years. In particular, one of the most crucial unresolved questions is whether or not increasing the female presence in the family firms' corporate governance bodies would be beneficial for improving their internal functioning. To shed new light on these issues, our study aims to examine the influence of gender diversity on the level of indebtedness of Spanish agri-food family firms. Specifically, and applying a risk-aversion perspective, the research goal is to analyse whether the female presence in corporate governance structures (board of directors, top management team and general shareholders' meeting) influences the level of firm indebtedness. To test the suggested relationships, ordinary least square regression models were applied to a sample of 137 firms. The final sample was obtained by combining quantitative data from the SABI database and qualitative data from a survey conducted by the Spanish Institute of Family Firms and the Spanish Network of Family Business Chairs. This study reveals an inverse relationship of female presence in the board of directors, in the top management team, and in the general shareholders' meeting on the level of indebtedness of Spanish agri-food family firms. In other words, the findings show that female presence in corporate governance structures contributes to enhanced business management behaviour and, thus, to a better utilisation of firms' financing strategies. The obtained results have very important practical and social implications, insofar as they contribute to the building of a more inclusive and sustainable business world, aimed at reducing gender inequality at top positions in firms.



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1. Introduction

In recent decades the activity of family firms has attracted the interest of academics, professionals, and managers worldwide, among other reasons, due to family firms' great contribution to GDP and employment in most economies around the world [1–3], which explains the significant increase in research on this type of business.

The concept of the family firm is very ambiguous, so the definitions are generally categorized as broad, intermediate, and restrictive [4]. In the broadest definition, the only requirement for a business to be classified as a family firm is that the control of strategic decisions rests in the hands of family members, as well as an explicit desire for this control to be maintained in the future. In other words, a family firm is defined as a business in which the members of a family possess sufficient political power to decide the firm strategy. The intermediate definition includes family firms—those in which the founder or his/her descendants control the business and have a direct, but not exclusive, involvement in strategic decision-making. Finally, in the most restrictive definition, family firms are those businesses in which several generations of a given family dynasty have an active presence and control in both the firm ownership and the firm management. In this study, family

firms are conceptualized as businesses “dominantly controlled by a family with the vision to potentially sustain family control across generations” [5] (p. 22).

Family firms are characterized by a distinctive form of governance as a result of the alignment of management, ownership, and control [6]. The governance needs of family firms are quite peculiar due to a combination of a multiplicity of pursued goals by these firms and the evolutionary role of family in firms [7]. Some of the most typical governance structures in family firms are the board of directors, the top management team, and the general shareholders’ meeting [7]. The board of directors is a fundamental governance structure, whose primary functions are management supervision, that is, the exercise of control, as well as the delivery of advice and resources [8]. The top management team is depicted as the group of managers composed of the CEO and other executives reporting directly to the CEO [9]. The top management team regularly discuss the strategies to reach the firm’s goals [10]. Finally, the general shareholders’ meeting is a governance structure that deals with legal issues, such as appointing the CEO or the board members, and normally is held once a year [7].

Today, in industrialized countries, the female presence in corporate governance bodies although has increased considerably, is still low. Some barriers, such as the existence of informal promotion processes to top management [11], the deprivation of adequate working life growth for women [12], and the family responsibilities and lower salaries [13], remain. In addition, some cultural issues, such as stereotypes about women’s leadership ability, or their lack of ambition and competitive impulse regarding men, have a negative influence on their working lives [14].

Women presence in corporate governance has an impact on strategic decision making in general [15] and on corporate financing choices in particular [16]. Namely, female presence in governance structures implies the existence of particular attitudes towards indebtedness [17]. Becoming indebted is crucial for firms, as it allows them to preserve their own development, competitiveness and survival [18]. Additionally, indebtedness permits undertaking investment opportunities, and influences productivity and growth [19,20]. Up to now, most studies have focused on the impact of female presence in boards on the level of indebtedness [18,21,22]. However, surprisingly, scarce attention has been paid to the effects of female presence in other corporate governance structures, such as top management teams or general shareholders’ meetings, on the level of firms’ indebtedness. In this regard, certain studies suggest a negative impact of female presence in top management teams on firm indebtedness [23,24], while, to the best of the authors’ knowledge, no study has empirically investigated the impact of women in shareholders’ meetings on the level of firm indebtedness.

Consequently, based on the abovementioned arguments, the research goal of this study is to examine the influence of gender diversity on the level of indebtedness of Spanish agri-food family firms, by applying a risk-aversion perspective. Specifically, in this manuscript, we aim to answer the following research questions. First, does female presence in the board of directors influence the level of firm indebtedness? Second, does such a female presence in the top management team impact on the firm’s indebtedness? Third, do women in the general shareholders’ meeting exert an influence on the level of firm indebtedness?

To answer these research questions, ordinary least squares regression models were applied to a sample of 137 Spanish agri-food family firms. The results reveal that female presence in all corporate governance structures exerts a negative and significant impact on the level of firm indebtedness. This negative impact is especially relevant for the case of female presence in boards, while is quite less significant for female presence in top management teams and in general shareholders’ meetings.

Spain is an attractive scenario to explore the role of female presence in corporate governance regarding the level of indebtedness of agri-food family firms. First, Spanish family firms account for 89% of all firms in the country and generate approximately 57% of Spanish GDP and 67% of private employment [25]. Moreover, indebtedness is particularly

important for family firms, as these types of businesses prefer debt to equity, due to their aim of growing without diluting the ownership stake [21,26]. Particularly, Spanish family firms present indebtedness levels of up to 75% [25], which highlights the family firms' preference for debt financing. Second, the agri-food sector is of great strategic importance in Spain, representing 9.7% of GDP, generating 11.70% of employment, and accounting for approximately 20.49% of total exports [27]. Third, Spain has been one of the first European countries to promote a more balanced presence of men and women in the workplace and in governing bodies due to the strong legislative movement that has been developed since the mid-2000s [28,29]. Recent research shows that some years after these reforms, the scarce presence of women in corporate governance bodies is changing [18,30], making the context of this country a convenient setting in which to analyse the female influence on boards of directors, top management teams and general shareholders' meetings. Therefore, addressing the issue of indebtedness is particularly relevant in the Spanish family firm agri-food context.

This paper makes important contributions. First, this study is pioneering in analysing the influence of female presence in different corporate governance structures (board of directors, top management team and general shareholders' meeting) on the level of indebtedness of family firms. Therefore, we contribute to the wider knowledge field of corporate finance within family firms and to the emergent research path on the presence of women in corporate governance. Second, by focusing on private firms, our study goes beyond prior research, which has been mainly centred on publicly held firms. Third, we contribute to the current research stream analysing family firm heterogeneity. Finally, this study targets agri-food firms, which is in itself a valuable contribution since, despite being a very prominent industry at the national and international level, there are few studies dealing with topics related to corporate governance or corporate finance in this type of business. Additionally, in terms of social implications, this study contributes to the achievement of the Sustainable Development Goal 5 established by the United Nations Global Compact, which aims to achieve gender equality and empower all women and girls. In so doing, our article supports the initiative to build a more inclusive and sustainable business world in which gender is not a detrimental factor when it comes to accessing a job, regardless of whether it is at a lower or higher level in a business.

The study is structured as follows. First, a literature review is carried out and three hypotheses are established. Next, the methodology is described, followed by an interpretation of the obtained results. Finally, the most relevant conclusions drawn from the study are discussed.

2. Literature Review and Hypotheses Development

2.1. Females and Risk-Aversion Perspective

Risk aversion is conceptualized as the rejection by individuals of unsafe, hazardous, or risky outcomes, or as a preference for stable options in accordance with certain values [31]. At the other extreme, risk-prone individuals are those who, between two options, always choose the option that offers them the least security, to aspire to achieve maximum profitability [32].

The gender gap in risk attitudes has been studied for several years [22]. The attitude to risk is a decisive component of business decisions. Risk tolerance varies by gender, age, religion, and race. There is some empirical evidence that women are more risk-averse than men [33] and are, therefore, better able to manage difficult situations [34]. Women have also been argued to be more proactive [35]. In the same vein, females have been found to be more risk-averse when making decisions related to entrepreneurship [36]. In addition, women tend to make safer choices when it comes to financial risk taking [37].

Other authors [38] have sought to understand the underlying psychological reasons why women are more risk-averse when it comes to investing. These authors argued that men are more likely to invest in riskier assets because they are more self-confident. Conversely, women are more cautious in their future forecasts, which leads them to be

more conservative in terms of the financial risk they are willing to assume. For their part, Olivares et al. [39] found that the variables driving different risk behaviours are age and wealth, concluding that women are not as likely to invest in riskier assets because they have lower incomes and therefore, accumulate less wealth in their pension funds. In addition, when race is taken into account, on average white women, both married and single, are more risk-averse than single women of colour [37]. Single and white women were also found to be more risk-averse as the number of underage household members increases.

Hence, according to this risk aversion perspective, firms owned, managed or directed by females are expected to be more reluctant to take risks and therefore opt for less risky strategic decisions.

2.2. Female Presence in Corporate Governance Structures (Board of Directors, Top Management Team, and General Shareholders' Meeting)

An important number of studies have shown that female participation in corporate governance structures leads to better firm management, from a financial, organisational, and labour point of view. In this respect, the female presence has been found to positively affect businesses and improve their reputation [40]. Gender diversity in firms can help to solve problems, thus increasing the effectiveness of leadership, and promoting more effective global relationships [41]. Furthermore, board diversity helps firms to better understand the market, thereby improving their ability to penetrate new markets, and promoting entrepreneurial creativity and innovation [41].

According to previous studies, women have fewer years of both managerial and entrepreneurial experience than men [42,43]. Regarding managerial positions, Castro-Sánchez and García-Ramírez [44] showed that it is difficult for women to have extensive previous work experience in such positions because they are generally at the bottom of the labour pyramid and, therefore, lack extensive experience within the organisation. In Spain, Vega-Catana et al. [45] stated that women have less work experience, although such experience is higher in businesses with female participation lower than 30%, except in the field of technical studies, mainly due to the degree of feminisation of this field. Even though females have less previous experience in managerial positions than men, once they have this experience, they outperform men in such posts [46].

Along the same lines, Adler [47] revealed that firms with females in their management teams were more profitable than the average. Joecks et al. [48] and the International Labour Organisation [49] also showed that there is a positive effect between female presence in management teams and firm performance. Catalyst [50] and Desvaux et al. [51] concluded that businesses with women in management positions offer their shareholders higher profitability. Further, Catalyst [52] found that firms with women in top management are 16% more profitable than those without women in management positions.

Female directors offer new ideas and improve board communication, thereby increasing diversity of opinion [53]. Fitzsimmons [54] demonstrated that female directors offer new ideas that are more beneficial in boards in which objectives are complex and require more time for discussion. Cooperatives and family firms are those with the highest female representation on their boards of directors [55]. This is because the main way for a female to access the governing bodies is through family ties.

On the other hand, Bear et al. [56] argued that when the number of women at the general shareholders' meeting increases, communication barriers are reduced and minority views and opinions are better received. Female presence in the general shareholders' meeting also allows firms to be better organised, leading to better results, due to more ethical practices and greater corporate social responsibility [57]. More recently, Noland et al. [58] conducted a study of listed firms worldwide in which they showed that a greater female presence in corporate leadership can improve firm performance. Noland and colleagues also found that firms with a female presence in corporate leadership of at least 30%, could increase their net profit margin by one percentage point.

Nowadays, female participation in the labour market has continued to expand globally. However, this increase is not occurring at the same pace in top managerial positions.

According to the Corporate Women Directors International report [59] concerning female presence in boards of the world's largest banks and financial services firms, women account for only 24.7% of board seats, which is double the 2005 figure (10.3%). It is noteworthy that 61.5% of firm boards have reached what is called 'critical mass', i.e., they have three or four women in board positions, 2.62% more than in 2005. Unfortunately, the rise in the number of female directors in these financial institutions has not yet been proportionally reflected in executive positions, which only represent 14.8%. The most striking data in such a report is that, of the 104 banks and financial institutions analysed, only one has a female CEO and 8.7% still have no women on their boards.

2.3. Female Presence in Corporate Governance Structures and Level of Firm Indebtedness

Cooperatives with a higher female representation on their governing council (which corresponds to the board of directors of capital firms) have a lower debt ratio and higher levels of profitability [60]. In the same vein, some authors [61,62] argued that firms managed by females have a lower debt ratio. Moreover, this lower indebtedness is accompanied by a lower cost and longer debt maturity in SMEs [63]. Jeong and Harrison [64] found that although females are more risk-averse when they are in a CEO position, they opt for more long-term financing. Likewise, McGuinness et al. [65] highlighted that there is better corporate social responsibility behaviour in firms with a female CEO. These authors also highlight the positive relationship between indebtedness and return on equity in listed firms.

On the other hand, according to Del Brío and Del Brío [66], listed firms with a high level of indebtedness and intensive in R&D, are those with the highest female participation in their boards of directors, confirming a positive relationship between gender diversity and independence, and also between gender diversity and firm innovativeness.

In contrast, Huang and Kisgen [23] showed that when females are present in the management team, there is a lower probability of issuing long-term debt or making significant acquisitions. Francis et al. [67] related the female presence in strategic positions to a greater possibility of increasing profits and reducing debt ratios. Other studies show that women in finance managerial positions have a greater predilection for less risky financial and investment decisions [68].

It is also noteworthy that women in management make greater use of equity than debt [24]. According to Rosa et al. [69], females tend to opt more for internal sources of finance and use fewer financial instruments, such as bank loans or overdrafts, in contrast to men. Nevertheless, other empirical studies [70] revealed that owners' gender does not influence the choice of a source of equity or debt financing.

Hence, according to the risk-aversion perspective, female presence in corporate governance structures is expected to have an inverse relationship with the level of indebtedness, i.e., women involvement in corporate governance bodies has a negative impact on firm indebtedness. Accordingly, the following hypotheses are established:

Hypothesis 1 (H1). *A higher female presence in the board of directors has a negative effect on the level of indebtedness.*

Hypothesis 2 (H2). *A higher female presence in the top management team has a negative effect on the level of indebtedness.*

Hypothesis 3 (H3). *A higher female presence in the general shareholders' meeting has a negative effect on the level of indebtedness.*

Figure 1 contains a graphic representation of our research model and the hypotheses under analysis.

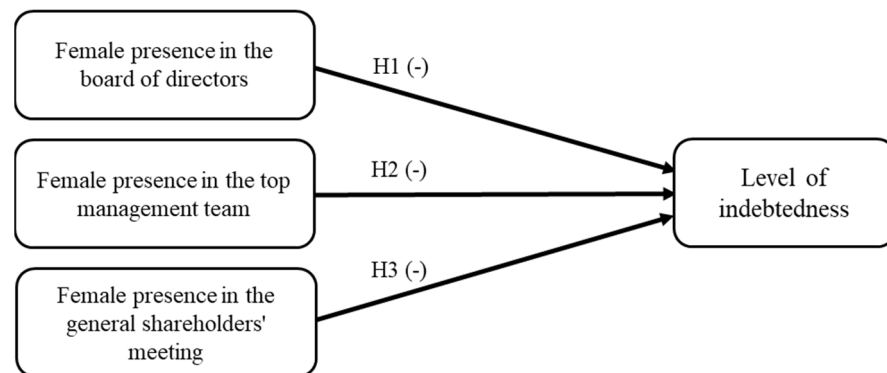


Figure 1. Research model.

3. Methodology

3.1. Sample Data

This study is based on a sample of family firms from a survey conducted in 2016 by the Spanish Institute of Family Firms in cooperation with the Spanish Network of Family Business Chairs [25]. The sample is highly representative of the Spanish population in terms of firm size, with a clear predominance of small (60.30%) and micro (30.1%) firms. To fulfil the purpose of our analysis, we have selected the data pertaining to agri-food family firms. In doing so, first, we included in our sample agri-food firms in any of its phases (production, transformation, or commercialisation). Second, we selected family firms following the definition of Chua et al. [71] who stated that family firms are those in which at least 50% of the ownership and the management is controlled by a family and the CEO perceives the firm as a family firm. Therefore, of the 1005 firms that made up the initial sample, the 156 family firms belonging to the agri-food industry were chosen. Subsequently, after removing firms with missing data for the analysed variables and outliers, the final sample consisted of 137 Spanish agri-food family firms.

Since the sample of agri-food family firms we used in our study was collected as part of a more extensive project, it is likely that a selection bias might have happened. Similar to Beck and colleagues [72], we compared our sample firms, in terms of size and age with those of other family firm studies using Spanish family firms [73–75]. This comparison allowed us to demonstrate that our sample of family firms was similar in terms of age and size to that of the aforementioned studies, so there should not be any sample selection problem.

The empirical data used in this study come from two different data sources. On the one hand, the firms' financial and economic data have been extracted from the SABI (Sistema de Análisis de Balances Ibéricos) database by Bureau Van Dijk for the year 2016. On the other hand, qualitative data have been collected from the database provided by the Spanish Institute of Family Firms and Spanish Network of Family Business Chairs, which developed a survey analysing certain characteristics (profitability, challenges, innovation, succession, among others) of a representative sample of Spanish family firms. The qualitative data were processed by the firm NEXO. The surveys were conducted by computer-assisted telephone interviews using a structured questionnaire for CEOs, executives or managers of the analysed firms. This process was supplemented by e-mail interviews for those firms that requested it. The response rate was of 11.93% and the sampling error of $\pm 3.08\%$ (with $P = Q = 50\%$ and $\alpha = 0.05$).

By using two different sources of data, that is, primary (survey) and secondary source of data (the SABI dataset), the risk of common method bias is mitigated since the dependent variable (level of firm indebtedness) and several control variables (firm size, firm age, and economic and financial profitability) come from a database external to the survey [76,77]. Moreover, we explored the possibility of common method variance using Harman's single-factor test proposed by Podsakoff et al. [77], which did not reveal any potential concerns; therefore, the potential for effects is not expected to significantly affect our results.

3.2. Measures

3.2.1. Dependent Variable

In this paper, the dependent variable is the *level of firm indebtedness*. Indebtedness is a ratio that shows the financial structure adopted by the firm to address its investment policies, i.e., it reflects whether a greater preference is given to debt than to equity or vice versa [32]. Based on previous literature [18], we measure the level of indebtedness as total debt (short- and long-term) divided by total net assets.

3.2.2. Independent Variables

A total of three independent variables representing female presence in different corporate governance bodies have been defined, namely, *female presence in the board of directors*, *female presence in the top management team* and *female presence in the general shareholders' meeting*. In the survey we used to develop the present study, there were three questions asking for the number of women in the board, in the top management team and in the general shareholders' meeting of the firm, respectively. With this information and knowing the total number of members in each corporate governance body (information which was asked also in the survey), we defined the following variables. First, *female presence in the board of directors*, calculated as the number of female directors divided by the total number of directors. Second, *female presence in the top management team*, measured as the ratio of the number of female managers to the total number of managers. Finally, *female presence in the general shareholders' meeting*, calculated as the division of the number of female shareholders by the total number of shareholders.

3.2.3. Control Variables

Our analysis includes several control variables that can influence the level of indebtedness within a firm. First, since older firms may require less debt because they tend to grow at a slower rate and may have accumulated internal funds over time [78], we controlled for *firm age*, which was measured as the natural logarithm of the number of years since the firm's inception until 2016 [79]. Second, as large firms have advantages over small firms (more investment opportunities to grow, solvency or reputation in society, among others), which are expected to favour the attraction of more financing and considering that the inclusion of women in corporate governance bodies depends on *firm size* [80,81], we took into account such variable in our models. The measurement of firm size is a topic of considerable debate in the current literature on indebtedness, as the way firm size is measured can have different implications on the estimated results [81,82]. In our case, firm size was measured through the natural logarithm of total sales, as sales tend to exhibit a positive trend towards the level of indebtedness compared to other measures such as the number of employees or total assets, which can lead to misleading results [82,83]. Total assets and the number of employees will serve as alternative firm size measures in the robustness tests section. Third, given the focus of this study on family firms, we also controlled for *family ownership*, measured as the percentage of firm equity in the family's hands [84,85]. Finally, we followed previous studies using economic and financial profitability as control variables when analysing the level of indebtedness [18,78]. *Economic profitability* was measured as the ratio of earnings before interest, taxes, depreciation, and amortisation to invested capital [32]. *Financial profitability* was measured as the ratio of earnings before interest, taxes, depreciation, and amortisation plus financial incomes minus financial expenses and taxes, to shareholders' equity [86]. To avoid potential problems with the logarithmic transformation of negative values, we added 1 to all original values of economic and financial profitability before calculating the logarithms [76,87].

3.3. Analytical Method

In this paper, we performed ordinary least squares (OLS) regression analysis to examine the influence of female presence in the board of directors, top management team, and general shareholders' meeting, respectively, on the level of firm indebtedness. In our

specific case, the OLS regression technique is the best approach to test the hypotheses because of the continuous nature of the dependent variable (indebtedness) [88,89]. In addition, we tested the assumptions of normal distribution, homogeneity of variance and multicollinearity to ensure that OLS regressions are suitable for studying the proposed relationships. The obtained findings indicated that OLS is the best statistical approach to test our hypotheses. Hence, to comply with the study's goals, we developed the following regression models:

$$\text{Level of indebtedness} = \beta_0 + \beta_1 \text{Firm age} + \beta_2 \text{Firm size} + \beta_3 \text{Family ownership} + \beta_4 \text{Economic profitability} + \beta_5 \text{Financial profitability} + \beta_6 \text{Female presence in the board of directors} + \varepsilon \quad (1)$$

$$\text{Level of indebtedness} = \beta_0 + \beta_1 \text{Firm age} + \beta_2 \text{Firm size} + \beta_3 \text{Family ownership} + \beta_4 \text{Economic profitability} + \beta_5 \text{Financial profitability} + \beta_6 \text{Female presence in the top management team} + \varepsilon \quad (2)$$

$$\text{Level of indebtedness} = \beta_0 + \beta_1 \text{Firm age} + \beta_2 \text{Firm size} + \beta_3 \text{Family ownership} + \beta_4 \text{Economic profitability} + \beta_5 \text{Financial profitability} + \beta_6 \text{Female presence in the general shareholders' meeting} + \varepsilon \quad (3)$$

4. Data Analysis and Results

4.1. Descriptive Results

Table 1 presents the descriptive statistics of the analysed variables. Starting with the control variables, it can be seen that firm size, which is determined by the natural logarithm of total sales, has a mean value of 8.31, ranging from 5.45 to 13.13. The average age of the sample firms, expressed in logarithm, is 3.47, with a maximum of 6.92 and a minimum of 1.61. The economic profitability shows an average value of 9.64%, ranging from −51.00% to 39.00%, meanwhile, the financial profitability shows a mean value of 18.14%, and ranges from −47.00% to 51.74%.

Table 1. Descriptive statistics.

Variables	Mean	SD	Minimum	Maximum
Level of indebtedness	0.55	0.26	0.04	0.90
Female presence in the board of directors	13.29	23.21	0.00	100.00
Female presence in the top management team	9.89	20.60	0.00	100.00
Female presence in the general shareholders' meeting	8.79	18.25	0.00	75.00
Firm age	3.47	0.68	1.61	6.92
Firm size	8.31	1.27	5.45	13.13
Family ownership	96.30	10.72	33.30	100.00
Economic profitability	9.64	10.90	−51.00	39.00
Financial profitability	18.14	23.12	−47.00	51.74

N = 137. SD = standard deviation.

Regarding the dependent variable, i.e., the level of indebtedness, its mean value is 0.55, with a minimum of 0.04 and a maximum of 0.90.

Finally, concerning the independent variables, Table 1 reveals that the average female presence in the board of directors is 13.29%, ranging from 0.00% to 100.00%. The average percentage of female presence in the top management team is around 9.89%. It should be noted that the involvement of females on the top management team reaches a maximum of 100.00%. Finally, females are present at general shareholders' meetings of the analysed firms with a percentage of 8.79%, and this percentage oscillates between 0.00% and 75.00%.

Table 2 reports the Pearson correlations between the studied variables. As can be observed, both female presence in the board of directors ($p < 0.05$) and female presence in the top management team ($p < 0.1$) are negatively and significantly correlated with the level of indebtedness. Moreover, firm age ($p < 0.1$) and economic profitability ($p < 0.05$) are also negatively correlated to the level of indebtedness, while financial profitability ($p < 0.01$) is positively and significantly correlated to the dependent variable. Table 2

shows that the intercorrelation between explanatory variables is moderate, suggesting that multicollinearity is unlikely to be a serious problem in this study [90].

Table 2. Correlation matrix.

Variables	1	2	3	4	5	6	7	8	9
1. Level of indebtedness	1.000								
2. Female presence in the board of directors	−0.174 **	1.000							
3. Female presence in the top management team	−0.128 *	0.318 ***	1.000						
4. Female presence in the general shareholders' meeting	−0.097	0.566 ***	0.354 ***	1.000					
5. Firm age	−0.113 *	−0.027	−0.072	0.002	1.000				
6. Firm size	0.066	0.031	0.118*	0.057	0.026	1.000			
7. Family ownership	0.057	0.038	−0.042	−0.032	0.003	−0.200 **	1.000		
8. Economic profitability	−0.187 **	−0.056	0.064	0.066	−0.032	0.229 ***	−0.097	1.000	
9. Financial profitability	0.331 ***	−0.010	−0.045	0.122 *	−0.021	−0.104	0.023	0.038	1.000

N = 137. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

4.2. Regression Results

Table 3 presents the results of the OLS regressions. Model 1 corresponds to the baseline model, including only control variables. The independent variables are then included in Models 2, 3 and 4, respectively. Finally, Model 5, the full model, includes all three variables related to the female presence in corporate governance bodies simultaneously. We also tested for the presence of multicollinearity in the different regression models. The variance inflation factor (VIFs) of all predictor variables is well below the acceptable threshold of 4, with values ranging from 1.01 to 1.62, thus indicating that multicollinearity does not contaminate our results.

Model 1 indicates that firm size ($\beta = 0.038$; $p < 0.05$) has a positive and significant effect on the level of indebtedness of agri-food family firms. On the contrary, firm age has a negative effect on the level of indebtedness, although such effect is not significant ($\beta = -0.051$; n.s.). With respect to the effect of profitability on the level of indebtedness, it can be seen that economic profitability ($\beta = -0.608$; $p < 0.01$) exerts a negative and strongly significant effect on the dependent variable, while financial profitability ($\beta = 0.517$; $p < 0.01$), exerts a positive and significant impact on it. Furthermore, the adjusted R^2 of the model is 0.243 and the model is strongly significant ($p < 0.01$).

Model 2 is also highly significant ($p < 0.01$). The adjusted R^2 increases to 0.277 with the addition of the variable female presence in the board of directors. The control variables behave similarly to those in Model 1. While economic profitability ($\beta = -0.640$; $p < 0.01$) and firm age ($\beta = -0.047$; $p < 0.10$) exert a negative and significant effect on the dependent variable, firm size ($\beta = 0.040$; $p < 0.05$) and financial profitability ($\beta = 0.516$; $p < 0.01$) present a positive and significant effect on it. Furthermore, female presence in the board of directors has a negative and significant effect on the level of indebtedness ($\beta = -0.002$; $p < 0.01$). Thus, hypothesis 1 is strongly supported.

Model 3 includes the variable female presence in top management teams, which corresponds to another of the independent variables. This model is also significant ($p < 0.01$) and shows that female presence in top management teams has a negative and significant effect on the level of indebtedness ($\beta = -0.002$; $p < 0.1$). This result, therefore, supports hypothesis 2. In this model, both the R^2 and the adjusted R^2 decrease with respect to Model 2 to a value of 0.285 and 0.252, respectively.

Table 3. OLS regression analysis results.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff. (RSE)	VIFs	Coeff. (RSE)	VIFs	Coeff. (RSE)	VIFs	Coeff. (RSE)	VIFs	Coeff. (RSE)	VIFs
Female presence in the board of directors			−0.002 *** (0.001)	1.01					−0.002 ** (0.001)	1.55
Female presence in the top management team					−0.002* (0.001)	1.02			−0.001 * (0.001)	1.20
Female presence in the general shareholders' meeting							−0.002 * (0.001)	1.02	−0.001 (0.001)	1.62
Firm age	−0.044 (0.029)	1.01	−0.047 * (0.028)	1.01	−0.048 * (0.029)	1.01	−0.044 (0.028)	1.01	−0.048 * (0.028)	1.01
Firm size	0.038 ** (0.016)	1.11	0.040 ** (0.016)	1.11	0.041 ** (0.016)	1.12	0.040 ** (0.016)	1.11	0.042 ** (0.016)	1.12
Family ownership	0.001 (0.002)	1.05	0.002 (0.002)	1.05	0.001 (0.002)	1.05	0.001 (0.002)	1.05	0.002 (0.002)	1.05
Economic profitability	−0.608 *** (0.192)	1.06	−0.640 *** (0.188)	1.07	−0.597 *** (0.191)	1.07	−0.591 *** (0.190)	1.07	−0.624 *** (0.190)	1.08
Financial profitability	0.517 *** (0.086)	1.02	0.516 *** (0.084)	1.02	0.512 *** (0.085)	1.02	0.538 *** (0.085)	1.03	0.519 *** (0.085)	1.05
Constant	0.205 (0.263)		0.208 (0.257)		0.215 (0.261)		0.210 (0.260)		0.213 (0.258)	
R ²	0.271		0.309		0.285		0.292		0.327	
Adjusted R ²	0.243		0.277		0.252		0.259		0.304	
F	7.749 ***		9.207 ***		8.584 ***		8.865 ***		9.247 ***	

N = 137. Dependent variable = level of indebtedness. RSE = robust standard errors. VIFs = variance inflation factors. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Regarding Model 4, the adjusted R^2 is 0.259 and thus, lower than in Model 2 but a bit higher than in Model 3. Similar to the previous cases, Model 4 reveals that female presence in the general shareholders' meeting has a negative and significant effect on the level of indebtedness of agri-food family firms ($\beta = -0.002$; $p < 0.1$). Hence, the results of this model support hypothesis 3.

Finally, Model 5, the full model, includes simultaneously the three independent variables, that is, female presence in the board of directors, in the top management team and in the general shareholders' meeting. Model 5 corroborates the findings obtained in Models 2 and 3 to the extent that it reveals a negative and significant impact of both female presence in the board ($\beta = -0.002$; $p < 0.01$) and in the top management team ($\beta = -0.001$; $p < 0.1$), on the level of firm indebtedness. Thus, the results again supported hypothesis 1 and hypothesis 2.

In the light of the obtained findings, it can be stated that the three proposed hypotheses are supported, since female representation in the board of directors, in the top management team and in the general shareholders' meeting has been proved to exert a negative influence on the level of indebtedness of agri-food family firms. In other words, the greater the female presence in these corporate governance structures, the lower the level of indebtedness.

4.3. Robustness Tests and Additional Analyses

To substantiate the robustness of our results, we conducted several additional analyses (the results of these tests are available upon authors' request), which are explained below.

4.3.1. Alternative Dependent Variables

We tested several model specifications with alternative dependent variables. To do so, we measured the level of indebtedness as (1) the natural logarithm of the main dependent variable used in this study (to obtain a more normal distribution); (2) the ratio of long-term debt to total assets; and (3) the ratio of long-term suppliers to total assets. The results of these tests are comparable to those obtained in Table 3, except for the last variable, i.e., the ratio of long-term suppliers to total assets, in which the significance of the three hypotheses is reduced ($p < 0.1$).

4.3.2. Alternative Firm Size Measurement

Furthermore, as indicated in the control variables section, we conducted robustness checks using alternative versions of firm size measures based on the number of employees and total assets. The influence of the independent variables on the level of firm indebtedness continues to be the same regardless of the measure of firm size used as control.

4.3.3. Reverse Causality

One might argue that the level of indebtedness may affect how females are recruited in the different firms' corporate governance bodies. While perhaps the best way to test this endogeneity problem is by using a two-stage least squares approach [91], the limited available data makes it difficult to identify the appropriate instrumental variables required by this approach [92]. Therefore, to ameliorate this potential endogeneity problem, we use two different methods. First, we followed the approach proposed by Li et al. [93] and introduced the dependent variable lagged in our models to test for the presence of inertia and persistence and to ensure that the existing autocorrelation does not affect our estimates. The inclusion of the lagged dependent variable enables us to reveal the real effect of the independent variables on the level of indebtedness, as the effects of the omitted variables are captured by the lagged indebtedness and not aggregated to our target variable [94]. The obtained results from this test are comparable to those in Table 3. Second, we drew on the approach suggested by Landis and Dunlap [95] and assessed the potential causality between the level of indebtedness and the female presence in the board of directors, top management team, and general shareholders' meeting. To do so, we set the level of indebtedness as the independent variable and the three variables referring to the female

presence in corporate governance bodies as dependent variables and tested the linkages between them. We found no relationship of the level of indebtedness on female presence in the board of directors, top management team, and general shareholders' meeting, therefore, claims about reverse causality are ameliorated [96].

5. Discussion and Conclusions

The main purpose of this paper was to examine whether the female presence in three corporate governance bodies (board of directors, top management team, and general shareholders' meeting) of family firms in the Spanish agri-food industry influences the level of firm indebtedness. To study such influence, three hypotheses were proposed. The hypotheses were empirically tested by applying OLS regression analysis to a sample of 137 Spanish agri-food family firms.

The results revealed that female presence in boards, in top management teams, and in shareholders' meetings of agri-food family firms, has a negative and significant influence on the level of firm indebtedness (H1, H2 and H3), indicating that the higher the female presence in these corporate governance structures, the lower the level of firm indebtedness.

The results from the first hypothesis are in line with those obtained by Carter and Shaw [61], Smith et al. [62] and Hernández-Nicolás et al. [63], which showed that the female presence in boards of directors increases profitability and reduces the corporate debt ratio.

The findings derived from the second hypothesis are in accordance with prior studies, such as Roper and Scott [24] who showed that female presence in top management teams has an inverse relationship with the level of indebtedness since females are more likely to opt for internal financing. Huang and Kisgen [23] added that an increased female presence in top management teams reduces the likelihood of issuing long-term debt. Additionally, Francis et al. [97] showed that an increase in the number of women in strategic positions reduces the level of indebtedness.

Regarding the third hypothesis, there are not many studies indicating that greater female presence in the general shareholder's meeting is related to decreasing levels of indebtedness. However, in this respect, Joy et al. [57] argued that firms with a higher female presence in the general shareholders' meeting are better organised, leading to better performance, due to women's more ethical practices and greater corporate social responsibility. This better performance can be translated into lower levels of firm indebtedness.

This inverse relationship between a higher female presence in corporate governance bodies and lower indebtedness ratios can also be explained by the fact that women are more risk-averse [33]. In fact, our results are in line with other studies that have addressed the relationship between gender diversity and debt level from a risk-aversion perspective, confirming that female representation in governing structures can ensure better and more conservative business management concerning financial decisions [22,23]. Furthermore, Jianakoplos and Bernasek [37] and Barber and Odean [38] showed that females are more conservative with respect to entrepreneurial risk.

Hence, it can be concluded that female presence in corporate governance structures leads to better firm management, from either a financial, organisational and labour perspective.

5.1. Contributions

This paper makes several important contributions to the literature. First, to the best of the authors' knowledge, this is one of the few studies analysing the influence of female presence in corporate governance on the level of indebtedness within family firms, specifically within agri-food family firms. Moreover, our study goes further than prior research by analysing the influence of female presence in different corporate governance structures (board of directors, top management team and general shareholders' meeting) on indebtedness. Therefore, our study brings the research on family firms closer to the wider knowledge field of corporate finance [18] and contributes to the emergent research path on the presence of women in corporate governance [98,99].

Second, it is important to highlight the private character of the analysed firms. Up to now, this type of firm has been underrepresented in prior research, despite the impossibility of extrapolating those findings resulting from samples of publicly held firms [100]. Accordingly, we deepen on both the governance and the capital structures of private firms to shed some light on the effects of female presence in the financial behaviour of privately held family firms.

Third, as we focus on a sample composed exclusively of family firms, we contribute to the rising research stream of family firm heterogeneity [101,102]. Family firm research has evolved from comparing the “average” family firm and the “average” nonfamily firm, toward the focus on how and why these firms are distinctive [103] and on the variations within this type of firm [1,101]. In this regard, our findings reveal differences in family firms’ indebtedness depending on the level of female presence in corporate governance structures.

Finally, our study deepens in the agri-food industry, which despite its relevance at both the national and international level, has not received enough attention regarding corporate governance or corporate finance issues.

5.2. Practical and Social Implications

The findings in this study also yield some practical and social implications. This study helps to make visible the importance of the female presence in Spanish agri-food family firms’ corporate governance structures, as it shows that the active involvement of women favours a lower indebtedness ratio. It would also help to contribute to the achievement of the Sustainable Development Goal 5 established by the United Nations Global Compact, which aims to achieve gender equality and empower all women and girls. This is of extreme importance in order to build a more inclusive and sustainable business world in which there is no gender discrimination, and everyone has the same opportunities to access a work position, regardless of whether it is at a lower or upper level in a business. Furthermore, this study also offers implications for policymakers and regulators to implement legislation for a diverse gender distribution in the different corporate governance bodies of a firm and to take advantage of the potential benefits of gender-balanced governing bodies, which generally improves the functioning of a firm.

Finally, the obtained results are also intriguing for investors, as they usually promote gender diversity on corporate governance structures [18] and are very concerned about how the presence of females in such corporate governance bodies affects financial strategies.

Hence, the findings highlight the importance of restructuring these corporate governance bodies to increase the female presence in them.

5.3. Limitations and Future Lines of Research

The limitations of this study cannot be ignored. First, it should be noted that the sample firms analysed are located in Spain, so it would be necessary to examine whether similar results would be obtained in other countries. Second, the study focused on family firms, specifically those belonging to the agri-food industry. Therefore, the obtained results would have to be verified by considering other types of firms (either distinguishing by size or by field of specialisation) and other industries, which could be fruitful lines of research. Third, this study employed a cross-sectional design and therefore, the direction of causality is a concern. Although we attempted to reduce its existence using certain alternative techniques, its assessment requires more sophisticated approaches such as instrumental variables or dynamic models. Therefore, future research is encouraged to use longitudinal data to investigate the relationships between female presence in corporate governance bodies and the level of indebtedness. Longitudinal data may allow for better testing of these relationships, as female presence in the different corporate governance bodies may change over time, and its influence on the level of indebtedness may take time to materialise. Finally, the limitations of our database have prevented us from controlling for other key variables, such as audit or board level components, which would have helped

to obtain more precise estimates. All these topics could be novel and interesting and would provide more comprehensive insights into the family firm field.

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