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Family Ownership, Corporate Governance and Risk-Taking

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Abstract: This paper analyses the effect of family ownership and the characteristics of the board of directors on the risk assumed by Spanish non-financial companies. The sample consists of 176 Spanish non-financial companies listed on Spanish stock exchanges during the period 2012–2015. The results show that the level of family ownership concentration affects the level of exposure to risk non-linearly and confirms the importance of the characteristics of the board of directors in risk-taking.

Keywords: family ownership; risk-taking; corporate governance

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1. Introduction

The ownership structure and governance of a company have proven to be important determinants for the level of risk assumed by companies (Tufano 1996; Boubakri et al. 2013). Specifically, Tufano (1996) and Anderson and Reeb (2003) showed that the ownership structure and the participation of managers or directors in handling the capital determine risk exposure. Paligorova (2010) states that major shareholders can influence the level of desire for risk. The effects on risk-taking are significant as they can affect the company's profitability, market value variability and probability of bankruptcy.

In the case of family ownership, rather conservative behaviour has typically been associated with it (Miller et al. 2011; Anderson et al. 2012) since its ultimate objective is not only financial (Gómez-Mejía et al. 2007) and families do not run firms with such short-term forecasts (Su and Lee 2013). However, the degree of control also influences the level of risk (Zahra 2005; Nguyen 2011) because the presence of majority owners is associated with a high level of assumed risk, subjecting managers to considerable control (Iannotta et al. 2007; Nguyen 2011). However, other studies, such as Anderson and Reeb (2003), Su and Lee (2013) and Boubaker et al. (2016) have found the opposite to be true, holding the opinion that the controlling shareholder's investment is not generally diversified. At the same time, the risk profile can change considerably when multiple shareholders own significant shares because they tend to attempt to take on a higher level of risk (Mishra 2011). For this reason, it is expected that the presence of multiple large shareholders (MLS) positively influences risk-taking in a company (Hiebl 2013). In addition, the size and composition of the board can indicate how much of a risk the business has taken (Heslin and Donaldson 1999).

Nonetheless, the relationship between ownership, the board of directors and risk has not been sufficiently explored and the empirical results obtained so far have shown mixed evidence (Paligorova 2010; Marcelo et al. 2015; Zhao and Xiao 2016). Furthermore, on the whole, most of the studies have considered very limited risk measures mainly based on accounting information, as is the case in the paper conducted by Su and Lee (2013) in which only the firm's R&D intensity is taken as a risk variable.

The aim of this paper is to analyse how ownership and the characteristics of the board of directors influence the level of risk to which Spanish non-financial listed companies are exposed. This paper makes various contributions. First and for the specific case of

ownership, it presents evidence on how the family ownership concentration and also if the presence of non-family investors with significant shares affects the risk assumed by the companies. In addition, and in reference to the characteristics of the board of directors, this study focuses on whether the size of the board of directors, the presence of women on said board and the CEO's equity participation affect the level of risk. Thus, this is one of the few studies that has addressed the aforementioned issue, taking a large number of risk indicators into consideration based on market and accounting information as well.

The economic importance of family businesses is beyond doubt. Thus, in Europe, The European Family Businesses (EFB) indicates that the family business makes up for about 65–80% of the total number of companies and are responsible for roughly 40–50% of all jobs. For the specific case of Spain, the Family Business Institute estimates that 1.1 million companies are family owned in Spain, which represents 89% of the total number of companies. This type of company is the largest generator of employment in Spain. Currently, they create 67% of private employment, with a total of more than 6.58 million jobs and are responsible for 57.1% of the private sector GDP. Taking into account the previous data referring to Europe and Spain, it can be said that family businesses in Spain have a very relevant weight. In this sense, it is worth noting that the study is limited to Spain given that it is a market with a multitude of family businesses and with heterogeneous characteristics, which makes it possible for the hypotheses considered to be contrasted.

The results obtained show that the relationship between the level of family ownership concentration and risk has a non-linear structure, so a reduction in risk levels is observed for high and low levels of ownership. If there are numerous shareholders, it does not have much of an impact although it is possible that said results can be affected by the variables considered. Regarding corporate governance, our work confirms how important the type of board of directors is in the area of risk-taking.

The paper is structured as follows: the theoretical framework of reference is presented in the second section; the third section then describes the sample, the variables and the hypotheses used; the fourth section presents the methodology and the results obtained; and finally, the fifth section summarizes the main conclusions.

2. Previous Literature and Ownership Hypotheses

Firstly, we will address the effect of family ownership concentration within a business on the risk assumed. In certain cases, this characteristic is closely related to the participation owned by a family. At a theoretical level, a significant part of the literature has argued that family businesses have low risk-taking (Anderson and Reeb 2003; Faccio et al. 2001) and a high amount of financial stability with rather conservative structures and a low debt level (Welsh and Zellweger 2010; González et al. 2012).

However, this trend can be influenced by numerous factors linked to family participation in a business, the characteristics of the family manager, the environment and competition. One of the factors that can modulate the level of risk assumed is the percentage of participation in the company's capital (Eisenhardt 1989; Palmer and Wiseman 1999). More specifically, Cronqvist and Nilsson (2003) show that large shareholders choose the managers, and they determine the policies to be followed. In short, they are a determining factor for the level of risk taken on by a company. "Agency theory" predicts that managers are risk-averse due to the impact on their reputation and status and their wish to hold on to their job (Jensen and Meckling 1976; Amihud and Lev 1981; John et al. 2008), while shareholders have incentives to increase risks (Esty 1998; Galai and Masulis 1976). For Zahra (2005); Nguyen (2011), family control and concentration are directly associated with increased risk. The agency problem can be mitigated when family owners closely monitor their managers and make it possible for them to be replaced if they are not up to scratch, which often occurs when families have thorough control of their businesses (Franks et al. 2001). Consequently, ownership concentration affects the level of monitoring and risk-taking (Iannotta et al. 2007; Nguyen 2011).

Regarding the impact of ownership concentration on risk-taking, there is no consensus. Some studies find a positive association between ownership concentration and risk (Haw et al. 2010; Laeven and Levine 2009). Companies that are controlled by large shareholders are likely to incur a high level of risk (Amihud and Lev 1981). Furthermore, Beltratti and Stulz (2012) find that banks with several controlling shareholders assume more risk. However, Anderson and Reeb (2003), Su and Lee (2013) and Boubaker et al. (2016) hold the opposite view because they believe that the controlling shareholder's investment is generally not diversified and that they will tend to be more reluctant to take risks. Other authors such as Lee et al. (2018) point out the existence of a non-linear U-shaped (inverted) relationship between family ownership and business risk-taking; for low ownership concentration, risk aversion will prevail, but as participation increases, with greater power as a result, it will make the company assume greater risks due to an increase, firstly, in its profitability and secondly, in risk-sharing with the remaining shareholders. This way of acting is maintained up to a certain threshold, after which the concentration of risk causes safer strategies to be assumed. Along the same lines, Uddin (2016) points out that the relationship between government participation in ownership and risk-taking follows a U-shaped (inverted) pattern. As for Díez Esteban et al. (2013), they reach the same conclusion, but only when there are also investment opportunities. Finally, other researchers (Anderson and Fraser 2000; Gorton and Rosen 1995) also showed that ownership concentration has a non-linear relationship (inverse U) with risk in the banking sector. Furthermore, the shareholders with dispersed ownership have greater incentives to behave with risk neutrality, so for low-risk levels a lower risk is also expected (Demsetz and Lehn 1985; Esty 1998), which would increase at intermediate levels and decrease again at high levels.

Hypothesis 1 (H1). *The concentration of capital affects the risk assumed by a family business in a non-linear way.*

As explained previously, due to the non-diversified nature of family ownership, families have valid reasons for reducing their levels of risk-taking (Boubaker et al. 2016). The other side of the coin, such as Villalonga and Amit (2006), is that families are inclined to diversify their companies to compensate for their lack of personal diversification. In addition, family owners have strong incentives to protect their private benefits of control (Anderson and Reeb 2003; Faccio et al. 2001; John et al. 2008). Motives for extracting benefits of control are also stronger in family businesses because the financial rewards are only for family members and not shared between various different owners (Villalonga and Amit 2006). Lins et al. (2013) revealed that during crisis periods, family controlled companies were biased towards survival-oriented actions that helped preserve family control benefits at the expense of the external shareholders. In addition, the greater their excess control rights over their cash flow rights are (excessive control), the lower the risk of the company is (Boubaker et al. 2016).

However, the risk profile can change considerably when there are a high number of relevant shareholders, most of whom assume a high level of risk (Mishra 2011). In companies with a majority shareholder, in family businesses in particular, when there are other large shareholders, it restricts the influence of the majority shareholder and increases the power of minority shareholders to challenge corporate decisions that are detrimental to their interests (Boubaker et al. 2016). Shareholders with great wealth at stake have similar motives to monitor the companies, but fewer opportunities to extract private benefits. Therefore, their main concern should be its value creation activities, especially when it is family-run or a financial institution (Boubaker et al. 2016). For this reason, it is expected that MLS can positively influence a company's level of risk-taking (Hiebl 2013).

When there is a shareholder who is the second largest in a firm, there is considerable risk associated with it when it is a financial institution or another family business (Boubaker et al. 2016).

Hypothesis 2 (H2). *The presence of non-family investors with relevant participations in the capital increases the level of risk assumed by the company.*

The board of directors can play an important role in the level of risk assumed by the company since it has the power to dismiss and reward managers (Lin et al. 2011), control management, protect shareholders' interests and select the auditor. The size and composition of the board may be relevant for explaining the risk assumed by the company (Heslin and Donaldson 1999). In the field of social psychology and organisational behaviour, it is suggested that the size of the decision group implies notable difficulty in reaching agreements for high-risk projects and facilitates sensible alternatives in order to strongly concur with them (Wallach and Kogan 1965; Sah and Stiglitz 1991). In our field, Cheng (2008) showed that US companies with large boards were associated with low return volatility (low risk) since they required more commitments to reach a consensus, consequently leading to fewer extreme decisions being taken. On the other hand, Nakano and Nguyen (2012) showed that the size of the board was also negatively related to the assumption of risks in Japanese companies. Huang and Wang (2015), Wang (2012) and Yermack (1996) concluded in their papers that the size of the board had a negative impact on the company's risk-taking.

Hypothesis 3 (H3). *The size of the board of directors negatively affects the risk assumed by the company.*

The vast majority of boards of directors are made up of men. The existing literature shows that women tend to be more risk-averse than men (Croson and Gneezy 2009; Niederle and Vesterlund 2007) and less aggressive in choosing strategies, having a more sustainable perspective on investment decisions (Apesteguia et al. 2012; Charness and Gneezy 2012). Among others, Palvia et al. (2015) and Faccio et al. (2016) examined the association between female CEOs and business risk. They concluded that by appointing women, corporate risk decreased, as they made fewer risky decisions.

It should be noted that there is no unanimity in the results drawn from this topic, so Sila et al. (2016) indicated that there was no evidence that female representation on the board affected risk. Conversely, the conclusions of Adams and Funk (2012) indicated that women who managed to access managerial positions differed from other women by being less traditional and more risk-loving and even having greater predisposition to risk than the other board members. Berger et al. (2014) reached similar inferences in their study which focused on German financial institutions.

Hypothesis 4 (H4). *The presence of women on the board of directors reduces risk-taking.*

There are a number of studies that indicate a positive relationship between the CEO's equity participation and the propensity to take risks (Hill and Snell 1988; Esty 1998; Lewellyn and Muller-Kahle 2012). However, there are authors such as De Miguel et al. (2004) who argue that this behaviour continues until managers reach a certain level of equity participation, by which point, their aversion to risk has increased within what is called the entrenchment theory (Morck et al. 1988). However, the results on this subject are not unanimous (Zou and Adams 2008) such as the studies of Agrawal and Mandelker (1987) and Amihud and Lev (1981) which indicated a predominance of risk aversion. In turn, the work of Zou and Adams (2008) showed that managerial ownership had little effect on company risk in China.

Hypothesis 5 (H5). *The existence of shareholder directors positively affects the level of risk.*

3. Empirical Analysis

The empirical analysis has been conducted based on information obtained from the SABI database and Morningstar Direct. The sample has been made up of the 179 Spanish

companies listed on the stock market, excluding financial and real estate companies. Data related to ownership and other economic-financial information has been extracted from the SABI database. This information has been complemented with the risk indicators available in the Morningstar Direct database. We have used various metrics based on market and accounting information as risk indicators. The independent variables are mainly formed of the percentage of ownership in the hands of family or individual investors, the presence of institutional investors and other indicators related to the characteristics of the board of directors. Our intention is to analyse the impact that ownership and the characteristics of the board of directors has on the risk assumed by Spanish listed companies.

3.1. Variables Used

We proceed to define the variables used.

3.1.1. Dependent Variables

Following González et al. (2016), we have used different risk indicators, both based on the market and on accounting information. Specifically, various market variables have been considered such as the Quantitative Financial Health Score as it is an indicator of the probability of bankruptcy, the Beta, as an indicator of systematic risk and volatility and VaR as measures of the risk to which an investor is exposed. The Altman Z-score has also been included as an indicator of the probability of bankruptcy based on accounting data. The variables considered are described below in Table 1.

Table 1. Evolution of the risk-representative variables.

	N	**2012**	**2013**	**2014**	**2015**
QFHS	445	0.4764	0.5329	0.5631	0.5923
VaR	488	15.6110	11.2090	14.4929	13.2153
Beta	457	0.8225	0.7498	0.8499	0.9983
Volatility	457	25.2533	24.7040	24.5470	25.2364
Z-score	441	0.9381	0.6737	1.0660	1.0083
		Descriptive statistics			
	N	**Mean**	**Std. Dev.**	**Min**	**Max**
QFHS	445	0.5512	0.2097	0.0000	0.9634
VaR	488	13.5991	12.3249	0.0000	86.3736
Beta	457	0.8575	0.6234	−1.0440	3.7116
Volatility	441	24.9294	14.2794	7.7277	66.7053
Z-score	457	0.9171	1.6612	−19.4556	19.5528

Source: own elaboration.

The values show an evolution without a clear trend, with variation within a moderate interval.

Regarding the correlation between the market-based risk indicators, see Table 2, high and positive values can be observed between volatility, Beta and VaR, with the opposite sign being true for the Quantitative Financial Health Score since a higher value is indicative of a lower probability of bankruptcy. The same has occurred in the case of the Z-score, which, despite being based on accounting information, has a high correlation with the QFHS, volatility and VaR.

Table 2. Correlation matrix between the different risk variables.

	QFHS	**VaR**	**Beta**	**Volatility**	**Zscore**
QFHS	1				
VaR	−0.6561	1			
Beta	−0.4152	0.463	1		
Volatility	−0.7083	0.8268	0.5246	1	
Zscore	0.4514	−0.3828	−0.2153	−0.4241	1

Source: own elaboration.

In Table 3, we can see the definition of risk-related variables.

Table 3. Summary of risk-related variables.

Variables	Definition	Source
Quantitative Financial Health Score	Quantitative rating based on the measurement developed by Morningstar on the probability of experiencing a financial crisis.	Morningstar Direct
Value at Risk	Maximum loss that an investor can obtain in a portfolio at a given term under normal market conditions, in a period of time given by the current activity and with a given confidence level $(1-p)$ such as: $VaR_p(Y) = Prob(Y \geq Y^*) = p$	Morningstar Direct
Beta (systematic risk)	$R_i = \alpha + \beta_i R_{m,t} + \epsilon_i$	Morningstar Direct
Volatility	Standard deviation of the returns of an asset or portfolio. Quantification of market risks, which represents a dispersion measure of the returns with respect to the average of the returns in a given period.	Morningstar Direct
Altman Z-score	$Z = 0.104\ X_1 + 1.010\ X_2 + 0.106\ X_3 + 0.003\ X_4 + 0.169\ X_5$	Sabi

Source: own elaboration.

3.1.2. Independent Variables

Taking into account the above, we have considered the variables listed below to specify our explanatory risk model.

Variables Related to Ownership Concentration

Firstly, we have taken into consideration a continuous variable that represents the percentage of capital concentrated in individual investors or families (Famcont). As shown in Table 4, participation in the capital of Spanish family businesses is very common, with an average value of 40%. In 10% of the cases, the capital controlled exceeds 85%, while in another 10% there is no presence of families or other individual investors in the shareholding.

Table 4. Distribution of the proxy for family ownership.

Variable	Observations	Mean	SD	Min	Max
Famcont	716	0.409	0.286	0	1

Source: own elaboration.

The presence of other owners has also been taken into account, particularly in investment funds (IFcont). As discussed previously, if there are many relevant shareholders it can positively influence risk-taking (Mishra 2011).

Variables Related to the Characteristics of the Company's Governance

Regarding corporate governance, see Table 5, information related to the number of members that make up the board of directors (Totalmembers) has been used. In addition, the number of women that make up the board of directors (Boardwom) and the number of shareholders who are members of the board of directors (Sharboard) has been calculated. In general, companies opt for boards with an average size of 14 members, although in some cases they may have as many as 40 representatives. Women participate in practically all boards, although they are always outnumbered to the extent that, of the 14 members previously mentioned, the average number of women is only 1.5. Additionally, in more than 85% of cases, the managers are shareholders, an element that can help align interests. Finally, we must indicate that a high percentage of the members of the board of directors (31.2%) are also company shareholders.

Table 5. Characteristics of the corporate governance.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Totalmembers	716	14.41899	8.238941	3	40
Boardwom	716	1.586592	1.701349	0	8
Sharboard	716	4.530726	4.313959	0	23

Source: own elaboration.

Table 6 shows all the variables considered that relate to ownership and corporate governance.

Table 6. Summary of ownership and corporate governance variables.

Name	Specification
Relating to company ownership	
Famcont	% of capital in the hands of family
IFcont	% Investment fund held by companies listed on the stock exchange
Relating to corporate governance	
Totalmembers	Total members that make up the board of directors of companies listed on the stock exchange
Boardwom	Number of female members on the board of directors
Sharboard	Number of shareholders that make up the board of directors

Source: own elaboration.

3.1.3. Control Variables

To establish the control variables, we have taken into account previous studies that have analysed risk related to size (Ang et al. 1985; Kim et al. 2002), liquidity (Moyer and Chatfield 1983; Borde 1998), solvency (Borde 1998; Laeven and Levine 2009; Lee and Jang 2007) and profitability (Borde 1998; Fiegenbaum and Thomas 1988).

Based on the above, the definition of these variables can be seen in Table 7.

Table 7. Definition of control variables.

Variable	Definition
Size	Logarithm of total assets
Liquidity	Current assets/Current liabilities
Solvency	Equity/Non-current assets
Economic profitability or ROA	EBIT/Total assets

Source: own elaboration.

Table 8 shows the values of the control variables considered in the study. As can be seen, the companies are heterogeneous in terms of size, liquidity, solvency and profitability.

Table 8. Summary of control variables.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Logta	572	12.37317	2.190238	6.598531	16.96684
Ratliq_	572	1.246647	1.204686	0.006	6.739
Coefsol_	572	43.97115	27.553	−92.24	98.862
Rroa_	572	0.3376346	14.02567	−73.205	62.517

Source: own elaboration.

Besides this, in general there is not a very high correlation between the variables considered, except in the case of profitability and solvency. As can be seen below (see Table 9), the coefficient exceeds 85%, so it is necessary to monitor whether its inclusion in the models can cause multicollinearity problems.

Table 9. Correlation coefficient between control variables.

	Logta	Ratliq_	Coefsol_	Rroa_
Logta	1			
Ratliq_	−0.1003	1		
Coefsol_	0.1263	0.124	1	
Rroa_	−0.0917	−0.0319	0.8513	1

Source: own elaboration.

Table 10 displays all the variables considered, as well as the expected sign in each case, which has already been explained in the underlying hypotheses and in the definitions of the variables.

Table 10. Variables and initial hypotheses.

	Expected Relationship
Variable	**Risk**
Related to Property	
Famcont	Inverted-U
IFcont	+
Related to Corporate Governance	
Totalmembers	−
Boardwom	−
Sharboard	+
Control variables	
Logta	−
Ratliq	+
Coefsol	−
Rroa	−

Source: own elaboration.

4. Methodology

The methodology used to evaluate the hypotheses generated is the estimation of multiple regression models applied to the panel of data that is available to us. This methodology enables individual unobservable heterogeneity to be controlled as well as advantages such as a reduction in collinearity and considerable efficiency, to mention but a few (Baltagi and Pirotte 2010). It also allows the number of degrees of freedom to be increased, the level of collinearity and controls for individual effects to be reduced, and last of all, the introduction of biases that could arise to be avoided due to the existence of characteristics such as management quality or risk-aversion, which are difficult to measure or obtain (Baltagi and Moscone 2010; Hsiao 2005). We have used a random effects model because the variables related to the board and ownership are quite invariant over time (Mollah and Zaman 2015).

4.1. Estimated Model for the Family Ownership Variable

Below, we have displayed the proposed model that links the variable related to concentration in the hands of individual investors or families with the risk assumed:

$$Risk_{it} = \beta_0 + \beta_1 Famcont_{it} + \beta_2 Famcont^2{}_{it} + \beta_3 Famcont^3{}_{it} + \beta_4 IFcont + \sum_{J=2}^{k} \beta_J X_J + \sum_{i=1}^{T} \beta_i Year_i + \sum_{k=1}^{J} \beta_k Sector_k + \varepsilon_{it}$$

where:

Famcont represents the degree of concentration of capital in the hands of families or individuals.
IFcont is the degree of concentration of capital multiplied by investment funds,
X_J are the control variables.
$Year_i$ are the dummy variables relating to the period to which the data corresponds.
$Sector_k$ collects a set of dummies related to the sector to which the company belongs to.

Table 11 shows that the Famcont variable is significant in several of the estimated models, with a clearly non-linear pattern. Thus, our results support the argument that an increase in the concentration level positively influences the level of risk assumed up to a certain level, at which point the relationship is reversed. Consequently, our results are consistent with the previous literature that supports a non-linear relationship (Lee et al. 2018; Uddin 2016; Anderson and Fraser 2000; Gorton and Rosen 1995). In the same way, when shareholders have significant control of the company, they are more motivated to take great risks in order to try to obtain more profitability since the risk is shared with the rest of the shareholders. However, from a certain level, given that shareholders assume most of the risk taken and as their investment might not be diversified, they tend to be more averse to taking risks. For very high concentrations, the problem posed by the agency theory (principal-agent) would be mitigated by the alignment between the interests of shareholders and managers. Both have a more risk-averse profile: the shareholders because of the highly concentrated risk and the managers because they prioritize the maintenance of their status and their professional career (John et al. 2008). In spite of this, in our work we have learned that at very low control levels, there is also a tendency to increase risk, identified a U-shaped relationship for low control levels and discovered another inverted-U relationship for higher levels. Perhaps this is due to the higher risk assumed by companies in which there is diffused ownership, as seen in Anderson and Reeb (2003), Su and Lee (2013) and Boubaker et al. (2016), except that in this case, it is only applicable at very low ownership concentration levels. Furthermore, on the one hand, when the concentration is low, it could be understood that the shareholders' investment is more diversified and on the other hand, shareholders' meetings are larger and less independent, which could cause a deviation from optimal risk-taking.

Table 11. Models considering ownership variable.

Variable	QFHS	VaR	Zscore	Beta	Volatility
Famcont	1.0923 **	−2.6328	1.358	−1.9705	−67.9865 **
Famcont2	−2.9337 **	9.2583	−4.0104	6.6690 **	205.8401 **
Famcont3	2.0457 **	−6.8975	2.8247	−5.3086 **	−154.4286 **
IFcont	−0.1664	1.5906	−0.798	0.4678	8.5501
Logta	0.0092	−0.0451	0.0125	0.0451 **	−1.3705 *
Ratliq_	0.0027	−0.003	0.0907 ***	−0.0192	−0.8645 *
Rroa_	0.0030 ***	−0.0087 ***	0.0229 ***	−0.0047 *	−0.1534 **
Year dummies	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES
_cons	0.3899 ***	2.6422 ***	0.6152	0.3954	46.2805 ***
N	376	373	404	396	396
r2_o	0.286	0.1015	0.5123	0.1318	0.211

Note: This table shows the estimates of the models using panel data (random effects), where we have used different measures of risk as dependent variables. Famcont is a proxy for the percentage of capital in the hands of family or individual investors. IFcont is the concentration level of capital by investment funds. Logta is the logarithm of the total assets of the company. Ratliq is the liquidity ratio and Rroa is profitability. Temporal and sectoral dummies have also been included. * Significant at 10%. ** Significant at 5%. *** Significant at 1%. Source: own elaboration.

If there are many relevant shareholders, this can cause an increase in the level of risk assumed (Mishra 2011) since the existence of other large shareholders restricts the influence of the majority shareholder (Boubaker et al. 2016). Shareholders who also risk a significant part of their assets but have fewer opportunities to extract private benefits, try to take more risk to seek higher returns (Boubaker et al. 2016). Therefore, it is often expected that MLS positively influence a company's risk-taking (Hiebl 2013).

As we can see, the inclusion of the *Ifcont* variable, which is representative of the level of capital in the hands of investment funds, has not been significant, although the sign of the relationship with all the variables representing risk coincides with what had been expected. Therefore, from our findings it does not seem that other major shareholders are risk drivers of Spanish-listed companies.

Regarding the control variables, we can observe that profitability has a negative relationship with level of risk, in as much as the most profitable companies have the greatest financial stability, measured in terms of QFHS or Z-score, and reduce the risk of decline (VaR), systematic risk and volatility. Similar results have been obtained for the liquidity variable, although it is only significant in the cases of Z-score and volatility. Finally, size reduces volatility, but increases systematic risk.

4.2. Estimated Model including Corporate Governance Variables

As we have anticipated, certain characteristics of the board of directors such as size, gender or the presence of shareholders can have a significant influence on the risk that a company assumes. For this reason, we have proposed a new model that incorporates variables from the company's governance related to these aspects. Below, we have included the proposed model that connects the variable relating to concentration in the hands of individual investors or families with the risk assumed:

$$\begin{aligned} Risk_{it} = \quad & \beta_0 + \beta_1 Famcont_{it} + \beta_2 Famcont^2{}_{it} + \beta_3 Famcont^3{}_{it} + \beta_4 Totalmemb \\ & + \beta_5 Boardwom + \beta_6 Sharboard + \sum_{J=2}^{k} \beta_J X_J + \sum_{i=1}^{T} \beta_i Year_i \\ & + \sum_{k=1}^{J} \beta_k Sector_k + \varepsilon_{it} \end{aligned}$$

where:

Famcont represents the degree of concentration of capital in the hands of families or individuals.
Totalmemb represents the number of members that make up the board of directors of companies listed on the stock exchange.
Boardwom represents the number of women that make up the board of directors.
Sharboard represents the number of shareholders that are members of the board of directors.
X_J represents the control variables.
$Year_i$ represents the dummy variables relating to the period to which the data correspond.
$Sector_k$ collects a set of dummies related to the sector to which the company belongs.

The results of our analysis have shown that the number of members on the board of directors leads to greater risk, measured by the Altman Z-score (see Table 12). It is not significant in the rest of the variables, but in general, the sign indicates a positive relationship between board size and risk. In this way, the result obtained is the opposite sign to what is expected, meaning that a greater number of members is not associated with less risk-taking, but quite the opposite.

Regarding gender, it has been observed that the more women there are, the less risk-taking occurs in companies, which is measured by the Altman Z-score and volatility. In this regard, the results support the more conservative behaviour of women, which is in line with Poletti-Hughes and Briano-Turrent (2019) for the case of family firms. As a consequence, in the case that there are more women, more conservative action is imposed on the board of directors, which puts the solvency of the company first.

The shareholder and director variable has also been significant, with a positive relationship between the number of shareholders who are also directors and the risk level measured via QFHS and Beta being maintained. This study has demonstrated that the shareholders present on the board cause decisions that increase the company's risk level. Shareholders can control managers and make decisions that affect the risk level via the board of directors. These results support the approaches of the agency theory, which holds that managers are risk-averse (Jensen and Meckling 1976), while shareholders have incen-

tives to increase risks (Esty 1998; Galai and Masulis 1976). Thus, the data show that the shareholders in management boards act as a control mechanism for conservative managers. These figures are in line with those of Pathan (2009), whose results show that US holding companies take considerable risks if they have substantial shareholder representation on their boards.

Table 12. Models considering corporate governance variables.

Variable	QFHS	VaR	Zscore	Beta	Volatility
Famcont	1.1380 ***	−2.1143	0.9592	−2.2065 *	−69.9448 **
Famcont2	−2.9824 ***	7.5214	−2.7014	6.9738 **	209.8826 **
Famcont3	2.0506 **	−5.451	1.8419	−5.3452 **	−157.0536 ***
Totalmembers	−0.0003	0.0085	−0.0264 ***	0.006	−0.0283
Boardwom	0.0133	−0.0201	0.0854 **	0.0088	−1.1021 *
Sharboard	−0.0094 **	0.0309	0.0236	0.0218 *	0.3471
Logta	0.014	−0.0728	0.0096	0.008	−1.201
Ratliq_	0.0011	−0.0025	0.0854 ***	−0.0193	−0.7465
Rroa_	0.0029 ***	−0.0086 **	0.0227 ***	−0.0047 *	−0.1512 **
Year dummies	YES	YES	YES	YES	YES
Industry dummies	YES	YES	YES	YES	YES
_cons	0.3237 ***	2.9875 ***	0.6856	0.7282 *	46.1742 ***
N	376	373	404	396	396
r2_o	0.3102	0.1205	0.5427	0.149	0.2228

Note: This table shows the estimates of the models using panel data (random effects) where we use different measures of risk as dependent variables. Totalmembers is the number of members of the board of directors. Boardwom represents the percentage of women on the board. Sharboard is the percentage of shareholders who are also directors. Logta is the logarithm of the total assets of the company. Ratliq is the liquidity ratio. Rroa is profitability. Temporal and sectoral dummies have also been included. * Significant at 10%. ** Significant at 5%. *** Significant at 1%. Source: own elaboration.

5. Robustness

For robustness, we have added pooled estimates with robust errors (see Table 13), where it can be seen that there are no major differences with respect to the random effects model, except for there being many variables that are significant in the pooled model, while there are none in the random one. We consider the random effects model to be the most appropriate because it deals with unobservable heterogeneity more efficiently. Additionally, the Breusch–Pagan Lagrange Multiplier (LM) tests reject the adequacy of the pooled model.

Table 13. Pooled estimates of the main models.

Variable	QFHS	VaR	Zscore	Beta	Volatility
Famcont	1.1121 ***	−2.0637 *	0.6798	−2.4939 **	−63.3859 ***
Famcont2	−2.5530 ***	4.6974	−1.412	7.3924 ***	172.9136 ***
Famcont3	1.6209 ***	−2.8152	0.8689	−5.5597 ***	−123.5589 ***
IFcont	−0.2324 **	0.8603	−0.3204	0.5654	6.9723
Totalmembers	0.0003	0.0103 *	−0.0246 ***	0.0039	0.0018
Boardwom	0.0061	−0.0105	0.0635 ***	0.011	−0.6869 *
Sharboard	−0.0102 ***	0.0307 ***	0.0248 ***	0.0211 **	0.3488 **
Logta	0.0206 ***	−0.1350 ***	−0.0156	0.0183	−1.1279 **
Ratliq_	0.0149	−0.0332	0.1378 ***	−0.0276	−1.4347 ***
Rroa_	0.0061 ***	−0.0183 ***	0.0380 ***	−0.0073 ***	−0.3131 ***
Industry dummies	YES	YES	YES	YES	YES
_cons	0.2380 ***	4.0279 ***	0.9790 ***	0.5707 **	42.4665 ***
N	376	373	404	396	396
Breusch-Pagan LM-Test (Chi-square)	82.66	7.89	209.21	90.95	95.44

***, **, and * denote level of significance at 1%, 5%, and 10%. Source: own elaboration.

Furthermore, Petersen (2009) indicates that many papers fail to adjust standard errors appropriately. To deal with the problems of spatial and temporal dependence, we have implemented Driscoll and Kraay's (1998) model (Table 14), which produces consistent

standard errors that are robust to very general forms of error dependence. Overall, the results support the validity of the models used.

Table 14. Estimations using Driscoll and Kraay's (1998) model.

Variable	QFHS	VaR	Zscore	Beta	Volatility
Famcont	1.1121 ***	−2.0637 **	0.6798	−2.4939 ***	−63.3859 ***
Famcont2	−2.5530 ***	4.6974 **	−1.412	7.3924 ***	172.9136 ***
Famcont3	1.6209 ***	−2.8152 *	0.8689	−5.5597 ***	−123.5589 ***
IFcont	−0.2324 ***	0.8603	−0.3204 ***	0.5654 ***	6.9723
Totalmembers	0.0003	0.0103 ***	−0.0246 ***	0.0039 *	0.0018
Boardwom	0.0061 *	−0.0105	0.0635 ***	0.011	−0.6869 ***
Sharboard	−0.0102 ***	0.0307 ***	0.0248 ***	0.0211 ***	0.3488 ***
Logta	0.0206 ***	−0.1350 **	−0.0156 ***	0.0183	−1.1279 *
Ratliq_	0.0149	−0.0332	0.1378 ***	−0.0276	−1.4347 *
Rroa_	0.0061 ***	−0.0183 ***	0.0380 ***	−0.0073 ***	−0.3131 ***
Industry dummies	YES	YES	YES	YES	YES
_cons	0.1601 ***	0	0	0	0
N	376	373	404	396	396

***, **, and * denote level of significance at 1%, 5%, and 10%. Source: own elaboration.

6. Conclusions

In this paper, we have evaluated the effect of corporate ownership and governance on the risk assumed by a business. Regarding ownership in particular, we are interested in the effect of ownership concentration in family businesses, because it is usually assumed that they tend to adopt very conservative strategies, seeking to preserve their long-term survival. The results obtained show that the relationship between the level of family ownership concentration and risk has a non-linear structure. On the one hand, a U-shaped relationship for low levels of ownership could be explained by the high risk found in companies with diffused ownership (Anderson and Reeb 2003; Su and Lee 2013; Boubaker et al. 2016). On the other hand, an inverted U-shaped relationship for high levels of ownership is produced because shareholders are keen to take on significant risk to make profits, but when the level of ownership is very high, they assume most of the risk taken and as their investment may not be diversified, they tend to be highly risk averse. Consequently, in part the results agree with those of the works of Lee et al. (2018) and Uddin (2016), but in our specific case we have also found a U-shaped relationship for low levels of ownership.

We have also studied the effect of the presence of many shareholders with major holdings on the level of risk assumed. The previous literature supports greater risk-taking, and our work agrees with the sign of the relationship, but they have not been significant. These results may be affected by the variables considered, which have simply taken into account the presence of investment funds. Regarding the variables related to corporate governance, the importance of the characteristics of the board of directors in taking risks has been confirmed. In this regard, we have observed that large boards expose companies to a great deal of risk. This effect can be counteracted when there are women involved, owing to the fact that if there are many, there tends to be a conservative strategy. Finally, if there are a large number of directors who are shareholders in companies, the risk is increased, showing that they are effective tools for controlling risk-averse managers.

Therefore, the results confirm that the risk to which the company is exposed significantly depends on the decisions made by the people involved in its management, namely owners and control bodies. Firms with a high or low concentration of family capital, without financial blockholders, are very conservative, especially if there is gender diversity on their board of directors. Conversely, director shareholders and large boards encourage risk-taking. These results are relevant for institutions concerned with the level of risk assumed by the companies in which they have interests, such as credit institutions or other creditors, as well as for shareholders interested in prudent management of their businesses. Additionally, it is interesting for firm managers to understand how the capital structure and

boards of director can influence decision making. Furthermore, the results are of interest to public institutions that ensure the existence of a stable business system.

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