OWNERSHIP CONCENTRATION, BLOCKHOLDER IDENTITY, AND COMPANY RISK

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Abstract

Despite the growing research on the relationship between ownership structure and performance, research on ownership concentration and blockholder identity and their impact on company risk seems to be very limited. This paper examines the relationship between block ownership and blockholder identity and risk in Tunisian companies listed on the Tunis Stock Exchange. We showed a negative relationship between ownership concentration and company risk for all companies in our sample as well as a negative and significant effect between institutional ownership and risk for the listed financial companies in our sample. Moreover, we found that the presence of a family controlling shareholder is positively related to company risk, and this is for non-financial companies listed on the Tunisian stock market.

Keywords: Ownership Structure, Ownership Concentration, Blockholder Identity, Family Ownership, Institutional Ownership Systematic Risk.

INTRODUCTION

International research on corporate governance has shown that controlling shareholders are present in a large number of countries around the world and that the presence of these majority shareholders has a significant impact on company performance (La Porta et al 1998). The relationship between ownership structure and performance has been the subject of much debate and the results found differ depending on the dispersion of ownership and the identity of the controlling shareholder. However, research addressing the impact of ownership structure on company risk and stock price volatility appears to be very limited.

Stock volatility depends on the company's disclosure (Prasad et al 2020), the investors' horizon (Doina et al 2013), the implemented investment strategies (Limei Che 2018), and the trading volume (Zhang 2010). Thus, a transparent information environment signals effective governance, improves investors' confidence, attracts investors with a long time horizon, and reduces trader noises, which allows prices to converge to their fundamental values and thus mitigate volatility.

An opaque informational environment, on the other hand, favors transactions made based on private information and shows more noise traders with a short investment horizon who follow the market trend and this can accentuate the volatility of returns (Chaudry et al 2015, Limei Che 2018). Therefore, investors' psychology and type, investment horizon and strategies, informational environment, and good governance seem to have a significant effect on company risk and volatility. Stock markets play a crucial role in financing planned investments. A well-developed financial market is essential for the development of the economy. (Xuan Vinh Vo, 2016). Faced with an economy characterized by the dominance of bank financing, the Tunisian stock market is an emerging market, which is still in the development phase. Indeed, the

Tunisian stock market only contributes to less than 10% of the financing of the economy in Tunisia (while it is equivalent to 30% in emerging countries). This situation is explained by the lack of confidence between investors and the Tunisian stock market. In addition, since 2011 the Tunisian stock market has experienced several rebounds explained by the political crisis, economic difficulties, blacklisting, terrorist attacks, natural disasters, social tensions, and the Tunisian General Labor Union-Government disagreement. However, the Tunisian stock market is characterized by a high concentration of ownership where the majority of listed companies has a controlling shareholder who holds more than 20% of the capital and by the existence of mainly three types of shares blockholders namely, families, financial institutions, and the state.

We study through this research work the relationship between the ownership concentration, the identity of the controlling shareholder, and the risk of the companies measured by the systematic Beta volatility for all the Tunisian listed companies. We then divide our sample into two subgroups, financial and non-financial companies, given the specificity of financial companies, such as banks and insurance, in terms of their regulations and their financial statements. Our results show for all estimated models the importance of ownership concentration in reducing risk. The results show that as the ownership of the blockholder increases, this majority shareholder exercises his governance role to ensure that his interests are aligned with those of the other external shareholders, which increases investors' confidence and may consequently reduce the risk measured by Beta. Our results also show that at the level of non-financial companies, family-owned companies have a higher risk than other companies and that at the level of financial companies, the risk decreases as institutional ownership increases.

The rest of the paper is organized as follows. The first section presents a literature review and the development of the hypotheses. The methodology of the study and the methods of analysis are presented in the second section. A main analysis of the results is made in section 3. The fourth section deals with the results of an additional analysis on the moderating role of ownership concentration and finally the last section presents the robustness analysis.

1. Ownership Structure and Risk: A Review of the Literature and Development of Hypotheses

The ownership structure of companies varies considerably across countries depending on the legal rules that protect investors and the efficiency of the judicial system (La Porta et al 1999). While some companies have a small number of domestic owners, others have a more diverse structure, with a significant share of institutional, family, or state ownership. Some companies have a significant part of small investors (ownership of less than 0.1%), while others are dominated by a shareholder structure featuring a dominant shareholder (Jankensgarda and Vilhelmssonb 2016). While a large body of research studied the impact of ownership structure on performance, its impact on volatility or risk remains largely unexplored (Gagnon and Jeanneret 2018). In what follows, we present a review of the literature addressing the relationship between ownership structure (ownership concentration, family ownership, institutional ownership, state ownership) and risk.

1.1 Ownership Concentration and Risk

The share of controlling shareholders and its effect on company risk or volatility can be mainly approached from two theoretical perspectives (Bansal and Thenmozhi 2021), namely managerial entrenchment (Shleifer and Vishny 1989) and the incentive to align interests (Jensen and Meckling 1976).

Indeed, according to the incentive alignment perspective and agency theory (Jensen and Meckling 1976), ownership concentration can be a means to align the interests of majority shareholders with those of minority investors. For example, Gomes (2000) stated that a strong concentration can be considered a commitment, which induces blockholders not to expropriate the interests of minority investors. This implies that high concentration may induce controlling shareholders to voluntarily disclose better and more accurate information for the benefit of minority shareholders (Gomes 2000), which has a positive consequence on the quality of accounting information (Bui et al 2023), and consequently encourages information-based transactions, which, in turn, pushes more information to be imputed into stock prices. As a result, the stock values of highly concentrated ownership companies become more informative and less volatile (Morck et al. 2000).

According to the managerial entrenchment theory, ownership concentration provides controlling shareholders with an incentive and/or opportunity to divert resources from the company at the expense of outside shareholders (Pérez-Soba et al. 2021) allowing them to extract private benefits from control. Several researchers (Brockman and Yan 2009, Ferdinand et al 2010) showed that concentrated ownership can also be detrimental to a company because owners can expropriate the company's resources for their personal use. Entrenched majority shareholders have an incentive to conceal their selfish behaviors (Brockman and Yan 2009), or limit the leakage of related information, by withholding unfavorable information or selectively disclosing such information that helps them camouflage their selfish behaviors and opportunistically plan to release relevant information (Brockman and Yan 2009). Brockman and Yan (2009) also stated that high shareholder concentration can reduce the flow of specific information to the market, making the information environment less transparent and more opaque. Meanwhile, minority investors without strong legal protections face relatively higher costs to acquire and process private information in to overcome this lack of information due to the concentration of ownership and prevent the risk of expropriation by majority shareholders. However, the high cost associated with seeking private information discourages information-based transactions and, therefore, hinders the incorporation of specific information into stock prices. As a result, the stock values of highly concentrated ownership companies become less informative and more volatile (Brockman and Yan 2009).

Ferdinand et al (2010) studied the effect of ownership concentration on the amount of specific information embedded in stock prices of listed Chinese companies over the period 1996-2003, measured by price synchronicity. They indicated that systematic risk is a concave function of the ownership of the largest shareholder. The authors explained that the interest alignment effect is dominated by the entrenchment effect, given the institutional environment of the Chinese market, where large majority shareholders generally exercise almost total control over

key corporate decisions, including disclosure policies, and are directly involved in the management process. This entrenchment effect can be mitigated when concentration exceeds a certain level.

In light of the theoretical research presented above, the relationship between block shareholding and company risk appears to be counterintuitive and depends on the behavior of the block shareholder (entrenchment behavior or alignment behavior). On the one hand, the controlling shareholder has a long-term investment horizon, aiming to reduce the gap between the stock price and its fundamental value. In addition, by imputing as much information as possible to the price level, the controlling shareholder exercises his governance role to align his interests with those of other external investors.

H1a: In a scenario of converging interests, a concentrated ownership structure has a negative effect on company risk.

On the other hand, the entrenched controlling shareholder, seeking to protect his private benefits, discloses less information, resulting in an opaque information environment and reduced information-based transactions, which can lead to an increase in risk.

H1b: In an entrenchment scenario, a concentrated ownership structure has a positive impact on company risk.

1.2 Family Ownership and Risk

Family ownership, one of the most prevalent shareholder structures in the world, can affect production and production incentives of the company's relationships in multiple ways (Leung et al 2012). Previous studies (Leung et al 2012; Gagnon and Jeanneret 2018) examined the differences between family-controlled and non-family-controlled companies in terms of the two agency relationships, namely the separation between control and ownership (agency relationship type1) and the differences between the motivation of controlling family investors and minority outside investors (agency relationship type2) (Leung et al 2012).

Companies with a high concentration of family ownership have fewer type 1 agency conflicts. This is because family shareholders are well informed about the activities and situation of their companies, and are therefore able to directly monitor the behavior and actions taken by managers without having to rely on public information provided in reports published by the company (Demsetz and Lehn, 1985). This direct control of managerial actions improves risk sharing between managers and owners, discourages managers from manipulating public and formal information, and encourages them to present better-quality reports (Leung et al 2012).

Type 2 agency conflict affects managers' incentives to communicate information in several ways. Indeed, Leung et al (2012) stipulated that external investors cannot participate directly in strategic and operational decisions in family businesses and that managers have no motivation to be accountable to external investors because they are beholden to the controlling shareholders unless it is also the interest of the blockholders. Therefore, in companies where managers and family owners seek to defend their controlling private profits, controlling shareholders may avoid openness to capital markets, make the company less transparent, prefer

private debt to equity financing, and thus increase type 2 agency conflict between the main shareholders and minority investors (Leung et al 2012).

Leung et al (2012) also stated that in companies with a high proportion of family shareholding and which frequently seek outside capital, controlling shareholders have the incentive to encourage disclosure of information to reassure current and potential outside investors about the security of their invested capital, which contributes to an increase in the volume of transactions carried out and consequently to higher stock volatility. Volatility integrates the public information published by the company and the private information gathered by analysts and sophisticated investors through their transactions. Using a sample of companies listed on the Hong Kong stock exchange for the period from 2003 to 2005 and volatility as a proxy for share price informativeness, Leung et al (2012) found that family-owned companies exhibited higher share price volatility than similar non-family-owned companies. They also revealed that family companies disclosed more information than non-family companies in their reports to comfort outside investors who are skeptical about their investments.

Gagnon and Jeanneret (2018) studied the relationship between legal investor protection, ownership structure, and return volatility. The authors specified that stronger legal systems promote stock market growth and improve companies' access to capital. In addition, strong investor protection stimulated the production of company-specific information, encouraged individual investors to participate in their national stock markets, and increased the sensitivity of investments to share prices.

Zeyneb et al (2022) found a negative relationship between family-controlled companies and stock price synchronicity for a French dataset collected from 2002 to 2016. The authors explained this result by the socio-emotional wealth approach and argued that according to this theoretical approach families are emotionally tied to their companies and therefore engaged in more disclosure to build a good reputation, signal their integrity, and reduce minority shareholders' concerns about family expropriation.

Thus, the sign of the link between family ownership and risk or volatility is ambiguous. A negative relationship is because family investors are rational shareholders aiming to align share prices with their theoretical values. They use their supervisory power to control managerial behavior. They can more effectively control and report their transaction costs, improve corporate governance and risk-sharing, monitor and participate in strategic decisions, and ensure that the quality of public information is improved.

In addition, family shareholding generally has a long investment horizon and frequently seeks to develop and expand their businesses through external financing (Leung et al 2012). Controlling shareholders of family businesses, seeking to raise financing on the equity market, are incentivized to exercise their monitoring roles to ensure the disclosure of information to reassure current and potential external investors about the security of their invested capital. (Leung et al 2012, Gagnon.L and Jeanneret.A 2018...).

H2a: In a scenario of convergence of interests, there is a negative impact of family ownership and business risk.

On the other hand, a positive relationship between family ownership and risk can be explained by an entrenched family structure that seeks to retain control of its business and protect its advantages (Faccio and Lang, 2002). Thus, this entrenchment strategy makes the information environment opaque and favors non-information-based transactions, which may increase risk.

H2b: **In an entrenchment scenario, there is a positive relationship between family ownership and risk.**

1.3 Institutional Ownership and Risk

Another form of corporate ownership is institutional ownership. Institutional investors play a special role in stock markets, firstly because they have the information and human skills to process it (Yan and Zhang 2009), and secondly, because the cash flows they invest have a positive impact on stock market liquidity (Harford et al 2012). However, the relationship between institutional shareholding and risk is mixed and depends on the governance behavior of institutional investors, which in turn depends on their average investment horizons, transaction volumes, and investment strategies (Jankensgård and Wilhelmsson 2018). Several research studies found a positive effect of institutional ownership on stock volatility. This positive relationship is explained by the fact that institutional investors are better informed than other individual investors. Because of the informational advantage, once the deal is done, institutional investors are willing to trade stocks at higher prices to obtain informational returns (Lin, Lee and Liu, 2007). Their willingness to trade at higher prices leads to increased volatility. Furthermore, according to the institutional rotation hypothesis (Vinh Vo 2016), institutional investors may rebalance their portfolio investments more frequently due to lower transaction costs and better information. As a result, this high portfolio turnover and frequent trading could be at the root of high volatility.

Another potential explanation documented in numerous works (Dennis and Strickland 2002, Sias 2004, Vinh Vo 2016, Nabil and Khdija 2020, etc.) is that institutional shareholders can collaborate to sell and buy shares (mimicry or mimetic behavior). This behavior by institutional investors creates excessive volatility, particularly in a narrow stock market. Dennis and Strickland (2002) showed that, in the US market, when the absolute value of the market return is high on a given day, institutional investors tend to rally and react more strongly than individual investors. Thus, the extent of market volatility is linked to the level of institutional investor ownership. Dennis and Strickland (2002) also disclosed that the extent of this excessive volatility depends on the horizon of institutional investors. Indeed, fund managers have short-term performance objectives, unlike other types of institutional investors (insurance, banks, etc.), and are therefore led to frequently evaluate their portfolios. They are thus more inclined to adopt mimicry behavior ("running with the herd") than other types of institutional investors (Vinh Vo 2016).

The above arguments assume that institutional investors are passive, do not effectively exercise their monitoring role, and frequently adjust their portfolios, which can increase risk and lead to high volatility.

H3a: The presence of a controlling institutional shareholder has a positive impact on risk.

On the other hand, other authors argued that the share of institutional investors had a negative effect on the volatility of stock returns (Jankensgard and Vilhelmsson 2016, Hussain and Muhammad Amir Shah 2017). This school of thought also confirmed that institutional investors held better quality information than individual investors and that, as a result, their transactions covered more informational content. Moreover, a more informative stock price is associated with a decrease in the standard deviation of returns, in other words, a decrease in volatility (West, 1988). In addition, another argument is that institutional investors are normally fiduciaries (Vinh Vo 2016) who invest on behalf of others and are subject to agency conflicts. Unlike individual investors, several prudent rules constrain institutions and aim to prevent them from speculating on savers' money (Rubin & Smith, 2009). As a result, institutions tend to direct their investments toward companies with low stock return volatility (Vinh Vo 2016).

Jankensgard and Vilhelmsson (2016) found a negative and significant coefficient between institutional ownership and volatility in the Swedish market. The authors stipulated that this result diverged from that of the American context, where several research studies proved the presence of a positive effect between institutional ownership and volatility (Dennis and Strickland 2002, Zhang 2010...) The authors explained that this divergence of results was due to the average investment horizon of Swedish institutional investors, which is longer than that of their American counterparts.

Hussain and Muhammad Amir Shah (2017) found a negative and significant relationship between the presence of institutional investors and systematic risk for a sample of 201 Pakistani companies. The authors explained this relationship by the rational behavior of institutional investors, who were contrarian investors and were able to process information better than individual investors and make investment decisions to align the stock price with its fundamental value. The authors also argued that institutional shareholders had a central role in monitoring the conduct of CEOs in terms of disclosure and revelation of relevant information and that this monitoring role reduced the risk of the stock price deviating from its fundamental value. Another school of thought focused on corporate social responsibility and its impact on the relationship between institutional ownership and stock volatility. Indeed, companies with a higher proportion of long-term institutional investors will be able to adopt more long-term investments (such as social investments) to maximize long-term value (Otgontsetseg and Kershen 2019). Companies with a higher proportion of institutional investors with short investment horizons will not be able to make long-term investments, as long-term value maximization will be contrary to the objectives of short-term investors.

Otgontsetseg and Kershen (2019) showed that institutions with longer investment horizons promoted corporate social responsibility (CSR), and those with shorter investment horizons discouraged CSR. Furthermore, the higher the proportion of long-term (short-term) investors, the higher the effect of CSR on long-term (short-term) returns. These results are consistent with the idea that short-termism on the part of institutional investors exerts short-term pressure on companies and therefore discourages long-term, value-creating investments.

Based on the institutional investor activism hypothesis, we attempt to test the following hypothesis:

H3b: Institutional ownership has a negative impact on company risk.

1.4 State Ownership and Risk

State ownership has experienced a global resurgence in recent years, following the global financial crisis and due to the uncertain global economy (Megginson, 2016). The results surrounding government ownership are mixed. A stream of literature argued that state ownership allowed officials and governments to seek economic and political benefits, including surplus jobs, electoral support, and private benefits. (Liu et al, 2006; Dinc and Gupta, 2011). Thus, according to this view, states are generally passive investors with socio-political objectives, and investors believe that government ownership may lead to an agency problem, which will harm company value and asymmetric information, which may increase company risk and volatility.

Several empirical studies supported this view. For example, Wang, Wong and Xia (2008) found that in China, state-owned companies were more likely to hire smaller audit companies than private companies. Similarly, using a global sample of privatized companies, Guedhami et al (2009) revealed that state-owned companies are less likely to appoint Big Four auditors. Furthermore, Chaney et al (2011) disclosed that politically connected companies had poorer quality accounting information than their unconnected counterparts. Ben-Nasr and Cosset (2014) showed that privatized companies with a higher degree of public ownership reported lower-quality earnings, which was perceived by investors as an indication of the tunneling of corporate resources. From the perspective of agency theory, we attempt to test the following hypothesis:

H4a: State ownership has a positive effect on company risk.

Another strand drew on the role of the state as a control mechanism and found that government ownership in certain environments, responded better to the shortcomings of debt financing (Blanchard and Shleifer, 2001; Liao et al, 2014). It reduced excessive risk-taking (Boubakri et al, 2013), provided monitoring, especially when legal protection was weak (Chen et al, 2011), enhanced company value in times of crisis (Borisova et al, 2015), offered a more transparent environment, and consequently, lowered volatility (Xie et al 2019). We thus formulate the following hypothesis:

H4b: State ownership has a negative impact on company risk.

2. Research Methodology

After outlining a literature review presenting the relationship between risk and ownership structure and the hypotheses to be tested in our study, we present in the following part the variables used in our study and the different models to be tested to verify the hypotheses presented in the previous section.

2.1 Sample and Data Collection

Our study focused on a sample of 81 Tunisian companies listed on the Tunis Stock Exchange for a period spanning from 2011 to 2018. Data were extracted from the official website of the Tunis Stock Exchange (TSE), websites (such as tustex, BNA Capitaux...), accounting documents relating to balance sheets and income statements, prospectuses for bond issues or capital increases provided by the Financial Market Council (FMC), and annual reports published by certain companies.

The study will focus primarily on all listed Tunisian companies (financial and non-financial). However, given that financial companies (banks, insurance companies, etc.) are subject to a different set of regulations and that their financial statements are structured differently, we divided our sample into two sub-groups: financial companies and non-financial companies. The sectoral distribution of these companies is shown in Table 1.

Table 1: Sectoral distribution of companies

Sectors	Number of companies	Percentage
Banking	12	14,815%
Insurance and reinsurance	4	4,938%
Leasing	7	8,642%
Other financial services	3	3,704%
Telecommunications	3	3,704%
Consumer services	10	12,346%
Healthcare	3	3,704%
Consumer goods	17	20,988%
Industry	13	16,049%
Basic Materials	5	6,173%
Oil & Gas	1	1,235%
Technology	3	3,704%
Total	81	100%

2.2 Description of Variables

Dependent Variable

This study uses Beta stock's volatility compared to the market as a measure of corporate risk. Volatility will be calculated from the following formula:

$$Beta = \frac{Cov(R_i, R_m)}{\sigma_m^2}$$

Our approach is to determine:

- The daily return for each company in our sample, as well as that of the market index for the entire period of our analysis based on daily quotes provided by the TSE.

- The average annual return for the market and the 81 listed companies.

- The annual Beta for each company in our sample.

Independent Variables

The variables identified in the light of the literature review developed in the previous section of this paper, and their measurement, are presented in the following Table:

Table 2: Presentation of the study's independent variables and their measures

Variable	Definition	Measure
Dependent variable		
Beta	Stock Volatility	Covariance between stock and market profitability divided by variance of market profitability
Independent variables		
CON3	Concentration of ownership	% of shares held by the three largest shareholders (Li et al 2015)
Family	Family ownership	variable = 1 if the block of shares is held by a family
Institution	Institutional Investor ownership	variable = 1 if the block of shares is held by an institution
State	State ownership	variable = 1 if the block of shares is held by the State
Control variables		
Size	Company size	Logarithm of total assets
Div	Dividend	Dividend per share distributed by the company
LEV	Debt-to-equity ratio	Total debt / total assets
ROE	Return on equity	Net income / total shareholders' equity

2.3 Presentation of the Main Model

The data we collected refer to the 81 Tunisian listed companies over an eight-year period. The data are therefore panel data. These data allowed us to deal with two dimensions at once: the individual dimension, which refers to the company, and the temporal dimension, which refers to the year under study. It is therefore necessary to run several tests before embarking on multiple regression and interpretation of the results. As part of our empirical approach, and to clearly identify the effect of board characteristics on volatility, we opted for the following global model:

$$\text{Beta}_{it} = \beta_0 + \beta_1 \text{CONC}_{it} + \beta_2 \text{Family}_{it} + \beta_3 \text{Institution}_{it} + \beta_4 \text{State}_{it} + \beta_5 \text{Sise}_{it} + \beta_6 \text{Div}_{it} + \beta_7 \text{Debt}_{it} + \beta_8 \text{ROE}_{it} + \varepsilon_{it}$$

With:

i = 1, ... ,81

t = 1, ... ,8

β_0: the model constant

ε_{it} : the model's error term

The methodology used in our work consists of introducing the governance variables individually into different regression equations. Table 3 presents the different equations to be tested.

Table 3: Presentation of the different regression equations to be tested

Models	Regression equations
1	$Beta_{it} = \beta_0 + \beta_1 CONC_{it} + \beta_2 Size_{it} + \beta_3 Div_{it} + \beta_4 Debt_{it} + \beta_5 ROE_{it} + \varepsilon_{it}$
2	$Beta_{it} = \beta_0 + \beta_1 CONC_{it} + \beta_2 Size_{it} + \beta_3 Div_{it} + \beta_4 Debt_{it} + \beta_5 ROE_{it} + \varepsilon_{it}$
3	$Beta_{it} = \beta_0 + \beta_1 CONC_{it} + \beta_2 Size_{it} + \beta_3 Div_{it} + \beta_4 Debt_{it} + \beta_5 ROE_{it} + \varepsilon_{it}$
4	$Beta_{it} = \beta_0 + \beta_1 CONC_{it} + \beta_2 Size_{it} + \beta_3 Div_{it} + \beta_4 Debt_{it} + \beta_5 ROE_{it} + \varepsilon_{it}$

This table shows the various equations to be tested. Concentration is the % of shares held by the three main shareholders, Family = 1 if the controlling shareholder is a family, Institution = 1 if the controlling shareholder is an institutional investor, and State = 1 if the controlling shareholder is the State. LnSize represents the size of the company equal to log of total assets. Dividend represents the dividend per share distributed by the company, Debt is the company's debt ratio measured by the debt/total assets ratio.

2.4 Descriptive Statistics and Correlation Matrix

2.4.1 Descriptive Statistics

The descriptive statistics presented in Table 4 show an average Beta of 0.5395877, with a minimum of -1.065961 and a maximum of 2.750126. The statistical study also reveals that the Tunisian market is characterized by a high concentration of ownership, with an average of 43.086% and a maximum of 93.48%. We also note a strong family presence (51.90% of our sample) in the shareholder structure of the listed Tunisian companies, an average presence of institutional investors (33.15%) mainly in financial companies, and a low representation of the State (17.88%). Table 4 also shows that the average dividend distributed is 0.577 dinars, with a maximum of 9.2 dinars recorded during 2015 by STAR. We also note that the average debt level of listed companies is relatively high with an average of 66.91% and a maximum of 365.7% recorded by STIP company during the year 2018.

Table 4: Descriptive Statistics

	BETA	CONC3	FAMILY	INSTITUTION	STATE	LNSIZE	DIVIDEND	DEBT	ROE
Mean	0.539588	0.626236	0.519097	0.331597	0.178819	19.22193	0.577557	0.669167	-0.0114
Median	0.495471	0.375	1	0	0	18.91215	0.23	0.681	89940
Maximum	2.75013	0.9348	1	1	1	23.5273	9.2	3.657	1.01432
Minimum	-1.06596	0.272	0	0	0	15.8005	0	0.002	-10.1742
Standard. Dev.	0.49823	0.145278	0.500069	0.471196	0.383534	1.821716	1.053437	0.381679	0.575486
Observations	576	576	576	576	576	576	576	576	576

This table presents the descriptive statistics for the variables in our study. Concentration is the % of shares held by the three main shareholders, Family = 1 whether the family is the majority shareholder, Institution = 1 whether the institutional investor is the majority shareholder, and State = 1 whether the state is the majority shareholder. LnSize represents the size of the company equal to log of total assets. Dividend represents the dividend per share distributed by the company, Debt is the company's debt ratio measured by the debt/total assets ratio. ROE =RN/CP.

2.4.2 Correlation Matrix

To study the correlation between the different variables in the model, we present Pearson's correlation matrix, which highlights the correlation between the different variables in the study, as well as their levels of significance. The results of the matrix presented in Table 5 show a strong negative and significant correlation between family ownership and institutional ownership (-0.724402) and a medium or low correlation between the other selected variables. We also find a very low negative correlation between systematic volatility, ownership concentration, family ownership, and institutional ownership.

We then turn to the Variance Inflation Factor (VIF) test to decide on the multicollinearity problem. Indeed, if the VIF test is less than 10 (Neter et al. 1989), we can affirm that there is no multicollinearity between the explanatory variables chosen for this model. The results in Table 5 indicate a high level of VIF for the family and institutional ownership variables, explained by the linear and negative correlation induced by the dummy nature of these two variables.

To overcome this problem of multicollinearity, we introduced these two variables separately into our regression, which allowed us to have VIFs of less than 2, thus resolving the problem of multicollinearity.

Table 5: Pearson correlation matrix

	BETA	CONC3	FAMILY	INSTITUTION	STATE	LNSIZE	DEBT	Dividend	ROE
BETA	1								
CONC	-0.006236	1							
	0.8813	-----							
FAMILY	-0.011243	0.045321	1						
	0.7877	0.2775	-----						
INSTITUTION	-0.070892	-0.108556	-0.724402	1					
	0.0892*	0.0091*	0*	-----					
STATE	0.065393	0.041278	-0.484824	-0.174707	1				
	0.117	0.3227	0*	0*	-----				
LNSIZE	0.296798	0.025528	-0.334569	0.235985	0.186381	1			
	0*	0.5409	0*	0*	0*	-----			
Dividend	-0.047266	-0.013449	-0.049866	0.131147	-0.020448	0.132831	1		
	0.2574	0.7474	0.2321	0.0016*	0.6243	0.0014*	-----		
DEBT	-0.047492	0.000332	-0.039516	0.086278	-0.032602	0.325900	-0.10282	1	
	0.2551	0.9937	0.3438	0.0384*	0.4348	0*	0.0136*	-----	
ROE	0.116502	-0.036412	-0.044847	0.128357	-0.090831	0.083362	0.162618	-0.36862	1
	0.0051	0.3831	0.2826	0.0020	0.0293	0.0455	0.0001	0.0000	-----
VIF		1.02	11.69	9.34	5.61	1.37	1.43	1.10	1.28
VIF Average= 4.11									
VIF		1.01	1.44		1.37	1.37	1.41	1.06	1.27
VIF Average = 1,28									
VIF		1.02		1.15	1.13	1.36	1.41	1.06	1.28
VIF Average = 1.20									

Correlation matrix table for a sample of 576 observations. Concentration is the % of shares held by the three main shareholders, Family = 1 if the controlling shareholder is a family, Institution = 1 if the controlling shareholder is an institutional investor, and State = 1 if the controlling shareholder is the State. LnSize represents the size of the company equal to log of total assets. Dividend represents the dividend per share distributed by the company, Debt is the company's debt ratio measured by the debt/total assets ratio. ROE =RN/CP. * indicates significant tests. Vif: Variance inflation factor.

2.4.3 Tests on Panel Data

Hausman Test

The results of the various Hausman tests carried out are shown in Table 6, and they allowed us to accept the H0 hypothesis that the fixed-effect model is the most appropriate model for all the equations we intend to estimate.

Table 6: Hausman test results

Models	Chi2	Probability	Effect
Model 1	32,986241	0.000	Fixed effect model
Model 2	43,244623	0.000	Fixed effect model
Model 3	37,242449	0.000	Fixed effect model
Model 4	34,318376	0.000	Fixed effect model

Residual heteroscedasticity test

The Wald test can be used to test the heteroscedasticity of errors. The test results in Table 7 show a P-value of less than 5% for all the equations in our study, indicating acceptance of hypothesis H1. We can therefore conclude that there is a residual heteroscedasticity problem for all the equations to be tested.

Table 7: Results of the heteroscedasticity test

Models	Wald Test	Result
Model 1	χ^2calculé = 15109,57 P-value = 0,0000	heteroscedasticity
Model 2	χ^2calculé = 20652,77 P-value = 0,0000	heteroscedasticity
Model 3	χ^2calculé = 19537,70 P-value = 0,0000	heteroscedasticity
Model 4	χ^2calculé = 19237,19 P-value = 0,0000	heteroscedasticity

Residual correlation test

To test the presence of autocorrelation in the errors of the different models in our study, we used a Breusch-Pagan (LM) test. The results shown in Table 8 indicate the presence of an autocorrelation problem.

Table 8: Results of the correlation test

Models	Breusch–Pagan test	Results
Model 1	chibar2(01) = 177,90 P-value = 0,0000	Presence of autocorrelation
Model 2	chibar2(01) = 158,59 P-value = 0,0000	Presence of autocorrelation
Model 3	chibar2(01) = 153,35 P-value = 0,0000	Presence of autocorrelation
Model 4	chibar2(01) = 177,98 P-value = 0,0000	Presence of autocorrelation

Thus, taking into consideration the presence of heteroscedasticity and autocorrelation of the observed residuals, we proceed to estimate our equations by the Generalized Least Squares (GLS) method.

3. Main Analysis: Results and Discussions

Model 1 estimators results by the Generalized Least Squares method presented in Table 9, highlight the existence of a negative and significant relationship at the 1% level (β = -0.548; P value = 0.000) between the percentage of shares held by controlling shareholders and the risk measured by the Beta of the listed companies. This confirms our first hypothesis (H1a), which states that in a scenario of convergence of interests, the concentration of ownership reduces the risk of companies. This result confirms those found by Morck et al (2000) and Hae Won et al (2016), and shows that the controlling shareholder has a long-term investment horizon to exercise his governance role and align his interests with those of other external shareholders. This strengthens investor confidence and can therefore reduce the difference between the stock market price and its fundamental value.

The results of model2 estimators presented in Table 9 show a positive and significant relationship at the 5% threshold between family ownership and stock volatility, which means that the listed family businesses present a high risk. This result converges with those of Nguyen (2011) and Leung et al (2012) who found a positive relationship between volatility as a measure of risk and family ownership explained by a scenario of entrenchment of family owners in a context of type 2-agency conflict dominance between controlling shareholders and minority shareholders.

Family investors are very attached to their companies, and this reduces the separation between ownership and control, encourages the creation of private communication channels between the main shareholders and managers, and thus reduces the disclosure of public information, which makes the information environment less transparent and opaque and would allow family shareholders and managers to use company resources for private purposes. Consequently, the weak protection of minority shareholders, the entrenchment of the controlling family shareholder, the weak voluntary disclosure, and the information search costs borne by minority shareholders leave the share prices less informative and therefore deviate from their theoretical values (according to the fundamentals), which may explain the positive effect observed on the risk measured by Beta.

The results of model 3 estimators presented in Table 9 show a negative and significant relationship at the 5% threshold between institutional ownership and the volatility of companies, which confirms our hypothesis (H3b). These results are consistent with those of Jankensgard et al (2016) and Hussain et al (2017) who found a negative relationship between volatility and institutional ownership. Indeed, this result substantiates that institutional investors (mainly banks and insurance companies) present on the Tunisian financial market are investors with long-term horizons, that they effectively exercise their supervisory role, encourage managers to adopt an alignment strategy thus offering a transparent information environment, which reduces the volatility measured by the systematic risk of prices.

This result also divulges that institutional investors acting on behalf of others have a rational behavior aimed at price alignment and put in place prudent rules to prevent speculation (Vo 2016). Such a result also shows that the Tunisian financial market does not present mimicry

strategies of institutional investors, that is to say that there is no grouping of institutional investors, which confirms that its investors do not build their investments on momentum strategies but rather on fundamental-based contrarian strategies, which makes prices less volatile.

The regression results for the different models in Table 9 also reveal a positive and significant relationship at the 1% level between company size and volatility. This positive relationship can be explained by the large number of investors in the float for large companies, which could increase the number of uninformed transactions, resulting in higher volatility (Chaudry et al 2015). The results of the different estimations also disclose a negative and significant effect between the level of indebtedness of Tunisian listed companies and the risk measured by Beta. This negative effect can be explicated by the impact of leverage in resolving agency conflicts by encouraging managers to disclose more information, which offers more transparency to the informational environment and favors informed transactions. Consequently, prices converge towards their fundamental values.

Table 9: GLS model estimation results

Explanatory variables	Model1	Model2	Model3	Model4
	Beta	Beta	Beta	Beta
	Coefficients	Coefficients	Coefficients	Coefficients
Constant C	-0,6759469 0,003***	-1,172012 0,000***	-1,061623 0.000***	-0,9381261 0,000***
Concentration	-0,5481042 0.000***			
Family		0,0959328 0,032**		
Institution			-0,1510564 0,001***	
State				-0,0106451 0,861
LnSize	0,0847493 0,000***	0,0896238 0,000***	0.0883202 0.000***	0,0799888 0,000***
Dividend	-0,0266087 0,160	-0,0223435 0,244	-0,0168297 0.390	-0,0236879 0,218
Debt	-0,1553189 0,004***	-0,149021 0,003***	-0.1317232 0.007***	-0,1413466 0,004***
ROE	0,0185566 0,509	0,0300033 0,288	0.0381072 0.183	0,0295383 0,296
Observations	576	576	576	576
Number of N	81	81	81	81

This table presents the regression results (coefficients and p-values) of the different models estimated by the GLS method, which aims to study the impact of ownership structure on volatility. Concentration is the % of shares held by the three main shareholders, Family = 1 whether the family is the majority shareholder, Institution = 1 whether the institutional investor

is the majority shareholder, and State = 1 whether the state is the majority shareholder. LnSize represents the size of the company equal to log of total assets. Dividend represents the dividend per share distributed by the company, Debt is the company's debt ratio measured by the debt/total assets ratio. ROE =RN/CP. ***, ** and * mean that the tests are significant at the 1%, 5% and 10% thresholds respectively. Referring to previous studies that focused their analyses mainly on non-financial companies, we propose to re-estimate in the following part the models for two (02) sub-samples. The first group is composed of non-financial firms (Leung et al 2012, Abdullah and Zulfiqar 2013, Houssain and Emir Salah 2017, Gagnon and Jeanneret 2018, Zeineb et al 2022...). And the second group is made of financial firms (Iqbal et al 2015, Iqbal et al 2020...), which are characterized by a different financial statement structure and are subject to a different set of regulations such as banks, and insurance companies.

The model estimation results for the two sub-groups shown in Table 10 confirm the significant and negative relationship between ownership concentration and risk measured by Beta found in Table 9. The results in Table 10 also reveal that for non-financial companies, the positive and significant relationship found earlier (Table 9) is confirmed, while the relationship between the presence of an institutional investor and risk is no longer significant. The estimation results for financial companies show a non-significant relationship between family ownership and risk, and a negative and significant relationship between institutional ownership and risk, confirming the relation found in Table 9. This result can be explained by the low presence of institutional investors in Tunisian non-financial companies, most of which are family and state-owned, and by the very low family presence in the listed Tunisian financial companies.

Table 10: Results of GLS estimations of models 1, 2, 3, and 4 for the two subgroups

	Non-financial companies				*financial companies*			
	Model1	**Model 2**	**Model 3**	**Model 4**	**Model 1**	**Model 2**	**Model 3**	**Model 4**
	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
Constant C	-0,356700 0,294	-0,647344 0,077*	-0.50426 0.175	-0,577746 0,117	-2.48132 0,000***	-2.70838 0,000***	-1,99718 0.002***	-2,7492 0,000***
Concentration	-0,640791 0.000***				-0,85344 0.000***			
Family		0,1154658 0,046**				0.02812 0,797		
Institution			0,164965 0,110				-0.18169 0,077**	
State				-,108527 0,133				0,00321 0,971
LnSize	0,0748662 0,000***	0,064611 0,001***	0.060057 0.003***	0,066304 0,001***	0,183613 0,000***	0,159425 0,000***	0.124939 0.000***	0,162227 0,001***
Dividend	-0,051534 0,062*	-0,043711 0,105	-0,04351 0.113	-0,044725 0,093*	0,01645 0,534	0.00002 0,999	0.00905 0.734	-0,00066 0,980
Debt	-0,176189 0,003***	-0,190342 0,000***	-0.16759 0.001***	-0,186531 0,001***	-0,46333 0,013**	-0,20198 0,306	-0.01301 0.949	-0,22246 0,206
ROE	0,0195335 0,513	0,023215 0,432	0.025487 0.380	0,022967 0,438	0,721 0,002***	0,68888 0,002***	0.641921 0.004***	0,70053 0,002***
Observations	372	372	372	372	204	204	204	204
Number of N	55	55	55	55	26	26	26	26

This table presents the results of the regressions (coefficients and p Value) of the different models estimated by the GLS method, aimed at studying the impact of ownership structure on volatility for 02 sub-samples (financial and non-financial companies). Concentration is the % of shares held by the three main shareholders, Family = 1 whether the family is the majority shareholder, Institution = 1 whether the institutional investor is the majority shareholder, and State = 1 whether the state is the majority shareholder. LnSize represents the size of the company equal to log of total assets. Dividend represents the dividend per share distributed by the company, Debt is the company's debt ratio measured by the debt/total assets ratio. ROE =RN/CP   ***, ** and * mean that the tests are significant at the 1%, 5% and 10% thresholds respectively.

4. Additional analysis

The results of the main analysis show a significant and negative relationship between ownership concentration and risk measured by Beta volatility, a positive and significant relationship between family ownership and confirmed volatility for non-financial firms, and a negative and significant effect of institutional ownership on confirmed volatility for financial firms. However, given the high concentration of ownership in the Tunisian financial market, we propose to examine the moderating role of ownership concentration on the relationship between the identity of the controlling shareholder and risk.

Equations 5, 6, and 7 in Table 11 include interaction terms. In this case, we assume that the effect of the independent variable of the controlling shareholder identity is not constant. On the contrary, we assume that the effect of the identity of the controlling shareholder on the risk measured by Beta depends on the percentage held by the blockholder. The aim is to check whether the effect of the identity of the controlling shareholder can be mitigated by the percentage of shares held.

Table 11: The moderating role of ownership concentration on the relationship between the nature of the controlling investor and risk

	Regression Equations
5	$Beta_{it} = \beta_0 + \beta_1 Conc_{it} + \beta_2 Family_{it} + \beta_3 Family * Conc_i + \beta_4 Size_{it} + \beta_5 Div_{it} + \beta_6 Debt_{it} + \beta_7 ROE_{it} + \varepsilon_i$
6	$Beta_{it} = \beta_0 + \beta_1 Conc_{it} + \beta_2 Institution_{it} + \beta_3 Institution * Conc_i + \beta_4 Size_{it} + \beta_5 Div_{it} + \beta_6 Debt_{it} + \beta_7 ROE_{it} + \varepsilon_i$
7	$Beta_{it} = \beta_0 + \beta_1 Conc_{it} + \beta_2 Syaye_{it} + \beta_3 State * Conc_i + \beta_4 Size_{it} + \beta_5 Div_{it} + \beta_6 Debt_{it} + \beta_7 ROE_{it} + \varepsilon_i$

This table shows the various equations to be tested in the presence of interaction terms. Concentration is the % of shares held by the three main shareholders, Family = 1 whether the family is the majority shareholder, Institution = 1 whether the institutional investor is the majority shareholder, State = 1 whether the state is the majority shareholder. LnSize represents the size of the company equal to log of total assets. Dividend represents the dividend per share distributed by the company, Debt is the company's debt ratio measured by the debt/total assets ratio. ROE =RN/CP

The results in Table 12 show that the Family*conc interaction term, introduced in Model 5, is negative and insignificant, and that the effect of family ownership on volatility becomes insignificant. This implies that ownership concentration weakens the positive effect exerted by family ownership on systematic risk. Indeed, family shareholders holding high percentages of shares seem to exercise their supervisory powers better, which improves the level of information disclosure, thus fostering a less opaque information environment, greater external investor confidence, and lower volatility.

In Table 12, equation 6 regression results of the moderating role of ownership concentration on the institutional shareholder-volatility relationship reveal that ownership concentration has a positive moderating effect (0.85604) and is significant at the 1% threshold. This means that the negative effect of the presence of institutional investors on systematic risk becomes weaker as ownership concentration increases. This result points to a substitution effect between institutional ownership and ownership concentration. Indeed, as the blockholder's share increases, he will become more attached to his company and implement control strategies to monitor the management team, which reduces the involvement of institutional investors in the control process. Haider and Fang (2016) explained that as the ownership of institutional investors increases, they no longer exercise their monitoring role directly, and may entrust it to other control units such as the board of directors.

Table 12: The moderating role of ownership concentration on the relationship between the nature of the controlling investor and volatility

	Model5		Model6		Model7	
	Beta		Beta		Beta	
	Coefficients	Probability	Coefficients	Probability	Coefficients	Probability
Constant C	-1,061159	0,000***	-0,6523199	0,003***	-0,6636084	0,005***
Concentration	-0,5128139	0,007***	-0.834853	0,000***	-0,5998796	0,000***
Family	0,2050698	0,229				
Family*Conc	-0,131153	0,617				
Institution			-0.6226155	0,000***		
Institution* Conc			1,118111	0,000***		
State					-0,1908921	0,483
State*Conc					0,3060131	0,441
LnSize	0,1005924	0,000***	0,0952724	0,000***	0,0856528	0,000***
Dividend	-0,0253009	0,182	-0,01621	0,404	-0,0286122	0,130
Debt	-0,168501	0,002***	-0,1415761	0,008***	-0,1523588	0,006***
ROE	0,0173498	0,543	0,0261751	0,364	0,0202563	0,475

This table presents the results of regressions of the different models estimated by the GLS method, which aim to study the impact of ownership structure on volatility, as well as the interaction of ownership concentration in the family-volatility, institution-volatility, and State-volatility relationships. Concentration is the % of shares held by the three main shareholders, Family = 1 whether the family is the majority shareholder, Institution = 1 whether the institutional investor is the majority shareholder, and State = 1 whether the state is the majority shareholder. LnSize represents the size of the company equal to log of total assets. Dividend

represents the dividend per share distributed by the company, Debt is the company's debt ratio measured by the debt/total assets ratio. ROE =RN/CP, ***, ** and * mean that the tests are significant at the 1%, 5% and 10% thresholds respectively.

5. Robustness analysis

To ensure the robustness of our results, we used the dynamic Generalized Method of Moments (GMM) estimation of Arellano and Bond (1991) to study the dynamic relationship between ownership structure and the systematic risk measured by Beta. This method is recommended to control the potential endogeneity problem that can be caused by reverse causality and omitted variable bias. The results of the dynamic GMM estimation of the different models presented in Table 1-14 confirm the presence of a significant and negative relationship between ownership concentration and Beta risk, a significant and positive relationship between family ownership and Beta, and a negative and significant relationship between institutional ownership and Beta.

However, the use of GMMs requires the verification of an important condition, which is the validity of the instruments. For this purpose, we launched the Sargan-Hansen test for over-identification restrictions in the GMM estimation as a test of the validity of the instrument. The J statistics provided in Table 13 suggest that the estimation models are valid and do not suffer from over-identification problems.

Table 13: GMM estimation results for models 1, 2, 3 and 4

	Model1	*Model 2*	*Model 3*	*Model 4*
	Beta	Beta	Beta	Beta
	Coefficients	**Coefficients**	**Coefficients**	**Coefficients**
Beta | L1	0,489541 0,000	0,5010539 0,000	0,5010539 0,000	0,5125251 0,000
Constant C	6,010044 0,000***	5,773754 0,000***	6,217646 0.000***	6,056607 0,000***
Concentration	-0,6989404 0.038**			
Family		0,5289367 0,000***		
Institution			-0,5289367 0,000***	
State				-0,021203 0,865
LnSize	-0,2780294 0,001***	-0,299705 0,000***	-0,2997051 0.000***	-0,300355 0,000***
Dividend	0,0308443 0,009***	0,0275474 0,032**	0,0275474 0.032**	0,021307 0,029**
Debt	-0,0109333 0,933	-0,1130653 0,309	-0.1130653 0.309	-0,1116099 0,301
ROE	-0,021607 0,250	-0,0218633 0,268	-0,0218633 0.268	-0,0219562 0,264
Sargan test (J)	chi2(20)= 29,16611 Prob > chi2= 0,088	chi2(20)= 28,8008 Prob > chi2= 0,0918	chi2(20)= 28.8008 Prob > chi2= 0.0918	chi2(20)= 28.7041 Prob > chi2= 0.0938

This table presents the results of the regressions (coefficients and p Value) of models (1, 2, 3, and 4) estimated by the GMM method, which aim to study the impact of ownership structure on volatility while controlling for the endogeneity problem. Concentration is the % of shares held by the three main shareholders, Family = 1 whether the family is the majority shareholder, Institution = 1 whether the institutional investor is the majority shareholder, State = 1 whether the state is the majority shareholder. LnSize represents the size of the company equal to log of total assets. Dividend represents the dividend per share distributed by the company, Debt is the company's debt ratio measured by the debt/total assets ratio. ROE =RN/CP, ***, ** and * mean that the tests are significant at the 1%, 5% and 10% thresholds respectively

CONCLUSION

In this paper, we examined, on the one hand, the relationship between ownership concentration, the type of share blockholder, and the level of risk measured by the Beta volatility of Tunisian companies. On the other hand, we studied the moderating role of the percentage of shares held by the controlling shareholder on the relationship between the identity of the blockholder and volatility. The study was conducted for 81 Tunisian companies listed on the Tunisian Stock Exchange over a period spanning from 2011 to 2018.

The main results affirm the hypothesis of alignment of interests between controlling shareholders and outside investors through a negative impact of ownership concentration on Beta risk. The results found confirm both the hypothesis of convergence of interests between controlling shareholders and external investors in the context of institutional ownership and the entrenchment hypothesis in the context of family ownership. Indeed, institutional investors are rational active investors since they are considered sophisticated investors (Leung et al 2012) who have the necessary experience and skills in valuing companies, have a long-term investment horizon, and implement prudent rules to avoid speculation (Xuan 2016). This activism on the part of institutional investors strengthens voluntary disclosure practices, thereby aligning interests and reducing risk. However, this activism seems to decrease with the percentage (%) of shares held by institutional investors.

Unlike institutional shareholders, family shareholders who are attached to their company tend to form a coalition with the management team to facilitate the creation of private communication channels, thus reducing voluntary disclosure practices and promoting the expropriation of minority shareholders' interests, especially when minority shareholders' protection is weak. This assumption of family shareholder entrenchment (Shleifer and Vishny, 1997) makes the information environment less transparent, leaves share prices less informative, reduces outside investor confidence, and increases share price risk. However, the study of the moderating role of ownership concentration on the relationship between the identity of the controlling shareholder and risk shows that this entrenchment effect disappears with the percentage of shares held by the controlling shareholder. The main results also reveal that state ownership does not seem to affect the company risk on the Tunisian stock market.

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