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INTERNAL CORPORATE GOVERNANCE MECHANISMS AND RISK DISCLOSURE: EVIDENCE FROM TUNISIA

Salem Boumediene, University of Illinois Springfield
Fatma Ezzahra Abdallah, University of La Manouba
Salma Ben Moussa, Naval Postgraduate School, USA
Emna Boumediene, University of La Manouba

ABSTRACT

Voluntary risk disclosure in the annual reports is increasingly becoming a more common corporate practice. This study aims to examine the impact of internal corporate governance mechanisms of Tunisian companies, on the quality and extent of risk disclosure. Using content analysis followed by a multivariate analysis of a sample of 170 company-year observations from 2011 to 2015, the results indicate that institutional, foreign, and government ownership negatively affect the extent of risk disclosure. However, ownership concentration has a positive effect on the extent of corporate risk disclosure. We also find that audit committee's size has a positive effect on corporate risk disclosure. Finally, we show that board size has a positive effect on corporate risk disclosure, while the presence of woman within the board negatively affects the extent of corporate risk disclosure. Moreover, our analysis reveals that Tunisian companies tend to disclose mainly non-financial risk in their annual reports. Overall, the research provides a new channel through which internal corporate governance mechanisms impact financial reporting. This study contributes to and extends the literature on corporate risk by offering a new perspective on emerging countries' disclosure of risk.

JEL: M42, G34, C23

KEYWORDS: Corporate Risk Disclosure, Ownership Structure, Board of Directors, Audit Committee

INTRODUCTION

The economic and international environment is becoming more and more volatile and uncertain, which could increase the risks companies might face, and thus the amount of information requested by different stakeholders. Marston and Shrives (1991) argue that growth in complexity of business strategies, operations and regulations makes it difficult for investors to have a clear appreciation of company's financial position, without having a comprehensive and understandable disclosure. In this regard, Mousa and Elamir (2014) report that economic changes are forcing the company to comply to the revolutionary changes in the international financial markets, requiring companies to improve financial reporting practices. Risks are unavoidable, shaping company's business decisions and strategic choices. Therefore, all the relevant information must be disclosed in the financial statements to assist stakeholders in both their risk management and risk assessment. Unfortunately, as pointed out by Linsley and Shrives (2006), the lack of consistency and clarity in narratives disclosures enhances the risk of information gap and, prevent stakeholders to properly assess the company's risk profile and understand the role of corporate governance. However, the strategy of any communication remains under the discretion of the corporate governance and depends on disclosure incentives rather than the compliance with requirements and enforcement by regulators and legislators (e.g., Beretta and Bozzolan 2004). Prior studies examine

corporate governance characteristics and attempt to identify the factors that influence the risk disclosure practices (e.g., Ntim et al., 2013; Mokhtar and Mellet, 2013; Mousa and Elamir, 2014; Allini et al., 2015). While academics generally disagree on the factors and their effects, they document a relationship between voluntary risk disclosure and corporate governance mechanisms, that needs to be explored. Although the Tunisian context presents an interesting institutional framework for examining the impact of governance mechanisms on the extent of risk disclosure, this relationship has been the subject of very little previous studies in Tunisia. It is thus interesting to study it since this communication is not strongly regulated in this context and it is considered as voluntary. Therefore, the strategy of this communication does not stem from the regulations in force, but it stems mainly from the decisions of the corporate governance. This lack of research examining this association in the Tunisian context, associated with differences in results stated above prompted us to study this relationship in an emergent economy like Tunisia.

This study aims to investigate the impact of governance mechanisms on the risk disclosure in the Tunisian context. Since disclosures are not highly regulated, they are considered as voluntary. Therefore, we argue that in Tunisia, risk disclosure is mainly a corporate strategy and the result of corporate voluntary disclosure initiatives rather than regulatory requirements. The focus of this study is to explore ownership structure, Board of directors' attributes and audit committee size on the extent of corporate risk disclosure in the annual reports of Tunisian firms. The remainder of the paper is organized as follows: Section 2 presents the literature review. In Section 3 we present our methodology, the description of our sample, and the descriptive analysis. The results and their interpretations are provided in Section 4. We present our conclusions in Section 5.

LITERATURE REVIEW

Corporate risk disclosure research goes back to the 2000s. Three main streams of risk literature can be identified. The first stream has focused on the determinants of risk disclosure as well as the association of this disclosure with some attributes related to the company (e.g., Linsley and Shrives, 2006; Abraham and Cox, 2007; Elzahar and Hussainey, 2012). The second stream emphasized on the attributes of the risk disclosure as well as its value relevance (e.g., Moumen et al., 2015). Finally, the third stream has investigated the association between corporate governance and corporate risk disclosure, which has been the main focus over the recent years (Oliveira et al., 2011; Ntim et al., 2013; Mokhtar and Mellet, 2013; Mousa and Elamir, 2014; Allini et al., 2015). These studies have emphasized on the risk disclosure included in the annual financial reports, since it is the means by which companies communicate information to investors and other stakeholders, for decision-making process. Amran et al. (2009) argue that financial and non-financial components included in the financial reports, convey useful information that can be used to make informed decisions about investments, credit and other strategic choices. In this paper, we focus on the third stream, since our purpose is to examine the impact of corporate governance mechanisms on risk disclosure. We extend previous research and investigate three main corporate governance mechanisms, namely ownership structure, board of directors and audit committee, and we provide evidence complementing their findings. Using a multivariate analysis, we examine the effects of these three important mechanisms on the extent of corporate risk disclosure in the Tunisian context.

Impact of Ownership Structure on Corporate Risk Disclosure

Mokhtar and Mellet (2013), Ntim et al. (2013), Mousa and Elamir (2014) report a positive relationship between ownership structure and corporate risk disclosure. For example, Mousa and Elamir (2014) report that there are different shareholder types having differing rights and benefits and differ from one company to another. Thus, they can have considerable influence on risks disclosure.Institutional ownership is one of the important mechanisms that may affect corporate disclosure practices. Based on an agency theory perspective, institutional investors can monitor and control the corporate disclosure (Elzahar and Hussainey, 2012; Barako et al., 2006). Ntim et al. (2013) report that when the proportion of the firm's shares

held by the large investors is important, it creates an even greater interest in corporate strategic decisions, namely investment and the disclosure of information, including risk information. Empirical studies have examined the association between institutional investors and corporate disclosure. Barako et al. (2006) lead to the fact that extent of corporate voluntary disclosure is positively associated with the proportion of institutional investors. They conclude that managers voluntarily disclose information to respond to the different expectations of these investors. In contrast, Ntim et al. (2013) find a negative relationship between institutional investors and corporate risk disclosure. They explain that investors have many resources and have the means to access some private information. Their interests become then congruent with those of the managers, rather than other investors. This enables them to request information directly, rather than through corporate disclosure. Hence, they can maintain their competitive advantage. The agency theory suggests that institutional investors affect risk reporting practices. Consequently, we state our first hypothesis:

H1(a): The institutional ownership has a positive effect on the extent of corporate risk disclosure.

Foreign ownership is also one of the main characteristics of the ownership structure, that can influence financial reporting. Barako et al. (2006) state that foreign ownership becomes a significant determinant of firm's disclosure practices. In fact, based on the agency theory, we can confirm that foreign investors do not have the same information at their disposal as the local investors. To minimize this information asymmetry, managers generally use of the voluntarily disclosure, and more specifically disclosure about risks. Research examining the association between foreign ownership and risk disclosure is very limited. Mousa and Elamir (2013) have shown a negative but non-significant relationship between foreign ownership and the extent of risk reporting. However, Barako et al. (2006) confirm the existence of a positive and significant association between foreign ownership and risk disclosure. They suggest that firms, which are mainly owned by local investors, should update their voluntarily disclosure practices to effectively catch foreign investors. Thus, our second hypothesis states:

H1(b): There is a positive association between foreign ownership and the extent of risk disclosure.

In the accounting literature, ideas the relationship between ownership concentration and risk disclosure are mixed. Ntim et al. (2013) argue that managers of companies where ownership concentration is high, are less likely to engage in disclosure practices. In fact, costs associated with voluntary disclosure can be significantly higher and exceed potential benefits. Moreover, the marginal cost of additional control is often greater than the resulting performance benefit. Elshandidy and Neri (2015) argue that dispersed ownership leads to less disclosure, thus increasing information asymmetry, which can negatively affect the firm's evaluation. Consequently, additional disclosure enables managers to reduce these conflicts by engaging in understandable voluntary disclosure, including disclosure of information about risks. On the other hand, based on agency theory, we can say that a concentrated corporate ownership structure decreases agency problems within the company. Jensen and Meckling (1976) state that good control and a reduced level of information asymmetry associated with a concentration of ownership, decrease agency problems and improve the performance of the company. Consequently, decrease the need for additional voluntary disclosure. Consistent with this view, Mousa and Elamir (2014) argue that conflicts of interest between shareholders and managers are higher in companies with a dispersed ownership structure than in companies with a concentrated ownership structure. In a dispersed ownership structure, minority shareholders have less power of influence over corporate management, including decisions related to disclosure. Empirically, some studies revealed no significant association between ownership concentration and risk reporting (Mokhtar and Mellet, 2013; Oliveira et al., 2011). Others state that ownership concentration has a negative and significant effect on the extent of risk disclosure (e.g., Ntim et al., 2013). However, the results of Mousa and Elamir (2014) show a positive association between ownership concentration and risk disclosure. They explained that companies with a large ownership concentration are more likely to disclose risk information, because they prefer to communicate more relevant information, to keep investors interested and convince

them of the continued good performance. Therefore, in line with Boesso and Kumar (2007), we hypothesize that companies engage in voluntary disclosure to meet the information need. This leads us to the third hypothesis:

H1(c): The ownership concentration has a positive effect on the extent of risk disclosure.

With significant stakes in the company, the government may also influence the extent of the disclosure, including disclosure about risk. Some researchers suggest that government ownership can deteriorate the quality of some practices in the firm. For example, Hou and Moore (2010) argue that level of corruption and fraud are higher in the Chinese companies with a high level of government ownership. This can be supported by the fact that a strong politic connection, associated with an important level of governmental ownership may guarantee some types of protection against a strict control derived from weak regulatory authorities, which could lead to poor disclosure practices (Ntim et al., 2013). They also report that from an agency theory perspective, managers of firms with a high level of government ownership can increase the extent of risk disclosure mitigate agency problems between managers and government, as an influential shareholder. Eng and Mak (2003) and Ntim et al. (2013) provide evidence that governmental ownership has a positive and significant effect on disclosure practices. Based on 158 Singaporean listed firms, Eng and Mak (2003) argue that government ownership is likely to increase moral hazard and agency problems. Consequently, voluntarily disclosure can help alleviate some of these problems. Consistent with that evidence, Ntim et al. (2013) further argue that these firms tend to disclose more risk information to report their support to government initiatives and compliance with standards and rules, which can facilitate access to critical resources. Given these thoughts, we formulate the following hypothesis:

H1(d): Government ownership has a positive effect on the extent of risk disclosure.

Impact of Board of Directors on Corporate Risk Disclosure

Board of directors presents a major governance mechanism that can influence different practices of the firm, and thus risk disclosure. Rechner and Dalton (1991) stipulate that from corporate governance perspective, the board of directors is a key structural mechanism in monitoring managerial behavior and in protecting different stakeholders of the firm. Allini et al. (2015), in line with Elshandidy and Neri (2015), argue that board size is a fundamental characteristic that can determine its effectiveness. According to the agency theory, boards with large number of directors have a great diversity in term of expertise and control. Furthermore, from a stakeholder theory perspective, the larger the size of the board is, the more is the access to information by the external environment (Ntim et al., 2013). Elzahar and Hussainey (2012) argue that boards with large diversity of expertise are more encouraged to prove their efforts regarding risk management, hence by disclosing information about risk. Recently researchers have placed greater emphasis on the association between board size and risk reporting. Some studies have shown the existence of a negative association between board size and risk disclosure (Mousa and Elamir, 2014), others have shown the absence of a significant relationship between board size and risk disclosure (Elzahar and hussainey, 2012; Allini et al., 2015). However, Mokhtar and Mellet (2013) and Ntim et al. (2013) have shown that board size has a positive and significant effect on the corporate risk disclosure. Then we formulate the following hypothesis:

H2(a): Board size has a positive effect on the extent of corporate risk disclosure.

Some boards are characterized by their role duality, where the CEO of the firm is also the chairman of the board. This characteristic can influence the disclosure strategy of the firm. Separation of functions of the CEO and the chairman can enhance the ability of the board to control and to monitor managers and directors by improving the board's independence and accountability (Barako et al., 2006; Rachdi and El Gaied, 2009). Ntim et al. (2013) confirm that duality can influence risk disclosure. However, duality can lead also

to a greater knowledge, comprehension and experience regarding the strategic changes and the opportunities faced by the company, which positively influence firm performance. On one hand, Elzahar and Hussainey (2012) and Ntim et al. (2013), have shown the absence of a significant association between board duality and risk reporting. On the other hand, Mokhtar and Mellet (2013) have shown that board duality has a negative, no significant effect on mandatory risk disclosure. Therefore, we formulate the following hypothesis:

H2(b): Board duality has a negative effect on the extent of corporate risk disclosure.

A further aspect related to the board diversity, is the presence of women within the board. Nielsen and Huse (2010) state that woman contribute to board effectiveness and influence the implementation of strategies through their significant contributions to decision-making. Allini et al. (2014) report that listed firms, with at least one woman within the board, have lower percentage of member participation and meeting frequency than listed companies with no female members on the board. Allini et al. (2014) have shown that firms with large presence of female members on the board, negatively affect non-financial information disclosure. They conclude that number of women within the board is generally limited compared to male, and this because they do not get too close to the other members and therefore do not have a remarkable influence on other male directors. Allini et al. (2015) have found that firms with large proportion of female members disclose more risk information. They concluded that women improve the board's effectiveness and strengthen firm accountability and transparency. Thus, the following hypothesis is formulated:

H2(c): The proportion of women directors on the board has a positive effect on the extent of corporate risk disclosure.

Another important characteristic is the board independence that should be in the corporate governance research. Allini et al. (2015) report that board independence is a crucial factor that can reduce information asymmetry and improve financial reporting quality. In fact, independent directors are considered as professionals that have neither a management role nor shareholding nor any other ownership relation. From a legitimacy theory perspective, their presence is then considered as a means of enhancing firm's legitimacy by fostering a link between the firm and its societal values (Edkins, 2009). Linsley and Shrives (2006) argue that presence of independent directors can be considered as an important governance structure that enables to mitigate agency problems between shareholders and managers. That is how the presence of independent directors improves reporting quality in general and risk reporting in particular (Allini et al., 2015). Previous empirical results on board independence and risk disclosure are mixed. Elzahar and Hussainey (2012) and Allini et al. (2015) find no significant association between board independence and corporate risk disclosure. However, other studies found a positive association between board independence and corporate risk disclosure (Oliveira et al., 2011; Ntim et al., 2013; Zeghal and El Aoun, 2016). Abraham and Cox (2007) have shown that role of independent non-executive directors is important in the risk reporting process, and they are positively associated with the amount of disclosed information on risk. They conclude that a potential group of independent non-executive directors can rely on a group of executive directors that is competent with respect to risk. Moreover, Oliveira et al. (2011) argue that independent directors are indispensable to the reduce agency costs. Hence the following hypothesis is considered:

H2(d): Board independence has a positive effect on the extent of corporate risk disclosure.

Impact of Audit Committee Size on Corporate Risk Disclosure

Audit committee presents a fundamental mechanism that can guide corporate disclosure practices. Its effectiveness lies on its characteristics and mainly on its size. Persons (2009) confirms that audit committee size is an integral factor that enables to adequately control corporate reporting practices. Li et al. (2012)

reported that large audit committees can help the committee to resolve potential questions concerning the corporate reporting process. In fact, a significant number of members on the audit committee are more likely to bring different point of views and a broad range of expertise to ensure an effective control (Bedard and Gendron, 2010). Madi et al. (2014) find that audit committee size is positively and significantly associated to the voluntary disclosure. They conclude that audit committee size improves disclosure and reduces the information asymmetry related to the agency problems. Thus, we formulate the following hypothesis:

H3: The audit committee size has a positive effect on the extent of corporate risk disclosure.

DATA AND METHODOLOGY

This section is organized into three parts. First, we discuss the sample and data and collection. Next, we discuss variable measurement. The third part describes the empirical model.

Sample and Data Collection

This study is based on a sample of 77 Tunisian firms listed in the Tunisian stock exchange (TSE) in 2015. Financial companies are excluded because of their specific regulations both in term of corporate governance and in term of risk disclosure. Also, 17 non-financial companies were eliminated for a lack of data. Thus, we were able to select 34 listed companies observed from 2011 to 2015. The period of our study can be justified by our incentives to examine the relationship reported above in the post revolution period in the Tunisian context. During this period, Tunisia has had its revolution and elected the first freely elected president of modern Tunisia. However, we excluded 2016-2020 since many laws have changed in addition to the COVID-19 pandemic. The corporate risk disclosure and the corporate governance variables were collected from the sampled companies' annual reports presented in the Financial Market Council and from information provided on the website of the Tunisian Stock Exchange.

Variables Measurements

Our dependent variable is the extent of corporate risk disclosure in the annual reports of Tunisian firms. Content analysis seems to be the most appropriate method enabling to analyze the big amount of information presented in the annual reports. Mousa and Elamir (2013) confirm that content analysis is a way to categorize items in a text and can be used when a large amount of information needs to be analyzed. This method requires identifying the unit of analysis. Linsley and Shrives (2006) report that number of words, number of pages and number of sentences can be used to perform content analysis. Thus, in the previous literature, the extent of risk disclosure was assessed using different units of analysis. Hassan (2009) used the paragraph as a unit of analysis in the UAE context. Louhichi and Zraik (2015) used the word as a unit of analysis by setting out six reference words relating to risk. Other researchers used the sentence as a unit of analysis (Amran et al., 2009; Elzahar and Hussainey, 2012; Mokhtar and Mellet, 2013; Moumen et al., 2015). In this study, the sentence is used as a unit of analysis since it presents a complete and reliable basis. Linsley and Shrives (2006) argue that use of the number of sentences as a unit of measure is a well-established method for the coding of risk disclosure. However, the word cannot be coded without referring to the sentence and it can only be interpreted in the context of a sentence (Linsley and Shrives, 2006; Elsandidy and Neri, 2015). Before starting the content analysis, we should introduce a clear definition of risk disclosure. Linsley and Shrives (2006) broadly define risk disclosure as ''if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure''.

We have analyzed an initial sub-sample composed by five annual reports to verify the coherence of the coding process, the inter-reliability test. This additional analysis yielded a Scott's Pi of 0.80, which present a satisfactory degree since it is higher than 0.75 as proposed by Linsley and Shrives (2006). This step is performed to improve the reliability and to reduce the subjectivity of the content analysis method. Linsley and Shrives (2006) argue that content analysis is inevitably subjective and therefore the counting method needs to be reliable to draw valid conclusions. Then, the analysis is performed and completed by a single coder from the authors for all the annual reports. Each counted sentence is classified according to the grid of risk categories proposed by Linsley and Shrives (2006) and in coherence with the proposal framework developed by the ICAEW (1998). Based on previous literature, the output of the analysis is classified according to their semantic dimensions (Good / Bad; Past / Future; Monetary / Non-Monetary). And finally, we count the total number of different predefined categories and dimensions. Independent variables are those related to corporate governance, and control variables are namely, the age of the firm, the leverage and the industry presented in Table 1.

Empirical Model

We use the following model to examine the association between corporate governance mechanisms and the extent of corporate risk disclosure in the Tunisian context.

$$RD = \alpha_0 + \alpha_1 INS + \alpha_2 COWP + \alpha_3 GOWP + \alpha_4 FOWP + \alpha_5 SZB + \alpha_6 INDB + \alpha_7 WMB + \alpha_8 DUB + \alpha_9 SZAC + \alpha_{10} END + \alpha_{11} AGE + \alpha_{12} INDUST + \varepsilon \quad (1)$$

Where, RD is the extent of risk disclosure, INS the institutional ownership, COWP the concentrated ownership, GOWP the government ownership, FOWP the foreign ownership, SZB the board size, INDB the board independence, WMB the presence of female members on the board, DUB the role duality of the board, SZAC the audit committee size, END the firm leverage, AGE the firm age and INDUST the firm industry.

Table 1: Independent Variables

Variable	Measure & Definition	Authors
Panel A: Independent Variables		
INS	The proportion of shares held by institutional investors	Elzahar and Hussainey (2012), Ntim et al. (2013), Mousa and Elamir (2014)
FOWP	The proportion of shares held by foreign investors	Baccouch et al. (2010), Mousa and Elamir (2014)
COWP	The proportion of shareholding > 5%	Ntim et al. (2013), Mokhtar and Mellet (2013), Mousa et Elamir (2014)
GOWP	*The proportion shares held by the government*	Ntim et al. (2013)
SZB	Total number of directors in the board	Barako et al. (2006), Mokhtar and Mellet (2013), Mousa and Elamir (2014), Allini et al. (2015)
DUB	1 if the CEO is the chairman of the board 0 otherwise	Elzahar and Hussainey (2012), Mokhtar and Mellet (2013), Ntim et al. (2013)
WMB	The proportion of women directors within the board	Allini et al. (2014), Allini et al. (2015)
INDB	The proportion of independent non-executive directors on the board	Oliveira et al. (2011), Ntim et al. (2013), Allini et al. (2015)
SZAC	Total number of members in the audit committee	Persons (2009), Li et al. (2012), Madi et al. (2014)
Panel B: Control Variables		
END	Debt ratio (firm leverage)	Abraham and Cox (2007), Hassan (2009), Mousa and Elamir (2014)
AGE	Age of the firm	Mak and Li (2001)
INDUST	1 if the firm is industrial 0 otherwise	Baccouche et al. (2010), Elzahar and Hussainey (2012), Mokhtar and Mellet (2013)

This table shows the independent variables and the control variables used in our model. Panel A shows the independent variables including proportion of shares held by institutional investors, foreign investors and by the government, proportion of women directors within the board, proportion of shareholding. Panel B shows the control variables age of the firm, the leverage and the industry, The third column reports the main references for each variable

RESULTS AND DISCUSSION

This section is organized into three parts. First, we present the descriptive statistics. Next, we discuss multivariate analysis. The third part describes the negative binomial regression estimation.

Descriptive Statistics

Table 2, Panel 1 shows that total number of sentences disclosed on risks is 1972 sentences, which is very low compared to the other contexts. Moreover, we can notice that most of the disclosed sentences represent non-financial risks (1271 sentences) which represent 64% of total disclosed sentences. This result is consistent with Amran et al. (2009), Oliveira et al. (2011) and Ntim et al. (2013) who showed that firms disclose non-financial risks more than financial risks in their annual reports. This can be explained by the fact that activities and strategies of the studied Tunisian companies are influenced by the revolutionary context and by the economic changes during the five years of the study. This situation may increase the level of risks related to strategic, but non-financial operations of the firms, which leads them to disclose these types of risks. Ntim et al. (2013) in the South-African context, explain that focus on disclosing non-financial risks can reflect the operational and strategic changes faced by firms during the financial crisis of 2008. Results are also in consistence with the findings of Linsley and Shrives (2006) that showed that strategic risks, operational risks, and financial risks are the most disclosed risks in the annual reports. In fact, in our case, the most disclosed categories are strategic risks (790 sentences), financial risks (701 sentences) and operational risks (439 sentences). The importance attached to this information can be explained by the financial difficulties faced by Tunisia after the revolution, such as the increase in exchange rates (EUR/TND and USD/TND), the increase in the inflation rate and the increase in purchase prices. Table 2, Panel 2 shows that number of disclosed sentences on total risks is on average 11.6 sentences varying from one sentence to 36 sentences. This also justifies the low commitment to risk disclosure by Tunisian companies. Finally, the results presented in Table 2, Panel 3 suggest that Tunisian firms are interested to disclose mostly past information with 1432 sentences (representing 72.61% of total disclosures). Bad information is disclosed in 1255 sentences (63.64% of total disclosures) while non-monetary information is disclosed in 1487 sentences (75.4% of total disclosures).

Table 2: Descriptive Analysis 12 Risk Disclosure

Panel 1: Risk Disclosure by Year and by Category

	2011	2012	2013	2014	2015	Total
Financial risk disclosure	139	133	128	136	165	701
Operational risk disclosure	94	104	83	72	86	439
Empowerment risk disclosure	4	8	7	6	9	34
Information processing and technology risk disclosure	1	1	0	1	0	3
Integrity risk disclosure	1	0	1	2	1	5
Strategic risk disclosure	160	150	142	149	189	790
Total	**399**	**396**	**361**	**366**	**450**	**1,972**

Panel 2: Descriptive Statistics of Risk Disclosure

	Mean	Std. Dev.	Min	Max
Risk disclosure	**11.6000**	**6.9217**	**1.000**	**36.0000**

Panel 3: Risk Disclosure Classified by Semantic Disclosure

	Good	Bad	Monetary	Non-Monetary	Past	Future	No Specific Time
Risk disclosure	717	1,255	485	1,487	1,432	528	12

This table shows the descriptive analysis of risk disclosure. Panel 1 shows the total number of sentences disclosed on risks by year and by category. Panel 2 shows the descriptive statistics of disclosed sentences on total risks. Panel 3 of this table shows the disclosed sentences on total risks classified by their semantic dimension.

Descriptive statistics are presented in Table 3 and Table 4. Table 3, shows that proportion of institutional investors is on average 16.81%, varying between 0% and 88.42%. Likewise, the proportion of foreign investors ranges from 0% to 73.43% with an average of 9.34%. Regarding ownership concentration and government ownership, they represent respectively an average of 66.90% and 6.45%. The board size ranges from 4 to 12 members with an average of 8 members which complies to the Tunisian commercial companies' law (TCCL). The proportion of female members within the board is on average 7.26%, varying between 0 and 55.55%. The audit committee size represents on average 3 members varying between 2 and 5 members. Therefore, two firms do not comply to the minimum of 3 members fixed by the TCCL. AGE and END, represent on average 38.2 and 0.54 respectively.

Table 3: Descriptive Statistics of Quantitative Variables

Variables	Mean	Std. Dev.	Minimum	Maximum
Panel A: Independent Variables				
INS	0.1681	0.2137	0.0000	0.8842
FOWP	0.0934	0.1746	0.0000	0.7343
COWP	0.6690	0.1611	0.2470	0.9986
GOWP	0.0645	0.1891	0.0000	0.7980
SZB	8.2000	2.5457	4.0000	12.0000
WMB	0.0726	0.1176	0.0000	0.5556
INDB	0.1387	0.1272	0.0000	0.5000
SZAC	3.2471	0.5308	2.0000	5.0000
Panel B: Control Variables				
AGE	38.2000	20.2521	3.0000	89.0000
END	0.5450	0.4031	0.0081	2.6768

This table shows the descriptive statistics of quantitative variables. Panel A shows the mean, standard deviation, minimum, and maximum for the continuous independent. Panel B shows the mean, standard deviation, minimum, and maximum for the continuous control variables

Table 4 presents the descriptive statistics of dichotomous variables. The analysis shows that at the board of directors, 60.59 combine the functions of CEO and chairman. And 50% of the sampled firms are industrial firms.

Table 4: Descriptive Statistics of Dichotomous Variables

Variable		Frequency	Proportion (%)
Panel A: Independent Variable			
DUB	0	67.00	39.41
	1	103.00	60.59
Panel B: Control Variable			
INDUST	0	85.00	50.00
	1	85.00	50.00

This table shows the descriptive statistics of dichotomous variables. Panel A shows the frequency and proportions for the dummy independent variable. Panel B shows the frequency and proportions for the dummy control variable. For the companies of the sample 61% of the CEOs are chairman of the board. Half of the companies of the sample are industrial

Multivariate Analysis

We start by checking for the multicollinearity between the explanatory variables. The results of the Spearman correlation matrix presented in Table 5, indicate that multicollinearity is not a problem since the highest value is 0.4253, which is less the multicollinearity threshold recommended by Kennedy (2008).

As we explained before, our dependent variable represents a count variable that range from 0 to 36. Thus, this type of variables rarely meets the normality condition, and a Linear Regression model seems to be inappropriate, which was confirmed by the Shapiro-Wilk test. Zeghal et al. (2007) argue that in the classical linear models, the dependent variable is expressed as a linear combination of explanatory parameters while assuming that this variable is normally distributed, whereas Generalized Linear models such as the Poisson-Regression Model (PRM) and the Negative-Binomial model are based on alternative distributions. Thus, we conduct our analysis through a Generalized Linear model. For the PRM, we-should consider the equality between the mean and the variance of the dependent variable. In our case, the variance of our dependent variable is largely higher than its mean, indicating an overdispersion problem. This can be confirmed or infirmed by the deviance test and the Chi-Square test. The result of these both tests are presented in Table 6.

Table 5: Spearman Correlation Matrix

	INS	**FOWP**	**COWP**	**GOWP**	**SZB**	**WMB**	**INDB**	**SZAC**	**END**	**AGE**
INS	-									
FOWP	0.4253	-								
COWP	0.1108	0.1037	-							
GOWP	-0.2730	-0.1167	0.0736	-						
SZB	0.1764	0.2769	0.0721	0.0285	-					
WMB	0.0559	-0.1657	0.0355	0.3149	0.2582	-				
INDB	0.0258	-0.1235	-0.3026	-0.2300	-0.3512	-0.3475	-			
SZAC	-0.2213	-0.1404	-0.0675	0.3831	0.3129	0.1713	0.0594	-		
END	-0.1136	-0.1824	-0.1170	0.0387	0.0699	-0.1128	0.1557	0.4028	-	
AGE	0.0101	0.1595	0.2213	0.1401	0.2241	0.0467	-0.1116	0.2743	0.0218	-

This table shows the Spearman correlation matrix to check the multicollinearity between the explanatory variables. From this table, the highest value is 0.4253, which indicate no multicollinearity problem.

Table 6: Deviance and Khi² Tests

Test	**Coefficient**	**Significance**
Deviance test	591.0908	0.0000***
Chi-Square test	571.3930	0.0000***

*This table shows deviance and Khi² tests. Both tests are significant at the level of 1%, which lead us to reject the null hypothesis. The use of negative binomial regression is appropriate. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.*

Results show that these two tests are significant at the level of 1%, which lead us to reject the null hypothesis. Thus, the use of negative binomial regression is appropriate and necessary. Given that our study covers 34 companies during a five-year period, our data correspond consequently to a panel data, hence a problem of heterogeneity may arise. Thus, it is necessary to model the heterogeneity of behaviors by using the fixed or the random effect model, based on Hausman test. Table 7 displays a significant coefficient at the level of 1%, implying that a fixed effect model is necessary.

Table 7: Hausman Test

Coefficient	34.2100
Significance	0.0002***
Appropriate specification model	Fixed-effect model

*This table shows Hausman test is significant at the level of 1%. A fixed effect model is required. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.*

Negative Binomial Regression Estimation

The fixed effect negative binomial regression results, presented in Table 8 show that Wald Chi-Square statistic is highly significant at the level of 1% (Wald Chi2 = 27.24, P-value = 0.0071), which means that estimators can properly explain the extent of the risk disclosure, and therefore our model is globally significant.

Results show that proportion of institutional investors has a negative and significant impact at the level of 1% on the extent of risk disclosure. Thus, when firms have significant proportions of institutional ownership, they have an interest to reduce the level of risk reported in their companies' annual reports. This implies that institutional investors have sufficient information on risks. Given their importance in companies, they can exercise their power to hide some risk information. Our results are consistent with previous evidence (e.g., Abraham and Cox, 2007; Ntim et al., 2013), suggesting that institutional investors can benefit from a large amount of non-public information by a simple direct contact with the managers. Our result our first hypothesis H1(a) which assumes that institutional ownership has a negative impact on the extent of risk disclosure. Unlike Mousa and Elamir (2013, 2014), who found a non-significant relationship between risk disclosure and foreign ownership, our results show that foreign ownership has a negative and significant impact at the level of 10% on the extent of risk disclosure. This implies that proportion of foreign shareholders decreases the level of risk disclosure in the annual reports of Tunisian companies. Hence, we reject our hypothesis H1(b).

Table 8: Regression Estimates

	Coefficient	Z Statistic	Significance
INS	-3.8540	-4.1200	0.0000***
FOWP	-2.8298	-1.6600	0.0980*
COWP	2.2775	3.6000	0.0000***
GOWP	-1.1449	-1.9100	0.0560*
SZB	0.0998	2.4900	0.0130**
DUB	0.1238	0.7900	0.4320
WMB	-1.4234	-2.5300	0.0110**
INDB	-0.6304	-1.0300	0.3030
SZAC	0.2917	1.8500	0.0650*
END	-0.1981	-0.7100	0.4760
AGE	0.0491	2.2700	0.0230**
	Wald Chi-Square		27.2400
	Significance		0.0070***

*This table shows results for the negative binomial regression estimation. The Wald Chi-Square statistic is significant at the level of 1% meaning that estimators can properly explain the extent of the risk disclosure and the model is globally significant. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.*

The ownership concentration has a positive and very significant impact at the level of 1% on the extent of risk disclosure. Inconsistent with the findings of Oliveira et al. (2011) and Mokhtar and Mellet (2013), our result implies that companies with a large ownership concentration have an interest to disclose more risk information in the annual reports. This can be explained by the power and the control exercised by these investors over the manager regarding risk disclosure practices, and their willingness to reduce agency problems in the company. These findings are in line with Mousa and Elamir (2014) that indicate companies with a high ownership concentration are more likely to disclose risk information because they prefer to share with investors more relevant information to attract them and convince them of the company's performance. These findings support the prediction in H1(c).

The regression coefficient for government ownership, has a negative and significant impact on the extent of risk disclosure at the level of 10%. In fact, in Tunisia, companies with significant government ownership do not engage too much on risk disclosure. This is likely because such companies feel protected by the state and therefore, they have a reduced incentive to disclose relevant risk information to other stakeholders. Our results support those of Dam and Scholtens (2012) but are inconsistent with the findings of Eng and Mak (2003) and Ntim et al. (2013) that suggest that government ownership is positively associated with voluntary risk disclosure, implying that H1(d) is not empirically supported. Also, it is not in line with our hypothesis H1(d). The board size of has a positive and significant impact at the level of 5% on the extent of risk disclosure. This can be motivated by the great diversity of expertise and responsibility that can be found in large boards. In fact, the higher the number of board members, the more the accountability of the company in terms of transparency and disclosure. Our result corroborates the findings of Mokhtar and Mellet (2013), who explain that positive relationship between risk disclosure and board size reflects the importance of directors' awareness towards their responsibility to support financial reporting. Likewise, this result converges with the result of Ntim et al. (2013) that indicates that large boards of directors are associated with better managerial power and greater diversity in terms of expertise and stakeholder representation, which can improve the legitimacy and the reputation of the firm. However, our results are not consistent with the results of Elzahar and Hussainey (2012), Mousa and Elamir (2014) and Allini et al. (2015). Our hypothesis H2(a) is thus verified.

We also note that proportion of women on the board of directors has a negative and significant influence on the extent of risk disclosure at the level of 5%. This means that a significant proportion of women in the board decreases the level of risk disclosure. Our result is similar to that of Allini et al. (2014), but inconsistent with the result of Allini et al. (2015), that indicate that a significant proportion of female directors improves the level of risk disclosure. This leads us to reject our hypothesis H2(c). We find that board duality and the board independence have no significant impact on the extent of the corporate risk disclosure, similar to that of Elzahar and Hussainey (2012). In fact, the absence of a significant relationship between board independence and risk reporting implies that directors cannot exert pressure on managers and other board members to disclose risk information. Thus, we reject both hypothesis H2(b) and H2(d).

Consistent with Madi et al. (2014), the audit committee size has a positive and significant impact indicating that large audit committees are more diverse in terms of expertise and motivation for greater transparency, thus reducing corporate agency problems. However, this is not consistent with the results of Elzahar and Hussainey (2012). Then we confirm our hypothesis H3. The regression coefficients for INDUST, and END have no significant impact on the extent of the risk reporting. However, consistent with Baccouche et al. (2010), we find that AGE has a positive and significant impact at the level of 5% that suggest that older companies have an interest in disclosing more risk information. This may be related to some legitimacy and reputation issues of older companies, and their willingness to disclose any relevant information in the annual reports, proving their risk awareness.

CONCLUSION

This study investigates the relationship that may exist between internal corporate governance mechanisms and the extent of risk disclosure in annual reports. The results show that Tunisian firms do not disclose high amount of risk information in their annual reports. Therefore, the annual reports may not provide useful information about risk that assists users in their decision-making. This can be explained by the weak regulations' requirements about risk disclosure in the annual reports in the Tunisian context. Our results also indicate that institutional, foreign, and government ownership as well as the proportion of female members within the board of directors negatively affect the extent of corporate risk disclosure. Moreover, ownership concentration, board size, audit committee size and the firm age have a positive effect on the level of corporate risk disclosure. This study contributes to the ongoing debate on any possible association between internal corporate governance mechanisms and the extent of risk disclosure in annual reports. It

extends the literature on corporate risk by offering a new perspective on emerging countries' disclosure of risk. Moreover, our findings can be useful to legislators in setting regulations and rules, mandating companies for more disclosure about information risk in their annual reports.

However, this study has some limitations. Firstly, our study is based on a content analysis enabling to measure the extent of corporate risk disclosure. As stated in previous literature, this method involves subjectivity. But as explained by Linsley and Shrives (2006), this method remains effective as it provides important contributions in the existing literature. Secondly, this study uses a small sample of non-financial companies. Thus, the results cannot be generalized to all Tunisian firms. Finally, this paper offers some suggestions for future research. First, future studies may examine the same relationship on financial firms and compare the results with our findings in other countries. Second, we suggest that separate studies of group of financial and non-financial firms, is worth investigating to derive comparative analysis between these two sectors. Third, future work may include other variables related to external governance mechanisms, particularly about risk disclosure.

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AUTHOR INFORMATION

S. L. Boumediene has a PhD in Business Administration (Accounting) from the University of El Manar, Tunisia. Dr. Boumediene is associate professor in the department of Accounting, Economics, and Finance University of Illinois Springfield. Dr. Boumediene taught both financial and managerial accounting at both the undergraduate and graduate levels. Dr. Boumediene has been publishing his research work in academic journals and published a book on statistical characteristics and quality of accounting

F. E. Abdallah graduated from ISCAE, La Manouba, Tunisia with a master degree of research in accounting. Her research interests are in the area of financial reporting and disclosure. She holds an accounting assistant position in a large public Tunisian bank. During her tenure at the bank, Ms. Abdallah developed other skills related to the management of human capital, credit management and social responsibility.

S. Ben Moussa has a PhD in business administration (Finance) from the University of El Manar, Tunisia. Before joining Naval Postgraduate School, Dr. Ben Moussa taught both financial and cost accounting at Montana State University Billings. Dr. Ben Moussa research interest focuses on current issues in financial accounting, and emerging technologies in accounting including Artificial intelligence and machine learning in accounting, digital forensics, ESG and Sustainability Reporting, and Diversity, inclusion and Transparency.

E. Boumediene has a PhD in business administration (Accounting) from the University of El Manar, Tunisia. Dr. Boumediene is professor in the department of Accounting and Finance at ISCAE, La Manouba, Tunisia. Dr. Boumediene teaches both financial and managerial accounting in undergraduate and graduate levels. She also taught courses for the preparation of Certified Public Accounting exam. Dr. Boumediene has been publishing her scientific research in academic journal and published a book on financial statement.