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Ownership concentration and risk disclosure quality in the Tunisian context: Evidence from the pre- and during COVID19 periods

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Abstract

Research question: How does ownership concentration impact risk disclosure quality in Tunisian listed companies before and during the Covid19 pandemic, and how does board gender diversity moderate this relationship?

Motive: Building mainly on the findings of Haj Salem *et al.* (2019) who studied the risk disclosure in the tunisian context, this study extends the analysis by investigating the link between risk disclosure quality and the ownership concentration while considering the impact of the Covid19 pandemic.

By incorporating board gender diversity as a potential moderating factor, the study provides a more comprehensive understanding of corporate disclosure behavior.

Idea: The paper seeks to analyze the link between the ownership concentration and the risk disclosure quality among the Tunisian listed companies while taking into account the effect of the Covid19 pandemic. It also aims at investigating the moderating role of the board gender diversity on the above-mentioned link.

Data: Data were collected through content analysis of annual reports of 38 Tunisian listed companies for the period ranging from 2014 to 2021.

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Tools: The estimation of the studied model was conducted using the xtgls function which allowed the estimation by Generalized Least Squares (GLS) method.

Findings: The study revealed a negative impact of the ownership concentration on the risk disclosure quality. As for the moderating impact of the board gender diversity, the results showed a negative and insignificant impact during the first period and a positive and significant impact during the second period.

Contribution: This study investigates the relationship between ownership concentration and risk disclosure quality in Tunisia, comparing pre- and during-Covid19 periods. It uniquely explores the moderating role of board gender diversity and contributes to the limited accounting literature on risk disclosure quality.

Keywords: Risk disclosure, Risk disclosure quality, ownership concentration, board gender diversity.

JEL codes: M41, G34

1. Introduction

In the contemporary business environment, there is an increasing need for transparency, especially after the breakdowns that many giants around the world have experienced (Enron, Parmalat, WoldCom etc.) and the global financial crisis. The mentioned collapses have pushed regulators and stakeholders to require more transparent information and better governance mechanisms (Haj Salem *et al.*, 2019).

Tunisia was not immune from these falls out and it has given more importance to transparency through the enactment of laws that enhance transparency and good corporate governance. Indeed, Tunisia was not only influenced by the financial scandals around the world but also by the famous collapse of BATAM (Leader in mass distribution particularly in appliances) that occurred by the end of 2002. Additionally, the continuous changes of the political system starting from the revolution year in 2011 resulted in the ratification of laws regarding the economic development of the country and consequently regarding the Tunisian firms.

Furthermore, just like most of the firms around the world, a huge majority of the Tunisian firms were affected by the Covid19 pandemic and the lockdowns that they were subjected to, which resulted in a decrease in their activities. Based on the above considerations, we consider that in such a context there is a growing need for high-quality information that may help investors to protect their wealth and to make rational decisions. Prior research in the realm of risk disclosure has examined the risk disclosure from different sides: Researchers have shed light on the practices of the risk disclosure, its determinants and its association with, among others, the corporate governance mechanisms.

In the same line, they used several theories in order to base their analyses covering the information asymmetric, agency, signaling, legitimacy, and stakeholders' theories. Nevertheless, Deumes (2008) argued that previous studies have mostly focused on the content of the risk disclosure. Comparatively, only few studies explored the risk disclosure quality. That's why future research has to delve more into it (Haj Salem *et al.*, 2019). For this reason, we chose to contribute to the existing literature by casting light on the risk disclosure quality.

Besides, in recent years, the ownership structure has received considerable attention (Albitar *et al.*, 2022). In fact, according to Albitar *et al.* (2022), the need for more disclosures varies with the ownership structure. The results of the studies that tackled the ownership structure and its link with the voluntary disclosures were heterogeneous: The question of whether large owners contribute to upgrading, alleviating or not the corporate voluntary disclosures remains unanswered. This study tried to fill this literature gap and to deeply scrutinize this relationship in the Tunisian context usually characterized by a high level of ownership concentration (Gharbi & Ben Ouda, 2011; Khanchel, 2007; Omri, 2003).

Additionally, in more recent times, it has been acknowledged that diversity in the workforce is an issue garnering a significant amount of attention in research (Zaid, 2020). Indeed, in accordance with Saggar *et al.* (2021) the global financial crisis and the corporate failures have ignited the contention on the weak corporate governance mechanisms and have pushed regulators to seek for the reasons behind these breakdowns.

In this context, the reasons that were brought to light include, among other causes, the male-dominant board of directors. This dominance has led to the collapses that big companies went through such as Enron and WorldCom (Erhardt *et al.*, 2003). Saggar *et al.* (2021) advance the idea that a vast array of previous literature has shown plenty of advantages related to the presence of women on boards. Indeed, their presence enhances innovation, righteousness and creativity (Fondas, 2000), positively impacts the corporate values and the firm performance (Erhardet *et al.*, 2003) and amplifies good governance practices (Rose, 2007).

The theoretical frame of reference used to underpin the linkage between the risk disclosure and the board gender diversity involves numerous theories. Still, the most used ones are the resource dependence theory and the agency theory. In fact, the agency theory states that the presence of women in the board of directors contributes to better monitoring the managers. Moreover, female directors are more cautious and rarely do they engage to fraudulent acts or manipulations, which results in enhancing the quality of the financial information (Pucheta-Martinez *et al.*, 2016). For that reason and based on the agency theory's postulates, we believe that the expected association between the ownership concentration and the risk disclosure quality can be moderated by the presence of women on boards. Besides, in the domain of risk disclosure, the gender diversity has limited empirical evidence with respect to risk disclosure Therefore, it is necessary to dig in depth within the link that matches the board gender diversity and the risk disclosure (Saggar *et al.*, 2021).

In the light of the foregoing, this empirical study mainly purposes to study these objectives: First, to investigate the link bridging the ownership concentration with the risk disclosure quality in the Tunisian context; And second, to examine the moderating effect of the board gender diversity on the above-mentioned link.

To achieve these key objectives, we constructed a panel data set of the non-financial listed firms on the Tunisian Stock Exchange covering the period ranging from 2014 to 2021. Indeed, in order to unveil the ultimate effect of the Covid19 pandemic on the studied relationships, the study's period was divided into two parts: The first one aimed at fulfilling the objectives of this research in the period before the Covid19 pandemic which means from 2014 to 2019 and the second part was dedicated to fulfilling these objectives in 2020 and 2021 as they are characterized by the Covid19 crisis.

This paper is outlined as follows: The second section will display the theoretical bases of the study succeeded by the literature review and the development of the tested hypotheses in the third section. The fourth section will set forth the research methodology and the subsequent section will embark upon the empirical findings of the study. A conclusion and suggestions for future research will be given in the last section.

2. Theoretical framework

2.1 Ownership concentration and risk disclosure quality

Prior research has tried to explain the factors that drive companies to disclose voluntary information involving the risk information in their annual reports. To do so, several theories have been used including the information asymmetric theory, agency theory, signaling theory, legitimacy theory and stakeholder theory. Given that our study focuses on the Covid19 pandemic period, legitimacy theory is an appropriate framework for understanding why companies voluntarily disclose information in their annual reports. This theory suggests that organizations aim to align with societal expectations to maintain legitimacy, especially during crises like the pandemic.

Zharfpeykan and Ng (2021) examined the role of sustanibility reporting framework during the Covid19 crisis in a specific way and more generally in times of crises. The authors argued that firms tend to disclose environmental and social information to maintain societal approval. They, moreover, addressed the idea that according to the legitimacy theory, organizations seek to fulfill a "social contract" by acting in ways that align with societal norms and expectations. During the pandemic, increased reporting was a strategic move to gain public trust and demonstrate accountability. Companies use both proactive and reactive disclosures to mitigate risks and enhance their reputations, balancing strategic objectives with external pressures from stakeholders and institutions. We can, apply the same thoughts when it comes to risk disclosures: Companies will try to disclose information related to risks of high quality in order to foster the trust of public and to increase their credibility.

According to Akther *et al.* (2021), legitimacy can be viewed through two lenses: On the one hand, a strategic legitimacy through which firms actively manage resources and disclosures to gain social support and maintain a positive public image (Kaium Masud *et al.,* 2017). Companies often prioritize sharing positive information, though honest reporting of negative events can enhance credibility and act as a risk mitigation strategy. On the other hand, an institutional legitimacy ascertaining that external pressures from industry norms influence companies to behave in ways perceived as legitimate, even if they have limited control over public perceptions (Hahn & Lülfs, 2014). Ultimately, transparent environmental disclosures help companies manage legitimacy pressures by fostering trust and improving their public image. Accordingly, disclosing risk information of high quality will help companies align with the societal expectations and maintain good relationships with their stakeholders.

However, when it comes to the association between the ownership concentration and corporate disclosures, only two theoretical bases can be advanced: The first one focuses on this association from the agency theory's perspective and the second one deals with it following the stakeholder theory's postulates. Consistent with the assumptions of Jiang and Habib (2009), the extent and the quality of corporate disclosures are the outcome of conflicting interests among management, minority and majority of capital owners.

In fact, large block holders have the ability to manipulate the extent of disclosures so as to maximize their own interests (the opportunistic hypothesis) or to act as effective monitors motivating managers to boost their disclosures (the efficient monitoring hypothesis). In the same line, Dhifi and Zouari (2021) suggest two visions to be treated with regards to the ownership concentration and its relationship with the corporate disclosures, based on the agency theory: To begin with, the first vision suggests that highly-concentrated firms are known for having a low level of information asymmetry thanks to the few owners of capital. That's why, the agency conflicts between the managers and the shareholders are mitigated (Fama and Jensen, 1983), which results in a lower need of corporate disclosures. That is to say, pursuant to this first vision, the ownership concentration negatively impacts the disclosures made by the company.

Yet, the second vision states that in widely-dispersed firms, the shareholders lose control on managers. In other words, they will lack both the means and the motivation to do so. This will give birth to the problems of managerial opportunism and high information asymmetry and accentuated agency conflicts will take place. Hence, higher disclosures are needed to alleviate these conflicts.

Notwithstanding, the stakeholder perspective argues that management is subject to the demands of stakeholders who have a larger share in the company (Al Amosh & Khatib, 2021; Juhmani, 2013). According to this theory, small groups of stakeholders (that include, among others, the shareholders of a company) lead in fewer stakeholders to contract. Usually, voluntary disclosures are provided to satisfy the needs of various stakeholders. Therefore, as there are fewer stakeholders, less voluntary disclosures are expected to be provided by management (Juhamni, 2013). In other words, the ownership concentration negatively affects the voluntary disclosures made by a firm.

2.2. The moderating role of the board gender diversity

The literature that examined the effects of the board gender diversity adopted numerous theoretical approaches. Those theories encompass the human capital theory, social identity theory, resource dependence theory and agency theory. Another theory was also used in the literature known as the upper echelons theory which was employed in the studies to link the board diversity with the firm outcomes. And, although this theory was originally concerned with the top management teams, it was applied to the boards of directors comparing them to supra top management teams (Finkelstein *et al.*, 2009; Quichun Wu *et al.*, 2021). Nevertheless, the most common cited theories are the resource dependence theory and the agency theory (Reddy & Jadhav, 2019; Berle & Means, 1932).

As reported by Farrell and Hersch (2005), the resource dependence theory advances the idea that gender diversity in boards allows it to tackle intricate issues in an effective way and engage in better decision-making processes, leading to transparent corporate disclosures.

Singh *et al.* (2008) added that female members may have previous experiences in holding managerial positions in smaller companies that leaves them able to effectively contribute to the disclosures made by companies including the risk-disclosures in ways different from the traditional ones (Sagar *et al.*, 2021).

Indeed, the resource dependence theory encourages the board diversity and it justifies this diversity through numerous reasons: For instance, diverse directors will accede to a greater extent of resources that allows them to act as a link between the company and its environment.

Furthermore, the diversity in the board directors means the diversity in their skills and experiences. Those skills and competencies can permit them to serve as advisors to the managers allowing them to do their job in a better way and to take relevant decisions. Besides, they will permit them to implement diverse perspectives and modern approaches to solve the problems they may encounter. Adding to that, the board diversity is a positive signal emitted by the company to both the product and the labor markets (Reddy & Jadhav, 2019).

On the other hand, according to the agency theory, the role of the board of directors of large companies is to provide reliable information to the shareholders as a result of an effective monitoring of the managers (Fama and Jenson, 1983). Erhardt *et al.* (2003) claim that gender-diverse boards boost the risk reporting as they are more engaged in collective thinking than homogenous boards (Saggar *et al.*, 2021). Furthermore, Cabedo & Tirado (2004) presume that the board gender diversity reinforces the board's independence and monitoring. In fact, female directors are more authoritative and they exert more control on managers (Carter *et al.*, 2003). Moreover, female directors are more cautious and rarely do they engage to fraudulent acts or manipulations, which upgrade the quality of the financial information, including the risk-related information (Pucheta-Martinez *et al.*, 2016). Adding to that, female directors are more assiduous and careful to be present in all the board meetings and to take part in the monitoring-related committees comparing them to male directors (Adams & Ferreira, 2009), which gives them the chance to have better monitoring talents. This tough monitoring pushes the managers to disclose more risk-related information.

3. Literature review and hypotheses development

Given the importance of the risk disclosures made by a company, many researchers have tried to dig in depth into this phenomenon and to study it in different contexts and from different perspectives. To start with, some studies tried, like the one in hands, to examine the risk disclosure in a context characterized by crises (Lajili *et al.*, 2020; Probohundono *et al.*, 2011). Moreover, a fair few of them treated the incentives of the risk disclosures (Elshandidy *et al.*, 2018; Deumes & Knechel, 2008; Dobler, 2008). Additionally, some other studies were carried out in order to explore both the practices (Mokhtar & Mellett, 2013; Oliviera *et al.*, 2011) and the determinants (Elshandidy *et al.*, 2018; Khalil & Maghraby, 2017; Madrigal *et al.*, 2015; Elzahar & Hussainey, 2012; Hassan, 2009; Amran *et al.*, 2009; Konishi & Mohabbot, 2007) of the risk disclosure.

Some researchers tried to link the risk disclosure to other variables such as the firm value (Jain & Raithatha, 2021; Abdullah *et al.*, 2015) and corporate governance mechanisms including, among others, the ownership concentration and the board gender diversity which represent the core of our study. In fact, the results of the studies that focused on the ownership concentration and its association with the risk disclosure were inconclusive: Oliviera *et al.* (2011) found that in listed Portuguese companies, the relationship between the level of the risk-related disclosures and the ownership concentration was not significant. Similarly, the study that was conveyed by Mokhtar & Mellett (2013) within the Egyptian context pointed out a negative association between the ownership concentration and the extent of mandatory risk disclosures. However, a non-significant association was revealed between the extent of the voluntary risk disclosures and the ownership concentration.

By the same token, Elshandiy & Neri (2015) conducted a study using a sample of English and Italian non-financial firms. This study did not demonstrate any significant association that links the ownership concentration to the risk disclosure.

Later in 2019, Haj Salem *et al.* found a positive but not significant association between the ownership concentration and the risk disclosure quality in the Tunisian context. This study was not the first study that dealt with the risk disclosure concept in the Tunisian context. In fact, Chakroun & Hussainey (2014) carried out a research which aimed at assessing the disclosure quality in Tunisia and at examining if disclosure quality and disclosure quantity shared the same determinants. Furthermore, the authors tried to scrutinize the effect of some corporate governance mechanisms on the corporate risk disclosure. However, the mentioned governance mechanisms did not include the ownership concentration.

Comparably, Boufarwa *et al.* (2020) documented a positive correlation between the block ownership and the level of financial risk disclosure when studying this relationship using a sample of English firms. Another study was implemented at the end of 2021 by Zouari & Dhifi who tried to investigate the impact of the ownership structure on the level of financial and non-financial information in the integrated reports of 431 European firms. The authors pointed out a significant and positive connection between the ownership concentration and the disclosures made in the integrated reports for the companies belonging to the common law but a significant and negative one between the ownership concentration and the companies belonging to the civil law. Additionally, analyzing the connection between ownership concentration and risk disclosure within the banking sector uncovers distinctive interaction. Indeed, Grassa *et al.* (2021) found that higher ownership concentration in Islamic banks correlates with lower levels of risk disclosure. This inverse relationship suggests that concentrated ownership may hinder transparency, as dominant shareholders might prefer limiting the dissemination of risk-related information. The study, conducted across 12 emerging economies, highlights how ownership structure influences banks' disclosure practices, particularly in Islamic financial institutions.

More recently, Jian and Raithatha (2024) revealed that higher founder ownership concentration (FOC) negatively impacts risk disclosures, with a notable decrease observed in the Indian context. This suggests that concentrated founder ownership may reduce the transparency of firms by limiting the extent of the shared risk-related information.

As for the effect of ownership concentration on the risk disclosure in a context characterized by crises' consequences, Ntim *et al.* (2013) investigated the crucial policy question of whether the quality of firm-level corporate governance has any effect on the quality and extent of corporate risk disclosure in the South-African context. The authors concluded that the block ownership is negatively associated with the extent of corporate risk disclosure.

In the same line and under the circumstances of Covid19 pandemic, Albitar *et al.* (2022) conducted a research that tried to scrutinize the impact of the ownership concentration on the Covid19 disclosure in the narrative sections of corporate annual reports. The results of the study showed that the ownership concentration had a significant and negative effect on the Covid19 disclosure which means that the more the ownership is concentrated, the lower the disclosures related to Covid19 are.

Nevertheless, prior research has mostly focused on the content of the risk disclosure rather than its quality, that's why future research is needed to tackle the quality of the risk disclosure along with its quantity (Haj Salem *et al.*, 2019; Deumes, 2008). And as the Tunisian context is characterized by a high ownership concentration and that the capitals of the Tunisian firms are usually owned by a small number of shareholders (Gharbi & Ben Ouda, 2011; Khanchel, 2007; Omri, 2003), we will underpin the linkage between the variables using the first vision of the agency theory. Hence, congruent with both the first vision of the agency theory and the stakeholder theory, we may develop our first hypothesis as follows:

H1: *The ownership concentration has a negative impact on the risk disclosure quality.*

Numerous researchers have investigated the influence of female board members on corporate disclosures. Their studies highlight that the presence of women on boards can play a significant role in shaping the transparency and quality of disclosures, particularly in areas like sustainability, risk, and financial reporting. Starting with Nicolo *et al.* (2021), their research hypothesized and confirmed a positive correlation between board gender diversity and ESG (Environmental, Social, and Governance) disclosures. This finding, based on a sample of 21 EU firms, emphasizes how the inclusion of women on corporate boards contributes to more extensive and transparent ESG reporting. Consistent with this, Temiz and Acar (2023) explored the relationship between board gender diversity and corporate social responsibility (CSR) disclosures across various disclosure environments. They found that greater gender diversity on boards positively influences the extent of CSR disclosures, suggesting that diverse boards are more likely to provide transparent, socially responsible reporting.

As for the quality of disclosures, Singhiana *et al.* (2024) examined the impact of gender diversity on sustainability disclosures in India over an eight-year period. Their findings suggest that as the percentage of women directors and the number of independent women directors increase, the quality of sustainability reporting improves.

Still, only few studies tried to investigate the role of the board gender diversity on the risk disclosure made by the company.cFor instance, the study that was conducted by Haj Salem *et al.* (2019) in the Tunisian context as described previously showed a positive association that links the board gender diversity to the risk disclosure quality. Comparably, Bufarwa *et al.* (2020) found a positive relationship between the board gender diversity and the level of financial risk disclosure made by the UK companies sampled in his study. Besides, a recent study implemented by Saggar *et al.* (2021) tried to scrutinize only the effect of board gender diversity on the risk disclosure. The results of the study showed that, aligned with the agency and the resource-dependence theory viewpoint, the empirical evidences in all proxies used, the gender diversity positively influences the corporate risk disclosure. Furthermore and within the same year, Seebeck and Vetter (2021) underlined that gender diversity promotes the disclosure of risk-related information through improved board group dynamics, which in turn reduces information asymmetries.

However, when it comes to the moderating role of the board gender diversity on the disclosures made by the company, the study of Elmarzouky *et al.* (2021) could be a suitable example as it examined the moderating role of corporate governance on the effect of Covid19 on the performance disclosure. Indeed, according to the agency theory, the authors found that board gender diversity moderates the relationship between the Covid19 related-information and the level of performance disclosure in the annual reports. Muhammed *et al.* (2022) aimed at exploring the moderating role of board gender diversity in the relationship between corporate governance mechanisms that encompass, among others, the ownership concentration and firm risk-taking. Nevertheless, the results of the study indicated that this moderating role is insignificant.

Literature also indicates that the presence of women on boards during crises helps firms better navigate challenges and maintain performance. Women directors bring diverse perspectives that can enhance decision-making, particularly in tough times. Research, such as Putri Nadia *et al.* (2024), found a positive correlation between female board representation and improved performance during crises, highlighting the value of gender diversity in corporate governance during periods of uncertainty like the COVID19 pandemic.

On the flip side, the literature that examined the gender diversity has concluded that women are more risk-averse than their male counterparts. Denoting that, women are more oriented to make safe decisions, whereas men make high-risk decisions (Seebeck & Vetter, 2021; Zaid *et al.*, 2020). As a result, we argue that women will better respect laws and regulations and avoid violating them. That is why the board gender diversity may enhance the quantity and the quality of the corporate disclosures in order to conform to the texts of laws. This confirms the postulates of the agency theory that states that female directors are more cautious and rarely do they engage to fraudulent acts or manipulations, which consequently improves the quality of information disclosed by the company. Adding to that, the literature revealed that women provide a more collaborative approach to leadership, which leads to a better communication between managers and the board, along with the overall stakeholders of the firm (Hadj Salem *et al.*, 2019; Eagly *et al.*, 2003).

As disclosing information related to risk in the annual reports is a means of enhancing the communication between the company and its different stakeholders, the presence of women in boards would boost the quality and the extent of risk disclosures. Hence, the way that ownership influences the risk disclosure quality may be affected by the level of the female representation in boardrooms. Furthermore and following the agency theory's postulates which argue that female directors are more firm and they exert more pressure on managers, we can say that the presence of women on board would push managers to disclose risk-related information of high-quality. Drawing on the above-stated arguments, we may develop the following hypothesis:
H2: *Board gender diversity positively moderates the impact of ownership concentration on the risk disclosure quality.*

4. Research methodology

4.1 Context selection and institutional framework

As aforementioned, the risk disclosure quality was treated in two previous studies in when it comes to the Tunisian context: Chakroun and Hussainey (2014) tried to figure out whether the risk disclosure quality and quantity shared the same determinants. Later, Haj Salem *et al.* (2019) examined the relationships between various governance mechanisms, including ownership concentration, and the quality of risk disclosure. Our study was, in fact, inspired from the study of Haj Salem *et al.* (2019) while taking into account the ultimate effect of the Covid19 pandemic.

The Tunisian regulatory bodies initiated disclosure reforms in the 1990s, with increased focus following the revolution due to a volatile environment. During the pandemic, successive governments implemented additional reforms to support companies and reassure investors. Tunisian firms are legally required to disclose financial statements, as mandated by the 1996 accounting system and subsequent laws like the 2005-96 law and the 2008 finance decree. While companies can provide voluntary information, its content remains unregulated by a legal framework.

Tunisian laws outline how companies should present their financial results, with the Minister of Finance's decree providing a standardized management report model. However, disclosures remain mostly voluntary due to a lack of sanctions for non-compliance.

During the Covid19 pandemic, government decrees introduced support measures for affected companies, contingent on criteria like turnover, staff, and tax status. Auditors were required to check eligibility for these measures through a special report, though its publication was not mandatory unless companies sought the mentioned exceptional measures.

4.2 Sample and data collection

Our sample consists of Tunisian non-financial listed companies of the Tunisian Stock Exchange for the period spanning from 2014 to 2021. In fact, according to Allegret *et al.* (2017), the consequences of the European sovereign debt crisis can be seen until 2013. As a result, we chose to begin our analysis from 2014 in order to avoid any ultimate effect that may this crisis have on the activity of the Tunisian sampled companies.

Additionally, the study was divided into two parts: The first one examines the linkages between the variables during the period before the pandemic which means ranging from 2014 to 2019 and the second one tackled the years of the pandemic (2020 and 2021). In other words, the number of the observations is divided into 228 observations per firm/year in the first sub-period and 76 observations per firm/year in the second sub-period.

The sample incorporates all the industry sectors, except the financial ones. The financial firms were excluded due to their specific regulations that may oblige them to make disclosures that differ from non-financial firms. Furthermore, the special nature of the operations of the financial firms, which is unlike the non-financial ones, may require additional disclosure requirements (Haj Salem *et al.*, 2019; Schleicher & Walker, 2010). By the same token, the activities of the financial firms can give rise to multiple types of risks when comparing them to the activities of the non-financial firms (Haj Salem *et al.*, 2019). In addition, observations with missing data were excluded from the study. The final sample consists of 38 Tunisian listed companies or 304 year-observations. The Table 1 below provides the sample selection:

Table 1. Sample selection

	Number of observations
Tunisian listed firms on Tunisian Stock Exchange	81
Financial firms	27
Observations with missing data	16
Total	38

The annual reports were collected following the listed companies in 2021. We measured the risk disclosure quality through the company's annual reports. The data related to the ownership concentration were hand-collected from the stock guides available on the BVMT website. The control variables were collected from the DataStream database, still the variable related to the audit quality was hand-collected from the annual reports of the sampled companies.

4.3 Variables' measurement

The risk disclosure quality is perceived as a latent variable, difficult to be measured despite all the efforts paid by researchers to find a precise measure to it. According to Beattie *et al.* (2004), the disclosure quality is considered as a complex, multi-dimensional, context-sensitive and subjective concept. Haj Salem *et al.* (2019) also affirmed that there is no universally admitted measure for the disclosure quality including the risk disclosure quality. As mentioned previously, the first study in the Tunisian context that tried to figure out a measure to the quality of risk disclosure was the one carried out by Chakroun and Hussainey (2014). The latter used the qualitative characteristics of the financial information that involve relevance, faithful representation, understandability, comparability and timeliness, following the methodology suggested by Braam and Beest (2013).

In their study that was conducted, as well, in the Tunisian context, Haj Salem *et al.* (2019) developed a new measure for the risk disclosure quality. In fact, the authors referred to the Tunisian firms' accounting system asserting that: "Qualitative characteristics are the attributes that must be for the financial information conveyed in the financial statements that are essential for ensuring the production and disclosure of useful financial information for decision making". The mentioned attributes are relevance, reliability, understandability and comparability. Indeed, as Botosan (2004) affirmed that the disclosure quality can be measured through the quality attributes proposed by a regulatory framework, Haj Salem *et al.* (2019) developed the following index to measure the risk disclosure quality:

Table 2. Risk disclosure quality index

Relevance	If there are forward-looking information 1, otherwise 0
Faithful representation	Explanation 1, otherwise 0
Understandability	Graphs or table 1, no graphs and tables 0
Comparability	In time and space 1, otherwise 0

In this study, we refer to the same measure to estimate the risk disclosure quality. Similar to Paquerot (1996), the ownership concentration was measured as the share of capital held by the main shareholder. As regards the board gender diversity, it was measured through the proportion of women on board (Saggar *et al.*, 2021; Noguera, 2020; Haj Salem *et al.*, 2019).

Through the literature review and the research models that were incorporated in the studies related to risk disclosure, we found that many variables may influence the risk disclosure. Thus, we introduced a set of control variables in our empirical model. We added the type of the external auditor as an effective audit quality that may enhance the corporate voluntary disclosures (Agyei-Mensah, 2018). In fact, based on signaling theory, companies audited by Big Four firms tend to disclose higher-quality information to signal credibility and transparency to stakeholders. Furthermore, profitability (ROA), liquidity and leverage of the company were added in the research models, as they were proven to have significant effect on the quality of the risk disclosure (Haj Salem *et al.*, 2019).

Similarly, the use of both profitability and liquidity as control variables can be underpinned by the agency theory's postulates that suggest that firms with higher profitability are more likely to disclose more information to reduce information asymmetry and that highly leveraged firms disclose more risk-related information to mitigate monitoring costs and reassure lenders about their risk management practices. In the same vein, according to stakeholder theory, firms with higher liquidity often engage in more transparent reporting to reassure creditors and investors about their financial health. Additionally, Elsandidy *et al.* (2018) have found a positive link between the risk disclosure and the asset growth of the firm, that's why the latter was added to the research model. Indeed, the asset growth was proven to influence the corporate disclosures according to the resource-based theory which indicates that firms experiencing growth may provide more disclosures to attract resources. Finally, the size of the firm was found to have a significant effect on risk disclosure (Elshandidy *et al.*, 2018; Elzahar & Hussainey, 2012; Amran *et al.*, 2009). In fact, according to Legitimacy theory asserts that larger firms are more likely to disclose detailed risk information to maintain societal trust. Consequently, we confirm that the size of the firm may influence the risk disclosure quality in our study and we incorporated it in our research model.

4.4 Research models

To test our research hypotheses, the following research models were used:

- ***Model 1 (Related to the first hypothesis):***

$RDQ_{it}= \alpha_0+\alpha_1\ OC_{it} + \alpha_2\ BIG_{it} + \alpha_3\ ROA_{it}+ \alpha_4\ LIQ_{it} +\alpha_5\ AGROWTH_{it}+ \alpha_6\ LEV_{it+}\ \alpha_7\ SIZE_{it\ +}\ \varepsilon_{it}$

- ***Model 2 (Related to the second hypothesis):***

$RDQ_{it}= \alpha_0+\alpha_1\ OC_{it} + \alpha_2\ BGD_{it} + \alpha_3\ OC_{it} * BGD_{it} + \alpha_4\ BIG_{it} + \alpha_5\ ROA_{it}+ \alpha_6\ LIQ_{it} +\alpha_7\ AGROWTH_{it}+ \alpha_8\ LEV_{it}+ \alpha_9\ SIZE_{it} + \varepsilon_{it}$

Where we define:
- RDQ_{it}: The risk disclosure quality of the firm *i* for year *t*;
- OC_{it}: The ownership concentration of the firm *i* for year *t*;
- BGD_{it}: The board gender diversity of the firm *i* for year *t*;
- $OC_{it}*\ BGD_{it}$: The interaction term for the firm *i* for year *t*;
- BIG_{it}: The type of external the auditor of the firm *i* for year *t*;;
- ROA_{it}: Return on assets of the firm *i* for year *t*;;
- LIQ_{it}: The liquidity of the firm *i* for year *t*;
- $AGROWTH_{it}$: The asset growth of the firm *i* for year *t*;
- LEV_{it} : The leverage of the firm *i* for year *t*;
- $SIZE_{it}$: The size of the firm *i* for year *t*.

5. Empirical findings

5.1 Pre-Covid19 period

Table 4 summarizes descriptive statistics for variables from 2014 to 2019. The risk disclosure quality index ranges from 0.25 to 1, with a mean of 0.66. Ownership concentration in Tunisian firms is high, with an average of 50%. However, the board gender diversity is low, with a mean of 0.086. Control variables, such as BIG, ROA, LIQ, AGROWTH, LEV, and SIZE, have varied means and medians. The standard deviations are generally below 1, except for ROA and liquidity, which have higher deviations.

Table 4. Descriptive statistics pre-Covid19 period

Variable	Mean	Median	Minimum	Maximum	Standard deviation
RDQ	0.660	0.750	0.250	1	0.218
OC	0.499	0.468	0.145	0.850	0.208
BGD	0.086	0.083	0	0.330	0.001
BIG	0.390	0	0	1	0.489

Variable	Mean	Median	Minimum	Maximum	Standard deviation
ROA	5.984	6.720	-37.470	39.930	9.908
LIQ	3.055	1.545	0.18	64.276	7.224
AGROWTH	0.070	0.058	-0.441	0.789	0.160
LEV	0.313	0.244	0	2.086	0.325
SIZE	11.726	11.610	8.451	15.117	1.251

The Pearson correlation matrix aims at checking the absence of multicollinearity problem between the explanatory variables in the panel data. The results of the Pearson test are reported in the table 5 below:

Table 5. Pearson correlations pre-Covid19 period

Variable	OC	BGD	BIG	ROA	LIQ	AGROWTH	LEV	SIZE
OC	1.000	-0.015	0.269*	0.112*	0.187*	-0.030	0.199*	0.235*
BGD		1.000	-0.177*	0.059	-0.040	-0.015	-0.084	-0.060
BIG			1.000	0.103	0.134*	-0.01	0.140*	0.173*
ROA				1.000	0.460*	0.383*	-0.425*	0.068
LIQ					1.000	-0.033	-0.239*	-0.166*
AGROWTH						1.000	-0.219*	0.182*
LEV							1.000	0.066
SIZE								1.000

*Significance at 10% level

Examining the different coefficients of the variables, no multicollinearity problem was found as the values did not go beyond the critical limit. In fact, both Kennedy (2003) and Neter *et al.* (1990) argued that the Pearson correlation coefficients have not to exceed the value of 0.75. Moreover, the highest value of the correlation coefficient in absolute value is 0.46, which shows a significant relationship between the liquidity and the return on assets of the company. The variance inflation factor (VIF) shows a value which is inferior of 10 (Meyers, 1990) for each variable. The tolerance values are consequently superior to 0.10.

The results of the mentioned tests are reported in the table 6 below:

Table 6. VIF and tolerance values pre-Covid19 period

Variable	VIF	Tolerance
OC	1.25	0.800
BGD	1.05	0.949
BIG	1.17	0.857
ROA	1.82	0.549
LIQ	1.51	0.663
AGROWTH	1.29	0.773
LEV	1.37	0.727
SIZE	1.19	0.840
Mean VIF	*1.33*	

Considering that our research hypothesis is tested via panel data, we deployed the Hausman specification test to choose between the fixed-effects and random-effects model. The result for this test indicates a p-value which is less than 5%, we can conclude that our model is a fixed effects' model (Within estimator).

Besides and in order to decide on the existence of the heteroscedasticity problem, we tested the panel data using the Breusch-Pagan test. We, also, conducted a Wooldridge test in order to look over the existence of a first-order autocorrelation.

Based on the previous tests, we can point out that our models suffer from both heteroscedasticity and autocorrelation problems. Thus, the estimation of the studied model was conducted using the xtgls function which allowed the estimation by GLS[2]. The results of the estimation of the model 1 are provided in Table 7:

Table 7. Estimation results for model 1pre-Covid19 period

Variable	RDQ	
	Coefficient	**Z-statistic**
Constant	0.539	4.120
OC	-0.193***	-2.710
BIG	0.074**	2.550
ROA	-0.002	-1.310
LIQ	-0.003	-1.350
AGROWTH	0.0187	0.200
LEV	0.138***	2.870
SIZE	0.014	1.230
Number of observations		**228**
Wald chi2 (7)		**40.720*** **

***: Significance at 1% threshold.
**: Significance at 5% threshold.

The Wald Chi-Square statistic is significant at the 1% level. Therefore, we can conclude that our empirical model is globally significant. In accordance with our hypothesis, we argue that the ownership concentration negatively and significantly influences the risk disclosure quality. This supports the first view of agency theory, which asserts that when ownership is highly concentrated, controlling shareholders may limit disclosures to safeguard their interests. These dominant shareholders have less incentive to share detailed information, as it could undermine their control or expose their decision-making. Consequently, greater ownership concentration leads to less transparency, reducing the overall quality of risk disclosures, as they aim to protect their private information from the scrutiny of other stakeholders.

This result also corroborates the results of both Mokhtar and Mellett (2013) and Ntim *et al.* (2013). However, in terms of corporate risk disclosure quality, this result is inconsistent with Haj Salem *et al.* (2019) who conducted a similar study in the Tunisian context and who found a positive and not significant association between the studied variables.

Regarding the control variables, we found that the impacts of the company's size, its profitability, liquidity and its asset growth are not significant. However, the type of external auditor positively and significantly enhances the corporate risk disclosures. Hence, when the auditor belongs to a Big4, the quality of the voluntary disclosures becomes high. Furthermore, the leverage variable is positive and significant. We can argue that, the more leveraged the company is, the more it reveals information to the public to reassure them about the company's situation.

The second model analyzes the relationship between the risk disclosure quality and the interaction effect between the ownership concentration and the board gender diversity. The results of the estimation of the mentioned model are provided in Table 8:

Table 8. Estimation results for model 2 pre-Covid19 period

Variable	RDQ	
	Coefficient	**Z-statistic**
Constant	0.526	4.120
OC	-0.109	-1.140
BGD	0.064	0.190
OC*BGD	-0.72	-1.160
BIG	0.063**	2.170
ROA	-0.002	-1.120
LIQ	-0.004*	-1.750
AGROWTH	0.06	0.060
LEV	0.128***	2.680
SIZE	0.015	1.280
Number of observations		**228**
Wald chi2 (9)		**47.890*** **

***: Significance at 1% threshold.
**: Significance at 5% threshold.
*: Significance at 10% threshold.

The Wald Chi-Square statistic is significant at the 1% level. Therefore, we can conclude that our empirical model is globally significant. Our second hypothesis claims that the board gender diversity moderates the negative association between the risk disclosure quality and the ownership concentration. However, the results show a negative and not significant coefficient linked to the interaction term "OC*BGD" which is contradicted with our assumption.

This finding can be linked to both agency theory and resource dependence theory. According to agency theory, concentrated ownership leads to reduced transparency, and increasing gender diversity on the board might not alter the behavior of controlling shareholders. Additionally, resource dependence theory, which emphasizes the role of external resources and interdependencies, suggests that gender diversity alone might not influence the disclosure practices shaped by ownership structures.

5.2 During Covid19 period

The same tests and checks were repeated in order to decipher the ultimate impact of the Covid19 crisis on the studied relationships. The results of the estimation of the first model during Covid19 period are given in the table 9 below:

Table 9. Estimation results for model 1 during Covid19 period

Variable	RDQ	
	Coefficient	**Z-statistic**
Constant	0.353	1.84
OC	-0.314***	-1.14
BIG	0.124***	2.92
ROA	-0.000	-0.11
LIQ	-0.005	-1.22
AGROWTH	0.036	0.34
LEV	0.039	0.54
SIZE	0.042**	2.57
Number of observations		**76**
Wald chi2 (7)		**30.40*** **

***: Significance at 1% level.
**: Significance at 5% level.

The Wald Chi-Square statistic is significant at the 1% level. Therefore, we can conclude that our empirical model is globally significant. Furthermore, when it comes to the Covid19 period, the results showing a negative and significant impact of the ownership concentration on the risk disclosure quality remain the same, supporting the agency theory postulates. However, the coefficient linking the two variables is lower in this case, which means that the negative effect is tighter and more pronounced in this period. Consequently, we can confirm that in the crisis period Tunisian companies tend not to disclose risk-related information of a high-quality.

In times of crisis, dominant shareholders prioritize control over transparency to protect their interests, which may be threatened by external scrutiny. Meanwhile, legitimacy theory suggests that during crises, firms face heightened societal expectations for transparency and accountability. However, dominant shareholders may resist full disclosure to protect private benefits or strategic advantages, creating tension between maintaining legitimacy and ensuring control.

Regarding the control variables, the results reveal that the impact of the size becomes significant in this period. This can be explained by the fact that larger firms are more susceptible to disclosing information of a high-quality to reassure investors and to protect their leading positions in the market. By the same token, the results of the estimation of the second model within this sub-period period are given in table 10 below:

Table 1. Estimation results for model 2 during Covid19 period

Variable	RDQ	
	Coefficient	**Z-statistic**
Constant	0.524	2.760
OC	-0.602***	-4.430
BGD	-1.075**	-2.260
OC*BGD	2.748***	3.150
BIG	0.129***	3.260
ROA	-0.000	0.510
LIQ	-0.004	-0.920
AGROWTH	0.052	0.530
LEV	0.025	0.380
SIZE	0.037**	2.440
Number of observations		**76**
Wald chi2 (9)		**47.970*** **

***: Significance at 1% level.
**: Significance at 5 % level.

In accordance with our second hypothesis and in contrast with the results found in the first period, the moderating impact affecting the negative relationship between the risk disclosure quality and the ownership concentration during the Covid19 period is positive and significant at 1% threshold. Therefore, the presence of women on board enhances the risk-disclosure quality.

This result confirms the agency theory's postulates asserting the fact that women are risk-averse and hardly do they engage in suspicious acts. However, the disparity between the results of the two periods concerning the role of the board gender diversity may be explained by the fact that the Covid19 pandemic increased the risks encountered by companies, pushing women to adopt more careful behaviors. Additionally, this pandemic pushed the owners of the companies to be more cautious and more concerned about their companies' survival.

The results can be also explained by the fact that companies should be in regular situations to benefit from the exceptional measures taken by the government and this cannot be done unless the managers are well-controlled. As the agency theory suggests that women are more authoritative and exert more control on managers, this result confirms the assumptions of the agency theory.

6. Conclusion

The study explores the relationship between ownership concentration and risk disclosure quality, along with the moderating role of board gender diversity. Conducted in two periods: pre- and during Covid19 using data from Tunisian listed companies, the study finds that ownership concentration negatively affects risk disclosure quality in both periods. The result confirms the both the stakeholder and the agency theories' postulates. However, while board gender diversity had no significant moderating impact before Covid19, it showed a positive, significant effect in during the Covid19 period. This shift can be understood through agency theory and resource dependence theory.

This study contributes to the literature by examining the relationship between ownership concentration and risk disclosure quality in Tunisia, providing insights into the pre- and during the Covid19 periods. Additionally, it is the first study to explore the moderating role of board gender diversity on this relationship. Most notably, the study addresses the rarely discussed topic of risk disclosure quality in accounting literature.

This study has several implications. It emphasizes the importance of assessing risk disclosure quality to guide stakeholders in decision-making. It suggests that Tunisia's weak regulatory framework may require stricter regulations on risk reporting. Additionally, the study highlights the need for more comprehensive financial information characteristics and suggests that good corporate governance mechanisms, such as board gender diversity, can enhance risk disclosure quality. The findings also advocate for encouraging female representation in boardrooms, potentially through quotas, to improve governance and disclosures.

This study acknowledges several limitations, such as the small sample size due to the limited number of non-financial companies listed on the Tunisian Stock Exchange. The study also relied on a specific risk disclosure quality index, which could be expanded in future research.

Future research can suggest replicating the study in other contexts, comparing emerging and developed markets, and exploring the impact of other corporate governance mechanisms on risk disclosure quality, while considering board gender diversity as a moderating factor.

References

A.A Zaid, M., Wang, M., T.F. Abuhijleh, S., Issa, A., W.A. Saleh, M., & Ali, F. (2020) "Corporate governance practices and capital structure decisions: the moderating effect of gender diversity", *Corporate Governance*, vol. 20, no. 5: 939-964.

Abdullah, M., Abdul Shukor, Z., Mohamed, Z.M., & Ahmad, A. (2015) "Risk management disclosure: A study on the effect of voluntary risk management disclosure toward firm value", *Journal of Applied Accounting Research*, vol. 16, no. 3: 400-432.

Adams, R.B., & Ferreira, D. (2009) "Women in the boardroom and their impact on governance and performance", *Journal of Financial Economics*, vol. 94, no. 2: 291–309.

Agyei-Mensah, B.K. (2018) "The effect of audit committee effectiveness and audit quality on corporate voluntary disclosure quality", *African Journal of Economic and Management Studies*, vol. 10, no. 1: 17-31.

Akhter, F., Hossain, M.R., Elrehail, H., Rehman, S.U., & Almansour, B. (2023) "Environmental disclosures and corporate attributes, from the lens of legitimacy theory: a longitudinal analysis on a developing country", *European Journal of Management and Business Economics*, vol.32, no.3: 342-369.

Al Amosh, H., & Khatib, S.F.A. (2022) "Ownership structure and environmental, social and governance performance disclosure: the moderating role of the board independence", *Journal of Business and Socio-economic Development*, vol. 2, no. 1: 49-66.

Albitar, K., Elmarzouky, M., & Hussainey, K. (2022) "Ownership concentration and Covid19 disclosure: the mediating role of corporate leverage", *International Journal of Accounting & Information Management*, vol. 30, no. 3: 339-351.

Allegret, J.P., Raymond, H., & Rharrabti, R. (2017) "The impact of the European sovereign debt crisis on banks stocks. Some evidence of shift contagion in Europe", *Journal of Banking and Finance*, vol. 74: 24 - 37.

Amran, A., Abdul Manaf, R.B., & Bin CheHaat, M.H. (2009) "Risk reporting: an exploratory study on risk management disclosure in Malaysian annual reports", *Managerial Auditing Journal*, vol. 24, no. 1: 39-57.

Beattie, V., McInnes, B., & Fearnley, S. (2004) "A methodology for analyzing and evaluating narratives in annual reports: a comprehensive descriptive profile and metrics for disclosure quality attributes", *Accounting Forum*, vol. 28, no. 3: 205-236.

Agyei-Mensah, B.K. (2018) "The effect of audit committee effectiveness and audit quality on corporate voluntary disclosure quality", *African Journal of Economic and Management Studies*, vol. 10, no. 1: 17-31.

Berle, A.A., & Means, G.C. (1932) *The modern corporation and private property*, Transaction Publishers, pp. 204-205.

Botosan, C.A. (2004) "Discussion of a framework for the analysis of firm risk communication", *The International Journal of Accounting*, vol. 39, no. 3: 289-295.

Braam, G., & Beest, V.F. (2013) "Conceptually-based financial reporting quality assessment. an empirical analysis on quality differences between UK annual reports and US 10-K Reports", *Journal of Modern Accounting and Auditing*, vol. 9, no. 10: 1281-1301.

Bufarwa, I.M., Elamer, A.A., Ntim, C.G., & Al Hares, A. (2020) "Gender diversity, corporate governance and financial risk disclosure in the UK", *International Journal of Law and Management*, vol. 62, no. 6: 521-538.

Cabedo, J.D., & Tirado, J.M. (2004) "The disclosure of risk in financial statements", *Accounting Forum*, vol. 28, no. 2: 181-200.

Carter, D.A., Simkins, B.J., & Simpson, W.G. (2003) "Corporate governance, board diversity, and firm value", *Financial Review*, vol.38, no.1: 33-53.

Chakroun, R., & Hussainey, K. (2014) "Disclosure quality in Tunisian annual reports", *Corporate Ownership and Control*, vol. 11, no. 4: 58-80.

Deumes, R. (2008) "Corporate risk reporting: a content analysis of narrative risk disclosures in Prospectuses", *Journal of Business Communication*, vol. 45, no. 2: 120-157.

Deumes, R., & Knechel, W.R. (2008) "Economic incentives for voluntary reporting on internal risk management and control systems", *Auditing: A Journal of Practice and Theory*, vol. 27, no. 1: 35-66.

Diouani, B., & Khlif, W. (2013) "Comportement du dirigeant et décision de divulgation volontaire d'informations: cas du marché tunisien", *International Management*, vol. 17, no. 4: 34-49.

Dobler, M. (2008) "Incentives for risk reporting: a discretionary disclosure and cheap talk approach", *The International Journal of Accounting*, vol. 43, no. 2: 184-206.

Eagly, A.H., Johannesen-Schmidt, M.C. & Van Engen, M.L. (2003) "Transformational, transactional, and laissez-faire leadership styles: a meta-analysis comparing women and men", *Psychological Bulletin*, vol. 129, no. 4: 569-591.

Elmarzouky, M., Albitar, K., & Hussainey, K. (2021) "Covid19 and performance disclosure: does governance matter? ", *International Journal of Accounting & Information Management*, vol. 29, no. 5: 776-792.

Elshandidy, T., & Neri, L. (2015) "Corporate governance, risk disclosure practices, and market liquidity: comparative evidence from the UK and Italy", *Corporate Governance: An International Review*, vol. 23, no. 4: 331-356.

Elshandidy, T., Neri, L., & Guo, Y. (2018) "Determinants and impacts of risk disclosure quality: evidence from China", *Journal of Applied Accounting Research*, vol. 19, no. 4: 518-536.

Elzahar, H., & Hussainey, K. (2012) "Determinants of narrative risk disclosures in UK interim reports", *The Journal of Risk Finance*, vol. 13, no. 2: 133-147.

Erhardt, L.N., Werbel, J.D., & Shrader, C.B. (2003) "Board of director diversity and firm financial performance", *Corporate Governance*, vol. 11, no. 2: 102-110.

Fama, E.F., & Jensen, M.C. (1983) "Separation of ownership and control", *The Journal of Law and Economics*, vol. 26, no. 2: 301-325.

Farrell, K. A., & Hersch, P. L. (2005) "Additions to corporate boards: The effect of gender", *Journal of Corporate Finance*, vol. 11, no. 1–2, 85–106.

Fondas, N. (2000) "Women on boards of directors: gender bias or power threat?", In Burke, R. & Mattis, M.C. (Eds.), *Women on corporate boards of directors: International challenges and opportunities*, Springer, pp. 171-177.

Gharbi, Y., & Ben Ouda, O. (2011) “Ultimate ownership structure and stock liquidity: empirical evidence from Tunisia”, *Studies in Economics and Finance*, vol. 28, no. 4: 282-300.

Grassa, R., Moumen, N., & Hussainey, K. (2021) "Do ownership structures affect risk disclosure in Islamic banks? International evidence", *Journal of Financial Reporting and Accounting*, vol. 19, no. 3: 369-391

Hahn, R., & Lulfs, R. (2014) “Legitimizing negative aspects in GRI-oriented sustainability reporting: a qualitative analysis of corporate disclosure strategies”, *Journal of Business Ethics*, vol. 123, no. 3: 401-420.

Haj-Salem, I., Damak Ayadi, S., & Hussainey, K. (2019) “Corporate governance and risk disclosure quality: Tunisian evidence”, *Journal of Accounting in Emerging Economies*, vol. 9, no. 4: 567-602

IASB (2010) “IFRS practice statement management commentary”, *International Accounting Standards Board*, London.

Jain, S., & Raithatha, M. (2022) "Risk disclosures and firm value: the role of governance in an emerging market", *International Journal of Productivity and Performance Management*, vol. 71, no. 8: 3205-3227.

Jain, S., & Raithatha, M. (2024) "Founder ownership concentration and risk disclosures: an emerging economy view", *Journal of Applied Accounting Research*, vol. 25, no. 5: 1165-1182.

Jiang, H., & Habib, A. (2009) "The impact of different types of ownership concentration on annual report voluntary disclosures in New Zealand", *Accounting Research Journal*, vol. 22, no. 3: 275-304.

Juhmani, O.I. (2013) “Ownership structure and corporate voluntary disclosure: evidence from Bahrain”, *International Journal of Accounting and Financial Reporting*, vol. 3, no 2: 133.

Kaium Masud, M.A., Mi Bae, S., & Kim, J.D. (2017) “Analysis of environmental accounting and reporting practices of listed banking companies in Bangladesh”, *Sustainability*, vol. 9, no. 10: 1717.

Kennedy, P. (2003) *A Guide to Econometrics*, MIT press, Cambridge.

Khalil, A., & Maghraby, M. (2020) "The determinants of internet risk disclosure: empirical study of Egyptian listed companies", *Managerial Auditing Journal*, vol. 32, no. 8: 746-767.

Khanchel, I. (2007) “Empirical evidence on corporate governance and corporate performance in Tunisia”, *Corporate Governance: An International Review*, vol. 15, no. 6: 1429-1441.

Konishi, N., & Mohobbot, A. (2007) “Risk reporting of Japanese companies and its association with corporate characteristics”, *International Journal of Accounting, Auditing and Performance Evaluation*, vol. 4, no. 3: 263-285.

Lajili, K., Dobler, M., Zéghal, D., & Bryan, M.J. (2021) "Risk reporting in financial crises: a tale of two countries", *International Journal of Accounting & Information Management*, vol. 29, no. 2: 181-216.

Mokhtar, E.S., & Mellett, H. (2013) “Competition, corporate governance, ownership structure and risk reporting”, *Managerial Auditing Journal*, vol. 28, no. 9: 838-865.

Madrigal, M.H., Aibar Guzmán, B., & Aibar Guzmán, V. (2015) “Determinants of corporate risk disclosure in large Spanish companies: a snapshot”, *Contaduría y Administración*, vol. 60, no.4: 757-775.

Muhammad, H., Migliori, S., & Mohsni, S. (2023) "Corporate governance and firm risk-taking: the moderating role of board gender diversity", *Meditari Accountancy Research*, vol. 31, no. 3: 706-728.

Myers, R.H. (1990) *Classical and Modern Regression with Applications*, Belmont, CA: Duxbury press, Vol. 2: 488.

Nadia, L.P., Sudirman, W.F.R., & Pratiwi, A. (2024) "Do the more women on the board, the higher the firm’s performance during a COVID19 crisis? Evidence from ASEAN countries", *Equality, Diversity and Inclusion*, Vol. ahead-of-print

Neter, J., Wasserman W., & Kutener M.H. (1990) *Applied Linear Statistical Models: Regression, Analysis of Variance, and Experimental Designs. Irwin*, *Inc., Homewood, IL*, pp. 911-940.

Nicolò, G., Zampone, G., Sannino, G., & De Iorio, S. (2022) "Sustainable corporate governance and non-financial disclosure in Europe: does the gender diversity matter?", *Journal of Applied Accounting Research*, vol. 23, no. 1: 227-249.

Noguera, M. (2020) “Women directors’ effect on firm value and performance: the case of REITs”, *Corporate Governance*, vol. 20, no. 7: 1265-1279.

Ntim, C.G., Lindop, S., & Thomas, D.A. (2013) “Corporate governance and risk reporting in South Africa”, *International Review of Financial Analysis*, vol. 30: 363-383.

Nur Probohudono, A., Tower, G., & Rusmin, R. (2013) "Risk disclosure during the global financial crisis", *Social Responsibility Journal*, vol. 9, no. 1: 124-137.

Oliveira, J., Rodrigues, L., & Craig, R. (2011) “Voluntary risk reporting to enhance institutional and organizational legitimacy: evidence from Portuguese banks”, *Journal of Financial Regulation and Compliance*, vol. 19, no. 3: 271-289.

Omri, A. (2003) “Systèmes de gouvernance et performance des entreprises tunisiennes”, *Revue française de gestion*, vol. 1, no. 142: 85-100.

Paquerot, M. (1996) “L'enracinement des dirigeants et ses effets”, *Revue française de gestion*, no. 111: 212-225.

Pucheta-Martínez, M.C., Bel-Oms, I., & Olcina-Sempere, G. (2016) “Corporate governance, female directors and quality of financial information”, *Business Ethics: A European Review*, vol. 25, no. 4: 363-385.

Reddy, S., & Jadhav, A.M. (2019) “Gender diversity in boardrooms – A literature review”, *Cogent Economics & Finance*, vol. 7, no. 1: 1644703.

Rose, C. (2007) “Does female board representation influence firm performance? The Danish evidence”, *Corporate Governance: An International Review*, vol. 15 no. 2: 404-413.

Saggar, R., Arora, N., & Singh, B. (2022) "Gender diversity in corporate boardrooms and risk disclosure: Indian evidence", *Gender in Management*, vol. 37, no. 2: 182-201.

Schleicher, T., & Walker, M. (2010) “Bias in the tone of forward-looking narratives”, *Accounting and Business Research*, vol. 40, no. 4: 371-390.

Seebeck, A., & Vetter, J. (2021) “Not just a gender numbers game: How board gender diversity affects corporate risk disclosure”, *Journal of Business Ethics*, vol. 177: 1-26.

Singh, V., Terjesen, S., & Vinnicombe, S. (2008) “Newly appointed directors in the boardroom: how do women and men differ”, *European Management Journal*, vol. 26, no. 1: 48-58.

Singhania, S., Singh, J., Aggrawal, D., & Rana, S. (2024) "Board gender diversity and sustainability reporting quality: a generalized ordered logit approach", *Kybernetes*, vol. 53, no. 8: 2679-2699.

Temiz, H., & Acar, M. (2023) “Board gender diversity and corporate social responsibility (CSR) disclosure in different disclosure environments”, *Corporate Social Responsibility and Environmental Management*, vol. 30, no. 5: 2247-2264.

Wu, Q., Furuoka, F., & Lau, S.C. (2022) "Corporate social responsibility and board gender diversity: a meta-analysis", *Management Research Review*, vol. 45, no. 7: 956-983.

Zharfpeykan, R., & Ng, F. (2021) “COVID19 and sustainability reporting: what are the roles of reporting frameworks in a crisis?”, *Pacific Accounting Review*, vol. 33, no. 2: 189-198.

Zouari, G., & Dhifi, K. (2022) "The impact of ownership structure on integrated reporting in European firms", *Corporate Communications: An International Journal*, vol. 27, no. 3: 527-542.