Board of directors' characteristics and corporate risk disclosure: the moderating role of family ownership

Malek Hamed Alshirah, Azhar Abdul Rahman and Ifa Rizad Mustapa
Universiti Utara Malaysia, Sintok, Malaysia

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Abstract

Purpose – This study aims at examining the level of risk of disclosure practices and the effect of four board of directors' characteristics (board size, board meetings, CEO duality and board expertise) on these practices in the Jordanian context. This study also adds to the body of literature by examining the moderating effect of family ownership on the relationship between the board of directors' characteristics and the corporate risk disclosure.

Design/methodology/approach – The sample of this study contains the non-financial Jordanian firms listed on Amman Stock Exchange (ASE). 376 annual reports of the sampled firms over four years from 2014 to 2017 were used. The content analysis approach was used to collect data and to determine the level of risk disclosure by computing the number of risk-related sentences in the annual reporting. To test the study's hypothesis, the random effect model was employed.

Findings – The empirical results show that the total of the risk disclosure sentences for each firm ranges from a minimum value of 2 sentences to a maximum value of 61 sentences, and the mean of CRD is 28 sentences. The results also indicate that the board expertise is positively related with the level of risk disclosure. Conversely, CEO duality has a negative impact on the risk disclosure practices. However, the results failed to support that the board size and the board meetings have a significant effect on the level of risk disclosure. Furthermore, the study demonstrated that the family ownership moderates the relationship between the board of directors and the corporate risk disclosure.

Practical implications – The finding of this study is more likely be useful for many concerned parties, researchers, authorities, investors and financial analysts alike in understanding the current practices of the risk disclosure in Jordan, thus helping them in reconsidering and reviewing the accounting standards and improving the credibility and transparency of the financial reports in the Jordanian capital market.

Originality/value – The current study contributes to the literature of risk disclosure because the previous research has paid little attention to this topic in Jordan. To the best knowledge of the researcher, this study is the first Jordanian study that focuses on examining the relationship between the board of directors' characteristics and the corporate risk disclosure in the non-financial sector. Furthermore, it is the first study that examines the moderating role of family ownership on such relationships. Consequently, the results of the current study draw attention to the CRD practices and the monitoring role of board of directors in Jordan.

Keywords Risk disclosure, Board of directors, Family ownership, Content analysis, Jordan

Paper type Research paper

1. Introduction

Recently, the rapid pace of progress in economy, technology and world politics have complicated the business environment and increased the level of uncertainty and volatility (Baroma, 2014; Woods *et al.*, 2017). Besides, the companies confronted diverse risks from the inside of their own organisation as well as from the external environment, which are beyond the traditional ones (Ali and Taylor, 2014; Mazumder and Hossain, 2018). As a result, managing and controlling the business risk have become more difficult (Beasley *et al.*, 2005). In the aftermath of the corporate scandals and financial crises, which led to a deceleration of the global economy and failure of many companies (Cabedo and Tirado, 2004; Fung, 2014), regulators and policymakers have recognised that transparent information and comprehensive financial reporting would help in preventing future crises, thus resulting in

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reconsidering the foundations of the companies' regulations (Aryani and Hussainey, 2017; Ibrahim *et al.*, 2019; Ntim *et al.*, 2013). The risk disclosure improves the transparency of information and regains the confidence of stakeholders in the businesses by providing a clear explanation and more understanding of risk elements and the complexity of the business environment to enable them make informed decisions (Abraham and Cox, 2007; Cabedo and Tirado, 2004; Hassan, 2009; Linsley and Shrives, 2006; Mousa and Elamir, 2014). Therefore, providing reliable and timely risk information to assess the financial conditions and business operations is vital.

The preceding research on disclosure has employed a variety of theoretical frameworks in the investigations of why companies involve themselves in different levels of disclosure. Nevertheless, the single theory cannot explain the corporate disclosure entirely, and researchers attempt to select the theory, which aligns with their investigations (Linsley and Shrives, 2000). Hence, this study used agency theory and signalling theory to explain the risk disclosure practices of listed companies as well as the association between the board of directors and the corporate risk disclosure level. The theoretical relationship between the corporate governance and the disclosure through these two theories has been explained by previous studies. Also, the prior disclosure literature refers to the considerable overlap between agency and signalling theories, whereby a good combination of the two gives a better indication of the disclosure practices of firms (Morris, 1987; Watson and Marston, 2002). In this regard, Linsley and Shrives (2005) argue that agency theory and signalling theory are widely used for explaining the risk disclosures.

Agency theory posits, in a joint stock company, that managers' interests may conflict with the interests of the principals, thus mainly leading to information asymmetry between them. In other words, the agents possess relevant information more than the principals (Arnold and de Lange, 2004). Consequently, this may negatively affect the capability of the principals in monitoring whether the agents are fairly serving their interests (Foerster *et al.*, 2014). In this instance, they are expected to seize the opportunity and information to act against the owner's interests in the firm. Hence, the risk information provided by the managers can help in reducing the risk information asymmetry, which in turn results in reducing the agency costs (Abraham and Cox, 2007; Solomon *et al.*, 2000). Also, based on the agency viewpoint, the managers may have incentives to show that they serve in the best interest of a company, and disclosure is considered as an effective means to achieve this (Latham and Jacobs, 2000; Watson and Marston, 2002).

In addition, signalling theory explains the motivation of managers towards more risk disclosure. In other words, companies have a tendency to provide more risk-related information when they have high levels of risk to justify the reasons for these higher risks (Linsley and Shrives, 2006). The managers are also motivated to provide more risk disclosure to a wider range of stakeholders about their ability to manage these risks successfully (Abraham and Cox, 2007; Baroma, 2014; Hassan, 2009). When the managers have bad news, they would seek to disclose this to signal their strengths and ability to overcome the potential losses in the future. Given the firms are willing to disclose their good performance to their investors, the risk disclosure is viewed as a good performance (Agyei-Mensah and Buertey, 2019) and gives the company an incentive to disclose more risk information to a broad range of owners (Elshandidy *et al.*, 2013; Hassanein and Hussainey, 2015).

The quality of Jordanian firms' disclosure is inadequate, especially the risk information (Sawalqa, 2014; Kutum, 2014). Some studies have indicated that the Jordanian companies have been inattentive to disclosing much forward-looking information (Al-Shattarat *et al.*, 2010). This deficiency was mostly due to the weakened group of accounting standards that the Jordanian companies applied. Accounting standards in Jordan comprise only general instructions and suffer from lack of clear and adequate disclosure provisions (Al-Akra and Ali, 2012). Consequently, companies are susceptible to having very simple listing requirements, very weak corporate governance mechanisms and disclosure system with a low quality (Alhadab, 2018). Hence, the absence of a completed framework for risk disclosure and the non-compliance of mandatory disclosure provisions in Jordan give managers a discretion to determine the implemented governance and the level of risk information disclosed (Elzahar and Hussainey, 2012; Moumen *et al.*, 2016). Therefore, transparency and credibility of information and controlling the managers are considered as a key task of effective boards of directors (Moumen *et al.*, 2016). Accordingly, exploring the possible effect of the board of director's characteristics on the level of risk disclosure in Jordan is crucial.

The current study hopefully adds many novel theoretical contributions to the existing literature on accounting and financial reporting. First, the available literature points outs that studies on risk disclosure have focused mainly on the developed countries (Lajili, 2009; Linsley and Shrives, 2006; Macchioni *et al.*, 2014; Mkumbuzi, 2016). Hence, the results may not be applicable to emerging markets because many economic differences exist between the developing and developed countries (Nahar *et al.*, 2016). In addition, the vast majority of prior research has partially focused on specified disclosure items (Abraham and Cox, 2007; Achmad *et al.*, 2017; Elzahar and Hussainey, 2012; Linsmeier *et al.*, 2002). As a result, those studies have offered limited insights into risk disclosure practices. Hence, risk disclosure practices in developing countries create an ideal environment to examine the level of risk disclosure. Accordingly, this study aims at providing evidence regarding risk disclosure through the developing countries' perspective and at presenting deep insights concerning the assessment of the risk disclosure level in these countries by investigating the risk disclosure practices in the annual reporting of the Jordanian listed companiesbecause of the limited studies associated with the effect of the corporate governance mechanisms on risk disclosure in the developing countries.

Second, studies on the corporate disclosure in Jordan are scanty (e.g. Al-Akra and Ali, 2012; Al-Shattarat *et al.*, 2010; Haddad *et al.*, 2015; Haddad *et al.*, 2017; Hassaan, 2013; Omar and Simon, 2011). They mostly focussed on disclosure as a whole, and only few studies have been conducted on risk disclosure in Jordan, investigating mainly a specified type of risk and neglecting other aspects of risk. Although disclosure decisions are determined by the board of directors (Beretta and Bozzolan, 2004; Saggar and Singh, 2017), they ignored the important effect of board on risk disclosure practices. Because the differences in the level of risk disclosure practices between the countries are related to the legal system and culture of the country (Elshandidy *et al.*, 2015), determinants of disclosures in the developed countries are more likely to be different from the developing ones (Elgammal *et al.*, 2018). Thus, this study seeks to fill this gap through conducting a comprehensive study on the relationship between the board of directors and the level of aggregate risk disclosure in Jordan as a response to the recommendations of previous studies (e.g. Al-Maghzom *et al.*, 2016; Elgammal *et al.*, 2018; Ibrahim *et al.*, 2019; Moumen *et al.*, 2015) concerning limited studies empahsising on this topic in Jordan.

Third, the ownership structure has been described as an important corporate governance mechanism, particularly when the legal protection of investors is low (Alhababsah, 2019). This might influence the effectiveness of the board of directors in providing further corporate disclosure (Dong and Zhang, 2008; Zureigat, 2011). The ownership of the Jordanian companies is highly concentrated and dominated by families (Al-Akra and Hutchinson, 2013; Alkhawaldeh, 2012; Haddad *et al.*, 2015; Zureigat, 2011). In this regard, the Jordanian Companies Law gives shareholders the right to elect and appoint members of the board so that the nature of the board (effective or ineffective) depends on the firm's ownership structure. Accordingly, the Jordanian situation is attractive for studying the effect of the family ownership on the level of information disclosed by the management. For example, Akra and Hutchinson (2013) and Haddad *et al.* (2015) argue that the family domination is a key factor in interpreting the variations in the disclosure practices in Jordan. With this rationale, the study goes a step further than prior risk disclosure literature to provide answers if family ownership can affect the effectiveness of the board of directors to release more risk information. More specifically, this study examines the moderating effect of family ownership on the relationship between the board of directors and the level of risk disclosure. In this regard, few studies analysed the effects of family ownership on the extent of risk information, but none of them has tested it as moderating variable on this relationship, specifically in the Jordanian context.

To achieve this goal, 376 Jordanian listed firms' annual reports over the period from 2014 to 2017 have been analysed. As for the amount of risk disclosure, it was measured based on the annual reports using content analysis method. A final risk disclosure score for each company was calculated first by counting the number of risk-related sentences in each annual report (Elzahar and Hussainey, 2012). Then, these sentences were classified by type and semantics into groups proposed by Linsley and Shrives (2006), and they were used in the risk disclosure literature (e.g. Amran *et al.*, 2009; Elzahar and Hussainey, 2012; Moumen *et al.*, 2015; Moumen *et al.*, 2016). The findings reported that the board expertise is related positively to the amount of risk disclosure. However, CEO duality has a negative impact on risk disclosure practices, whereas the board size and board meetings do not have a significant effect on the level of risk disclosure. Regarding the moderating effect of family ownership, the study has discovered the moderating effect of family ownership on the relationship between some of the board of directors' attributes (i.e board size and CEO duality) and the corporate risk disclosure. The study contributes to providing more knowledge about the Jordanian firms' risk disclosure level as well as the potential factors that may affect such level, namely the board of directors' attributes.

This study is organised as follows. The second section is the literature review, and then section three is the hypotheses development of the study. Afterwards, section four presents the methodology. Section five introduces the descriptive statistics, diagnostic tests and analysis results, section six is theoretical and practical implications and finally section six includes the conclusions.

2. Literature review

Limited studies have examined the effect of corporate governance mechanisms on the corporate risk disclosure in emerging markets. Elzahar and Hussainey (2012) suggested that the duality and board independence were insignificantly linked with the level of risk-related information in interim report narrative that 72 firms in the United Kingdom have prepared. In this regard, Mokhtar and Mellett (2013) examined the level of risk disclosure (mandatory and voluntary) and its determinants in Egypt. Their findings reported that the board size, CEO duality, type of auditor and ownership concentration serve as significant determinants of risk disclosure. Another study by Ntim *et al.* (2013) examined whether the corporate governance affect the quality or level of risk disclosures in South Africa, focussing specifically on the period before and after 2007/2008 financial crisis. They found that the board size, board diversity and independent directors positively affect RD. However, the institutional ownership, block ownership and a role duality were insignificantly connected with the magnitude of the corporate risk disclosure in South Africa. In another study, Barakat and Hussainey (2013) found that the ownership structure, audit committee's effectiveness and board independence were the main determinants of the corporate risk disclosure.

Mousa and Elamir (2014) examined whether the corporate governance influences the corporate risk disclosure quality by using sampled Bahraini-listed firms. The results showed that the institutional investors and large owners significantly and positively affected the risk information disclosed. In contrast, the board size negatively affected the RD. Also, foreign ownership, debt ratio and board composition insignificantly influenced the risk disclosure.

Another study by Al-Shammari (2014) examined the relation between the corporate governance mechanisms and risk disclosure, using 109 listed firms in Kuwait in 2012. The findings revealed that larger board size positively affected the corporate risk disclosure, whereas the CEO duality negatively affected the Kuwaiti firms. Elshandidy and Neri (2015) revealed that strong corporate governance influences the decision of companies in the United Kingdom and Italy to disclose further risk information. Their study examined the effect of the corporate governance mechanisms (e.g. size, duality and independence) on the risk disclosure.

In another study, Elshandidy *et al.* (2015) documented that the variation in the risk disclosure practices between the countries is significantly driven by the different legal system and culture of the country. In addition, Moumen *et al.* (2016) examined the effect of some boards' characteristics (size, composition and duality) on the decisions of MENA firms to disclose information about the risk profiles. By using a sample of 320 listed MENA firms, they found that the board size and its composition boost the informativeness of risk disclosure, which permits investors to forecast growth of future earnings better. Al-Maghzom *et al.* (2016) explored empirically the effect of the corporate governance on the practices of voluntary risk disclosure in the Saudi-listed banks. Their results revealed a negative relationship between the voluntary board, the audit committee's size and the external ownership and the risk disclosure. A further study by Allini *et al.* (2016) examined whether the board of directors' composition impacts the risk disclosure in the Italian-listed state-owned enterprises. The findings showed that the diversity of education on the board was negatively linked with the risk disclosure level.

In the Indian context, Saggar and Singh (2017) measured the level of risk disclosure and examined the association between the board of directors' characteristics and the corporate risk disclosure practices. They found that the gender diversity and large board size have a positive significant influence on the risk disclosure, whereas the ownership concentration insignificantly affects the risk disclosure. In their study, Neifar and Jarboui (2018) examined the influence of the mechanisms of the corporate governance on the extent of the corporate risk disclosure in the Islamic banks scattered across various countries. Their results revealed a significant and positive impact of independent directors on the operational voluntary risk disclosure, whereas a significant negative impact of the role duality was found. In another study, Elgammal *et al.* (2018) studied the effect of the corporate governance mechanisms on the corporate risk disclosure and forward-looking disclosures in Qatari firms. They found a negative relationship between the corporate risk disclosure and the large board size, CEO duality and non-executive director. A further study by Ibrahim *et al.* (2019) investigated the influence of the corporate governance mechanisms and a corporate's attributes on the extent of risk disclosure practices in Saudi firms. They revealed that the separate CEO–Chairperson positions, effectiveness of the audit committee and state ownership have a positive influence on risk disclosure. In contrast, they found that a board's independence and institutional ownership are not correlated with the risk disclosure.

In the Jordanian context, a few empirical studies have examined the level of corporate risk disclosure. For instance, Kutum (2014) aimed at investigating whether banks in Jordan are compliant with the IFRS 7's requirement for mandatory disclosure and at finding the extent to which the banks provide voluntary risk disclosures. Data were collected from all 15 banks listed on the ASE for 2013. The results signalled a need to improve the voluntary risk disclosure because most of the banks did not provide adequate information that could be useful to stakeholders. Hence, Kutum suggested researching the topic to determine the progress. Besides, Tahat (2014) compared several types of risk disclosures (credit, market and liquidity risk) that were related to the financial instruments, using a sample of 82 firms in Jordan. He created a risk disclosure index to estimate the risk information that the sampled firms provided. The findings showed that the majority of the companies in Jordan offer a higher amount of risk disclosure after the implementation of IFRS 7 more compared to before it was implemented, and this growth was found consistent across all the categories of risk disclosure. In addition, he revealed the banking sector represented the greater risk information. Another study by Alkurdi *et al.* (2019) examined the impact of some corporate governance mechanisms on the corporate risk disclosure (mandatory and voluntary). The sample consisted of 15 listed Jordanian banks over the period from 2008 to 2015. They reported that the audit committee's meetings, the independent board, the board's size and the separation between dual positions of CEO and chairman positively affect the voluntary risk disclosure. However, only an audit committee's meetings and the independent board have shown a positive significant effect on the level of risk mandatory disclosure, whereas the managerial ownership has no relationship with the risk disclosure (mandatory and voluntary).

In sum, the studies of Kutum (2014) and Tahat's (2014) had several limitations. These studies investigated only some types of risk and neglected other aspects of risk. In addition, these studies were limited to measuring the level of risk disclosure, and they neglected other factors that might potentially affect the level of risk disclosure, particularly the corporate governance. Furthermore, the studies were conducted over a relatively short period. Also, Alkurdi *et al.* (2019) examined few corporate governance attributes, which could not reflect a clear insight of the effectiveness of the corporate governance mechanisms with respect to risk disclosure practices in Jordan. Moreover, their study was limited only to the banking sector.

3. Hypotheses development

3.1 Board size

Larger board size augments management efficiency by thwarting the attempts of management to exploit the shareholders (Singh and Harianto, 1989). Thus, larger boards could contribute better in mitigating the conflicts between insider owners and minority owners (Allegrini and Greco, 2013). In addition, the existence of a sufficient number of the members of board of directors likely activates the oversight function in the company, which helps in avoiding the occurrence of information asymmetry (Pangestuti *et al.*, 2017). In this regard, the agency theory posits that large size of board helps in enhancing the financial reporting quality (Ismail *et al.*, 2010; Klein, 2002; Vafeas, 2000; Peasnell *et al.*, 2005; Xie *et al.*, 2003) because larger boards are linked with higher managerial monitoring level and diverse expertise and higher level of stakeholder representation (Peasnell *et al.*, 2005; Klein, 2002), thus ensuring regular and credible information released to the public that contains risk information (Khalil and Maghraby, 2017; Moumen *et al.*, 2016). In the same vein, Ismail *et al.* (2010) indicated that a large board performs its monitoring role more effectively than a small one. Moreover, Allegrini and Greco (2013); Ntim *et al.* (2013); Wang and Hussainey (2013) and Zaheer (2013) revealed that disclosure is positively associated with the board size.

However, past studies on the relationship between the board size and risk disclosures presented inconclusive results. For instance, many studies have found that the board size has a significant and positive connection with the corporate risk disclosure (Al-Shammari, 2014; Elshandidy and Neri, 2015; Mokhtar and Mellett, 2013; Moumen *et al.*, 2016; Nazieh and Ezat, 2014; Ntim *et al.*, 2013). On the other hand, other prior studies have revealed that the board size had a significant and negative influence on the corporate risk disclosure (Al-Maghzom *et al.*, 2016; Mousa and Elamir, 2014). Consequently, the findings by some studies have suggested that the board size is insignificantly linked with the level of risk disclosure (Allini *et al.*, 2016; Elzahar and Hussainey, 2012; Khalil and Maghraby, 2017). Hence, the current study, based on the related theories, anticipates a positive relationship between the risk disclosure level and the board size, given that previous studies have indicated that large board size is more efficient in disclosing more information about risk. Thus, based on the theoretical arguments, the current study hypothesizes the following:

H1. There is a positive relationship between board size and the level of risk disclosure.

3.2 Board meetings

Board of directors with more frequent meetings are more proactive in supervising the company's management (Conger *et al.*, 1998; Vafeas, 1999). Also, the implications of a high meeting frequency are higher pressure on the management to introduce supplementary information (Barros *et al.*, 2013). In other words, frequent board meetings are seen as a pledge to share information between the managers and the shareholders regularly (Brick and Chidambaran, 2010), whereby frequent board meetings give an opportunity for members to share more information. Moreover, effective boards' meetings constantly are more likely to comply with their duties and perform the monitoring function on the financial reporting processes.

Based on agency theory's view, boards, which have higher frequent meetings, have higher effective advisory and monitoring role on the management (Ntim and Osei, 2011), thus mitigating the agency problem. Based on resource dependence theory's viewpoint, the board's meetings bring outside sources during the meeting discussion, thus contributing in effective monitoring functions. For example, Barros *et al.* (2013); Laksmana (2008) and O'Sullivan *et al.* (2008) found that voluntary disclosure significantly increases with the board's meeting frequency. Hence, based on the agency theory and the discussion above, it is probable that the frequency of meetings of the board is positively linked with the level of risk disclosure. As a result, the following hypothesis is formulated:

H2. There is a positive relationship between the frequency of board's meetings and the level of risk disclosure.

3.3 CEO duality

Combining the functions of Chairman and Chief Executive Officer in one person probably limits the monitoring functions of the board and increases the agency costs (Elzahar and Hussainey, 2012; Li *et al.*, 2008; Neifar and Jarboui, 2018). Also, agency theory assumes that the role duality contributes in increasing the individual power for CEO and lack of the controlling role of the board (Gul and Leung, 2004; Neifar and Jarboui, 2018), thus influencing the board's effectiveness (Samaha *et al.*, 2012) and leading to a lower transparency and a higher information asymmetry. Role duality creates decision-making concentration, and as a result of such concentration, CEOs could dominate the board of directors and they will more likely involve in an opportunistic behavior. An individual who has both positions is expected to be biased with managers more than the shareholders and tends to prevent access of shareholders to relevant risk information (Al-Shammari, 2014), thus producing a lack of risk disclosure level. Consequently, companies having CEO duality may disclose poorer information (Allegrini and Greco, 2013).

Prior studies that have examined the relation between role duality in the board of directors and corporate disclosure have shown conflicting results. On the one hand, some studies documented a positive relationship between the role duality and risk disclosure (Elshandidy and Neri, 2015; Carmona *et al.*, 2016). Conversely, Elgammal *et al.* (2018); Ezat and El-Masry (2008); Alkurdi *et al.* (2019); Ibrahim *et al.* (2019); Neifar and Jarboui (2018) and Al-Shammari (2014) revealed significantly a negative impact of the role duality on the risk disclosure. In addition, Cheng and Courtenay (2006); Elzahar and Hussainey (2012), Ho and Wong (2001) and Ntim *et al.* (2013) found that the role duality was insignificant connected with the corporate risk disclosure level. Based on the above results, it is predicted that the duality between the CEO and the chairman positions will lead to a lack of transparency and a lower level of risk disclosure. Consequently, by employing the agency theory that suggests that the chairman and CEO's functions should be separated, this study presents the following hypothesis:

H3. There is a negative relationship between the CEO duality and the level of risk disclosure.

3.4 Board expertise

Boards of directors, which comprise members with relevant expertise, are expected to implement their monitoring duty effectively (Hillman and Thomas, 2003), which can contribute in creating reliable and valuable financial reporting (Dahya *et al.*, 1996; Naiker and Sharma, 2009) and improving the disclosure (Williams and O'Reilly, 1998). Based on agency theory, if the board has varied experiences, it would be an effective oversight mechanism (Allini *et al.*, 2016). According to Fama and Jensen (1983), a board of directors, having expertise and knowledge, such as accounting, finance, information technology and others, would reduce the agency costs as well as the agency problems. When the board has good monitoring expertise, an opportunistic behaviour of management will be less prevalent (Anderson *et al.*, 2004). Resources dependence theory argues that a larger board with experienced directors could enrich a firm with critical competitive resources, giving constructive advice to the management and contributing to a better monitoring system. Moreover, directors, who hold various positions in many boards, possess external resources and informed opinions that can help the firm in accessing external resources and associations (Kakanda *et al.*, 2017; Kiel and Nicholson, 2003). In this regard, Agrawal and Chadha (2005) argue that the directors, having great deal of financial and accounting experience, have a higher ability to prepare financial reports properly and improve the quality of information disclosed. Also, Ismail and Rahman (2011) found that the directors' expertise was positively connected with the risk disclosure level. In contrast, Allini *et al.* (2016) showed that the diversity of education on the board has a negative connection with the risk disclosure level. Based on agency theory, resource dependence theory and the previous empirical findings, the knowledge and skills, particularly in accounting and finance field, may improve the decision-making process by the board of directors, thus resulting in enhancing the quality of risk disclosure. Hence, this study hypothesizes the following:

H4. There is a positive relationship between board expertise and the level of risk disclosure.

4. The moderating effect of family ownership on the relationship between the board of directors and the corporate risk disclosure

It is widely believed that tfamilies' concentrated ownership has an effective involvement in the companies' management, which might strongly affect the board's decisions (Lokman *et al.*, 2014) such as disclosure decisions. The potential effect of family ownership on the effectiveness of the board of directors regarding the extent to which it contributes actively in enhancing the risk disclosure level is still questionable. Two contrasting theoretical views have been discussed. On the one hand, because family members administer the family firms, unique relationships develop between the family owners. That is, the family firms expend great efforts to increase long-term assets to maintain the reputation and goodwill of the family, which mitigates the agency costs (Bartholomeusz and Tanewski, 2006). The family values among the family owners can promote love and loyalty of members for the firm (Chami, 1999; Kamardin, 2014). Based on agency theory, the family relationships between managers (decision makers) and owners (residual claimants) contribute to mitigating type 1 agency problems among them because they are the same (Fama and Jensen, 1983;

McConaughy *et al.*, 1998). As they have greater access to a company's information, the family owners are better able to monitor the management effectively, thus reducing the agency problems between the managers and the shareholders (Ghosh and Tang, 2015; Villalonga and Amit, 2006).

The other point of view is that the family control of company is likely to cause type II agency problems, such as conflicting interests between the majority and minority investors (Anderson and Reeb, 2004; Duréndez and Madrid-Guijarro, 2018; Kuo and Hung, 2012). Controlling families are motivated to expropriate the minority shareholders' interests, and therefore, they have an incentive to weaken the monitoring role of the board (Fan and Wong, 2002; Jaggi *et al.*, 2009). In other words, the controlling family members have a wide access to information about the firm, and those owners do not mainly rely on general disclosure. In countries in which families have substantial equity holdings, the owners have strong enough voting power to elect a director, a chairman or a CEO (Anderson and Reeb, 2003). This in turn reduces the efficiency of a directors' monitoring role because the directors, who may be family members, are grateful to their firm's' management, and they are more likely to agree with family members' wishes (Abdullah and Ismail, 2016; Jensen and Meckling, 1976), especially if the family owners have the authority to appoint and dismiss them (Jaggi *et al.*, 2009).

In family firms, the main goal is strengthening the family relationships and safeguarding the family's survival (Bertrand and Schoar, 2006), which is more important than supervising the management or protecting the minority shareholders' interests. Consequently, in this pattern of ownership, the effectiveness of the board of directors is restricted by the family domination, thus influencing the board's decisions (Abdullah and Ismail, 2016; Carter *et al.*, 2010). In addition, when the family members control most shares, they will communicate most risk information among themselves without the need to disclose them in annual reports or official meetings (Al-Shammari, 2014; Ismail *et al.*, 2014; Kamaruzaman *et al.*, 2019), thus reducing the effectiveness of such meetings. Under these circumstances, other stakeholders will not receive relevant risk information via annual statements (Konishi and Ali, 2007).

CEO duality is prevalent in family firms (Kamardin, 2014). As mentioned above, the family owners have voting rights to nominate a chairman or a CEO of the company (Anderson and Reeb, 2003), who is usually a dominant family member (Ho and Wong, 2001; Jaggi *et al.*, 2009), or they may select one person to occupy the two positions (CEO duality). Even though the CEO is not a family member, he/she has been recruited by family directors, which implies that the family members restrict the CEO's decisions (Jaggi *et al.*, 2009; Li and Hung, 2013), and this problem is exacerbated when the CEO is also a chairman. Nevertheless, McConaughy *et al.* (1998) revealed that CEOs with family ties manage their companies more effectively than other CEOs do. In this regard, Rubino *et al.* (2017) showed that CEOs' duality positively affects the family firms' value. They also argue that the integration of the two roles in one family member mitigates the conflicts of interests between them.

The family-owned firms tend to appoint expert directors in order to benefit from their expertise and knowledge in strategic decisions, rather than exploiting their experience in controlling financial reporting processes (Anderson and Reeb, 2004; Jaggi *et al.*, 2009; Johnson *et al.*, 1996), which might influence the advisory role of the board experts over disclosure decisions. Because the family members have a direct access to information, the firm does not have to afford extra monitoring costs of appointing outside expert directors (Chau and Gray, 2010; Ismail *et al.*, 2014). Moreover, family owners serving on the board usually have insufficient qualifications, skills and experience, with an adverse effect on the information disclosed (Sciascia and Mazzola, 2008).

Based on the above discussion, the argument can be advanced that the high family ownership might influence the managers in terms of releasing the risk. As a result, these firms have a different perception of corporate risk disclosure. It is worth mentioning that the family ownership is common in Jordan (Al-Akra and Hutchinson, 2013; Alkhawaldeh, 2012; Haddad *et al.*, 2015). In this context, the Jordanian firms (including listed companies) are more prone to be dominated by family members with a limited managerial responsibility (Abdullatif and Al-khadash, 2010). Therefore, the current study examines the moderating effect of the family ownership on the relationship between the board of directors' characteristics and the level of risk disclosure. Thus, this study develops the hypotheses as follows:

H5a. Family ownership moderates the relationship between the board size and the level of risk disclosure.

H5b. Family ownership moderates the relationship between the frequency of board meetings and the level of risk disclosure.

H5c. Family ownership moderates the relationship between CEO duality and level of risk disclosure.

H5d. Family ownership moderates the relationship between board expertise and the level of risk disclosure.

5. Methodology

5.1 Sample

The sample of the current study is the Jordanian-listed companies over four years (from 2014 to 2017) because they are considered the most important sources that contribute in an increase of GDP in Jordan (ASE, 2017; Moumen *et al.*, 2016). The total market value of them represented 83% of Jordan's GDP in 2017 (ASE, 2017). The ASE divided the Jordanian-listed firms to three sectors as follows: the financial sector, the industrial sector and the services sector. The current study selected the industrial and services sectors, including 56 and 49 firms, respectively, in 2017 (ASE, 2017). However, 11 firms were excluded due to data unavailability and other constraints. Also, firms in the financial sector have been excluded as they have different codes of the corporate governance that the Jordanian Central Bank and the Insurance Commission have issued (Al-Akra *et al.*, 2009). In addition, they apply specific disclosure requirements and have different characteristics (Zeitun and Tian, 2007). Another reason for excluding the financial sectors is that their financial reports are incompatible to those of non-financial sectors (Hassaan, 2013).

5.2 Dependent variable and content analysis

The content analysis is an effective tool to summarise and analyse quantitative data in written documents (Neuendorf, 2002), and it includes "replicable and valid methods for making inferences from observed communications" (Krippendorff, 1980, p. 21). In other words, the content analysis is a rich data source because it can establish associations that are difficult to detect (Linsley and Shrives, 2006; Zhang *et al.*, 2013). This method is adopted because the aim of this study is to examine the level or nature of risk disclosure regardless of the quality of corporate risk disclosures (Amran *et al.*, 2009; Elzahar and Hussainey, 2012; Linsley and Shrives, 2006; Mokhtar and Mellett, 2013). Various coding units, such as words, sentences, portions of a page or a paragraph are allocated (Bowman, 1984; Mousa and Elamir, 2014). In the current study, the sentence is used as a coding unit because a word is the smallest unit in a sentence and cannot clearly convey an idea or a message on its own out of context. Also, the word is meaningless, unless it is contained in the sentences, to provide a proper inference (Amran *et al.*, 2009; Aryani and Hussainey, 2017; Ivers, 1991; Linsley and Shrives, 2006; Milne and Adler, 1999; Mokhtar and Mellett, 2013). In addition, using a sentence as coding units helps in avoiding the double counting of the same sentence. That is, a risk sentence is counted only once even if it includes more than one word referring to risk disclosure (Elshandidy and Neri, 2015; Elzahar and Hussainey, 2012).

The current study adopted a broad definition of Linsley and Shrives (2006) following the example of numerous risk disclosure researches (e.g. Abraham and Cox, 2007; Ali and Taylor, 2014; Amran *et al.*, 2009; Aryani and Hussainey, 2017; Dobler *et al.*, 2011; Elshandidy *et al.*, 2013; Elzahar and Hussainey, 2012; Konishi and Ali, 2007; Linsley and Shrives, 2006; Mokhtar and Mellett, 2013) to identify the risk-related sentences which inform the reader if "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" (Linsley and Shrives, 2006, p. 388). This involves the adoption of the set of decision rules developed by Linsley and Shrives (2006) and Konishi and Ali (2007) to distinguish the risk information in the annual reports from others (see Appendix 2). Afterwards, to ensure the validity of the coding processes for risk disclosure, this study used the risk categories proposed by Linsley and Shrives (2006) that was used in many risk disclosure studies (e.g. Amran *et al.*, 2009; Elzahar and Hussainey, 2012; Moumen *et al.*, 2015; Moumen *et al.*, 2016) (see Appendix 2). Based on coding grids of Linsley and Shrives (2006), the risk disclosure sentences are classified according to their type and semantics into a group of categories, which are financial risk, operational risk, empowerment risk, information processing and technology risk, integrity risk and strategic risk. Finally, this study calculated a total risk disclosure score for each firm by gathering the number of risk-related sentences that exists in the annual reporting of the Jordanian firms (Elzahar and Hussainey, 2012).

Previous studies have used either automatic or manual methods for the content analysis or combined the two methods (Al-Maghzom *et al.*, 2016). The automatic methods are often used when the sample size is larger. In addition, most annual reports of the Jordanian firms are scanned files, and thus it is difficult to convert from scanned to PDF files. The manual test requires to consider and read the whole relevant information, leading to produce accurate outcomes (Mousa and Elamir, 2014). Also, humans can judge about the meaning of statement in the context better than a computer and are more effective and flexible (Deumes, 2008). Hence, several studies have used the manual method to apply the content analysis method (e.g. Beretta and Bozzolan, 2004; Linsley and Shrives, 2006). Thus, this study used the manual content analysis method.

5.3 Measurement reliability

Because the content analysis may be susceptible to subjective judgment (Moumen *et al.*, 2016), the coding procedure should be reliable and valid in order to conclude the valid outcomes (Bowman, 1984; Weber, 1988). The reliability of the content analysis increases if it is conducted by more than one person or at more than one time (Hussainey *et al.*, 2003; Moumen *et al.*, 2015; Neuendorf, 2002). To ensure the validity and reliability of the coding method, following the huge number of prior studies (e.g. Abraham and Cox, 2007; Amran *et al.*, 2009; Elzahar and Hussainey, 2012; Linsley and Shrives, 2006; Moumen *et al.*, 2016; Mousa and Elamir, 2014), a single coder, who is expert in the field and familiar with the content analysis method, reviewed and coded independently the risk-related sentences in the pilot study, which is 40 (10.63%) from the total of 376 annual reports. Before the pre-testing of the coding processes, the researcher explained the research objectives to the coder and trained him to master the decision rules adopted (Amran *et al.*, 2009; Moumen *et al.*, 2016). Afterwards, the results from the two coders (the researcher and the coder) were compared to determine the level of consistency in applying those rules. The measurement is considered reliable if other researchers replicate the same measurement and get the same results (Marston and Shrives, 1991). To verify the reliability of the measurement, Cronbach's alpha was applied as a statistical test. In this regard, the Cronbach's alpha coefficient should exceed 70% threshold (Pallant, 2005). The result of Cronbach's alpha is 83.2%, which indicates a high level of internal consistency between the outputs of the two coders, and there are no significant differences between them. Hence, the content analysis can be considered as a reliable measurement of risk information disclosed by the Jordanian-listed firms.

5.4 Models of the study

This study used following multiple regression modals to investigate the influence of the board of directors' characteristics on the level of the corporate risk disclosure.

$$\mathrm{CRD} = \beta 0 + \beta 1\ \mathrm{BSIZ}_{it} + \beta 2\ \mathrm{BM}_{it} + \beta 3\ \mathrm{CEO}_{it} + \beta 4\ \mathrm{BEXP}_{it} + \beta 5\ \mathrm{SIZE}_{it} + \beta 6\ \mathrm{SCTR}_{it} + \beta 7\ \mathrm{BIG4}_{it} + \beta 8\ \mathrm{LEVER}_{it} + \varepsilon_{it}$$

The moderating effect of family ownership on the relationship between the board of directors and corporate risk disclosure was investigated using the following regression model:

$$\mathrm{CRD} = \beta 0 + \beta 1\ \mathrm{BSIZ}_{it} + \beta 2\ \mathrm{BM}_{it} + \beta 3\ \mathrm{CEO}_{it} + \beta 4\ \mathrm{BEXP}_{it} + \beta 5\ \mathrm{SIZE}_{it} + \beta 6\ \mathrm{SCTR}_{it} + \beta 7\ \mathrm{BIG4}_{it} + \beta 8\ \mathrm{LEVER}_{it} + \beta 9(\mathrm{FAW}{*}\mathrm{BSIZ})_{it} + \beta 10(\mathrm{FAW}{*}\mathrm{BM})_{it} + \beta 11(\mathrm{FAW}{*}\mathrm{CEO})_{it} + \beta 12(\mathrm{FAW}{*}\mathrm{BEXP})_{it} + \varepsilon_{it}$$

For each company (i) and each year (t).

Definitions of all variables used in the current analysis are presented in Table 1.

Table 1. Measurement of variables

Acronym	Variables	Measurement
CRD	Corporate risk disclosure	Measured by number of risk-related sentences that exist in the annual reports of the Jordanian companies
BSIZ	Board size	Measured by the total number of board of directors
BM	Board meeting	Measured by the number of board meetings held during the financial year
CEO	CEO duality	Measured by 1 if CEO and chairman's roles are combined; 0 if separated
BEXP	Board expertise	Measured by the proportion of board members with financial or/and accounting expertise to the total board members
FAW	Family ownership	Measured by the percentage of shares held by families to the gross number of firm's shares
SIZE	Company size	Measured by the natural log of the total assets
SECTR	Type of sector	Classified into industrial or services sector, and is measured by dummy variable, 1 if companies belong to an industrial sector. 0 otherwise
BIG4	Audit Firm type	Measured by dummy variable, 1 if audited by big 4 audit firm. 0 otherwise
LEVER	Leverage	Measured by the total debt to the total assets

6. Results

6.1 Descriptive statistics

Table 2 shows the descriptive statistics for the total risk-related sentences and the sentences frequency in 94 Jordanian firms' annual reports from 2014 to 2017. All risk-related sentences are categorized through one of six risk categories and computed as shown in Table 2. Figure 1 represents the level of risk sentences that are disclosed in all categories of risk. The total number of risk disclosure sentences is 10,660 sentences in all annual reports of the Jordanian firms. The total of risk disclosure sentences to each firm ranges from a minimum value of 2 sentences to a maximum value of 61 sentences, and the mean of CRD is 28 sentences. The average is very close to the averages of 20, 28, 20, 26, 28 sentences found by Amran *et al.* (2009); Elzahar and Hussainey (2012); Al-Shammari (2014); Mokhtar and Mellett (2013) and Moumen *et al.* (2016), respectively.

The highest category of risk disclosure is the financial risk (3,090 sentences) which is about 29%, which indicates that the Jordanian companies disclose financial risks more than other types of risk. The result is consistent with those of Al-Shammari (2014) and Linsley and Shrives (2006), with 20.7 and 26.7%, respectively. The financial information helps the users understand the level of financial risks that the company faces. Hence, it is closely related to the mandatory information required by IFRS; it is therefore natural that the companies focus on this type of disclosure more than others (Moumen *et al.*, 2016). The second highest disclosure category is the operational risk (2,376 sentences, 22%). This result is relatively close to studies conducted by Amran *et al.* (2009) in Malaysia and by Oliveira *et al.* (2011) in Portugal and Spain, whereby the operational risk was around 30% and 15.4%, respectively. Mokhtar and Mellett (2013) also revealed that the operational risk is high in the annual reports of the Egyptian companies. The third highest risk disclosure category is the strategic risk (2,218 sentences, 21%). Similarly, Oliveira *et al.* (2018) found that the strategic risk is 19.3%, and Linsley and Shrives (2006) also found it high (31.7%).

It is noticeable that there is a gap between the above categories (financial, operation and strategic risk) and other categories (empowerment, information processing and technology and integrity risk), which represent 9%, 8 and 11% respectively. The potential reason for this gap may be that the disclosure's requirements in Jordan, as an emerging country, do not pay sufficient attention to the latter types of disclosure, depending instead on voluntary disclosure. Similarly, Amran *et al.* (2009) found that these categories were disclosed at a low level in Malaysia.

Risk disclosure	Sum	Mean	Min	Max	%
Financial risk	3090	8.218085	0	22	29%
Operation risk	2376	6.319149	0	14	22%
Empowerment risk	969	2.577128	0	10	9%
Information processing and technology risk	836	2.223404	0	14	8%
Integrity risk	1165	3.098404	0	11	11%
Strategic risk	2218	5.898936	0	20	21%
Total risk disclosure	10660	28.35106	2	61	100%

Table 2. Descriptive statistics of risk disclosure

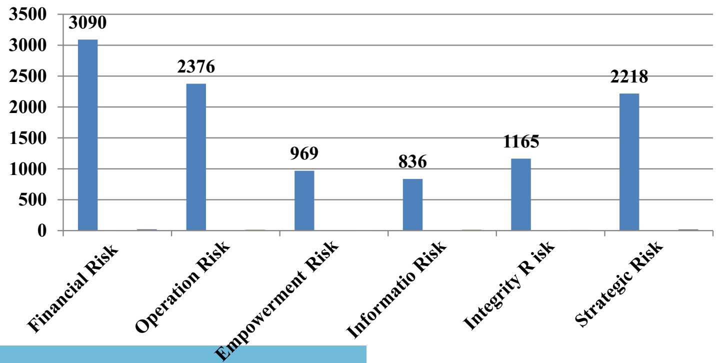

Figure 1. Number of risk disclosure sentences for each category of risk

The descriptive statistics for the continuous variables (average, standard deviation, minimum, maximum, skewness and kurtosis) are shown in Table 3, and the dichotomous variables (frequency and the percentage of the variable) are shown in Table 4. Board size (BSIZ) ranges from 4 to 13 members, with the average 8.027. This result is consistent with the earlier studies conducted in Jordan. For instance, Alsmady (2018) and Al Daoud (2018) found that the mean value of the board size of the Jordanian companies is 8.51 and 8.795 members, respectively. The average frequency of the board meetings (BM) reported in this study is 7.939, with a minimum of 4 and a maximum of 18, similar to the findings of Qadorah and Fadzil (2018), at 7.33. The results indicate that the Jordanian companies complied with the requirements of JCGC to hold at least six meetings in the year regularly.

In Table 4, CEO duality (CEO) is shown with a mean of 32.18%. That is, in almost a third of the Jordanian companies, the same individual occupies the position of a chairman and CEO. The findings are similar to those of Al Daoud (2018) who found the average of CEO duality in Jordan as 39.8%. The descriptive statistics also indicate that the mean value of the board expertise (BEXP) is 31.3%. This result is consistent with those of Makhlouf *et al.* (2018) and Al Daoud (2018), who found the average of board members with financial and accounting experience in Jordan around 31 and 29.6%, respectively. The descriptive statistics revealed that the mean family ownership (FAW) is 23.48%, ranging from 0 to 94.4%, which is relatively higher than other ownership types in this study. This result is consistent with Nawaiseh *et al.* (2019) and Zraiq and Fadzil (2018b) who found that the average of the family ownership in Jordan is 19.73 and 23.86%.

Regarding the control variables, Table 3 shows that the average firm size (SIZE) is 7.479, similar to Alsmady (2018), Siam *et al.* (2018) and Mardini *et al.* (2013) who found that the average size of the Jordanian firms is 7.45, 7.217 and 7.90. The percentage of firms in the industrial sector (SECTR) is 52.13%, which refers that more than half of the Jordanian firms are industrial firms. The result is close to the result of Al Daoud *et al.* (2014) who found that the industrial sector is 46%. In terms of audit firm type, Table 4 shows that 149 (39.63%) years in company are audited by big 4 audit firms and 227 (60.37%) by non-big 4 audit firms in Jordan. The results are consistent with those of Kikhia (2014) who found that the percentage of the Jordanian firms audited by big 4 was 37.1%. The mean value of leverage (LEVER) in this study is 32.273%, supported by Siam *et al.* (2018), Makhlouf *et al.* (2018) and Abu Qa'dan and Suwaidan (2018) with figures of 38.3%, 35% and 35.9%.

Table 3.
Descriptive statistics for continuous variables

Variable name	Mean	St.Dev	Min	Max	Skewness	Kurtosis
BSIZ	8.027	2.33	4	13	0.462	2.421
BM	7.939	2.801	4	18	1.634	5.284
BEXP	0.313	0.202	0	0.86	0.458	2.63
FAW	0.2348	25.33	0	0.944	0.981	2.986
SIZE	7.479	0.639	5.861	9.255	0.323	3.585
LEVER	32.273	23.024	0	104	0.782	3.052

Table 4.
Descriptive statistics of dichotomous variables

		Frequency		%	
Variable name	Observation	1	0	1	0
CEO	376	121	255	32.18	67.82
SECTR	376	196	180	52.13	47.87
BIG4	376	149	227	39.63	60.37

6.2 Diagnostic tests

Several tests must be conducted to verify the qualification of the data panel. Multicollinearity is tested by the correlations matrix test and a variance inflation factor (VIF). The Pearson correlation coefficients among the independent variables are presented in Table 5. All the variables have a correlation of less than 0.477, which means there is no multicollinearity because none of the variables correlates above 0.9. Consequently, the multicollinearity problem does not exist in this model. As shown in Table 6, VIF, which is in the range of 1.262–2.019, is much lower than 10 and the mean VIF of all independent variables in one regression is only 1.466. Therefore, this indicates that there is no multicollinearity problem as the VIFs are below 10 (Kline, 2005; Silver, 1997).

This study used Breusch–Pagan–Godfrey/Cook–Weisberg Test to test the presence of heteroscedasticity problem. In addition, the Wooldridge test was conducted to detect whether the autocorrelation problem exists or not. As shown in Table 7, the Breusch–Pagan–Godfrey/Cook–Weisberg test shows an insignificant p-value ($0.1895 > 0.05$). Consequently, the heteroscedasticity problem does not exist in the data of study. The result of Wooldridge test also shows an insignificant p-value ($0.0707 > 0.05$). This indicates that the autocorrelation problem does not exist in the data of study.

In order to determine the appropriate model to the study, some tests are conducted. Lagrange multiplier test (LM) helps select between the random effect model and the pooled OLS model. Table 8 displays that the result of LM test is significant ($0.000 < 0.05$). Thereby, using random effects is suitable in this study (Gujarati and Porter, 2009). The Hausman specification test is used to select between the fixed model and the random model. As shown in Table 8, the Hausman test is insignificant ($0.0664 > 0.05$). Hence, it could be concluded that the RE model is opted and run to analyse the data.

6.3 Regression analysis results

The model was estimated by using a random effect method. Table 9 shows the findings of the relationship between the dependent variable (the corporate risk disclosure), the independent variables (board of directors' characteristics) and control variables (firm size, sector type, audit firm type and leverage). The model is statistically significant and fit at the 1% level with the p-value $= 0.000$, $R^2 = 0.344$.

Table 9 represents that the correlation between the board size (BSIZ) and the risk disclosure (CRD) is negative but insignificant ($t = -0.01, p = 0.988$), which implies that large boards do not play an important role in improving the risk disclosure practices. This finding is contrasting the expectations, which predicted that large board size increases the level of corporate risk disclosure. Hence, H1 is rejected. Also, the result is not consistent with agency theory and resource dependency theory, which state that a large board improves the financial reporting quality because it is linked with a higher level of managerial monitoring and diverse expertise and a higher level of stakeholder representation (Ismail *et al.*, 2010; Klein, 2002; Vafeas, 2000; Peasnell *et al.*, 2005; Xie *et al.*, 2003). The result also disagrees with Al-Shammari (2014); Elshandidy and Neri (2015); Mokhtar and Mellett (2013); Moumen *et al.* (2016); Nazieh and Ezat (2014) and Ntim *et al.* (2013), who found that a large board size has a significant and positive relationship with the corporate risk disclosure. Nevertheless, the result of this study is similar to some studies such as those of Al Daoud (2018) and Alsmady (2018) who found an insignificant relationship between the board size and the earnings management and timeliness of the annual reports in Jordan. Furthermore, this result is supported by Allini *et al.* (2016); Elzahar and Hussainey (2012); Htay *et al.* (2011) and Khalil and Maghraby (2017), who found that the board size has no effect on the corporate risk disclosure. In this regard, Alkurdi *et al.* (2019) reported that the board size has no significant effect on the mandatory risk disclosure in the Jordanian banks.

Table 5.
Correlations matrix of study variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) CRD	1.000									
(2) BSIZ	0.130**	1.000								
(3) BM	0.211***	0.080	1.000							
(4) CEO	−0.393***	−0.284***	−0.046	1.000						
(5) BEXP	0.344***	−0.027	−0.025	−0.190	1.000					
(6) FAW	−0.279***	−0.183***	−0.157***	0.159***	−0.047	1.000				
(7) SIZE	0.300***	0.477***	0.240***	−0.312**	0.069	−0.248***	1.000			
(8) SECTR	0.202***	−0.119**	−0.267***	−0.206**	0.152***	0.026	−0.120**	1.000		
(9) BIG4	0.176***	0.323***	0.164***	−0.186**	−0.018	−0.209***	0.456***	−0.094*	1.000	
(10) LEVER	0.258***	0.067	0.334***	−0.196**	0.069	−0.238***	0.390***	0.026	0.159***	1.000

Variable	VIF	1/VIF
SIZE	2.019	0.495
BSIZ	1.939	0.516
LEVER	1.506	0.664
BIG4	1.419	0.705
CEO	1.349	0.741
BM	1.348	0.742
BEXP	1.317	0.76
FAW	1.307	0.765
SECTR	1.262	0.793
Mean VIF	1.466	

Table 6. Standard tests on VIF results

	$Chi^2(1)$	Prob > chi^2
Breusch–Pagan–Godfrey/Cook–Weisberg test	1.72	0.1895
Wooldridge test	3.342	0.0707

Table 7. Breusch–Pagan–Godfrey/Cook–Weisberg and Wooldridge test

	$Chi^2(1)$	Prob > chi^2
LM test	202.11	0.0000
Hausman test	25.20	0.0664

Table 8. LM test and Hausman test

$CRD = \beta 0 + \beta 1\ BSIZ_{it} + \beta 2\ BM_{it} + \beta 3\ CEO_{it} + \beta 4\ BEXP_{it} + \beta 5\ SIZE_{it} + \beta 6\ SCTR_{it} + \beta 7\ BIG4_{it} + \beta 8\ LEVER_{it} + \varepsilon_{it}$

CRD	Coef	Predict sign	*t*-value	*p*-value	Sig
BSIZ	−0.005	+	−0.01	0.988	
BM	0.319	+	1.63	0.103	
CEO	−2.793	−	−1.93	0.054	*
BEXP	7.148	+	2.32	0.020	**
SIZE	1.640	+/−	1.22	0.222	
SECTR	4.057	+/−	2.36	0.018	**
BIG4	1.805	+/−	1.12	0.261	
LEVER	0.018	+/−	0.67	0.501	
Constant	5.301		0.53	0.594	
Number of Obs	376				
R-squared	0.344				
Prob > Chi^2	0.000				

Note(s): *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Table 9. Multiple regression results

It seems that larger boards are likely to have less motivation to take part in decision- making as each member relies on other members to perform the monitoring functions (Lipton and Lorsch, 1992; Samaha *et al.*, 2012). Therefore, this finding supports the agency theory that posits that small boards are more likely to be effective in monitoring the management because they need less time and effort to communicate with each other (Lipton and Lorsch, 1992). In addition, the insignificant relationship between the board size and risk disclosure might also be attributed to the fact that the number of directors on the board might not reflect the directors' expertise and skills, which are more valuable for boards to perform their function effectively. Big boards are usually more symbolise (Hermalin and Weisbach, 2001) honorary positions for senior shareholders rather than adding an effective oversight role to the management's activities. Mousa and Elamir (2014), Al-Maghzom *et al.* (2016) and Elgammal *et al.* (2018) also found a negative relationship between the risk disclosure and the board size. Furthermore, a large number of directors may complicate the sharing of information among them and weaken the coordination and communication. Consequently, these directors may not be able to attend all meetings of the board, as they are many, thus complicating the decision-making processes. Instead, they will rely on the management for oversight of the financial reports process, giving the management discretion to determine the level of risk information disclosed.

Table 9 shows that the frequency of meetings of the board of directors (BM) is not significantly related to the risk disclosure (CRD) ($t = 1.63, p = 0.103$). That is, the frequency of board's meetings does not play a significant role in improving the level of risk disclosure. Hence, H2 is rejected. This finding is contrasting the study's expectation and agency theory that proposes that a board of directors with frequent meetings is more proactive in supervising the company's management, and this increased frequency is expected to reduce the agency problems between a company and its investors (Conger *et al.*, 1998; Vafeas, 1999). In addition, the finding is contradictory with Barros *et al.* (2013); Kakanda *et al.* (2017); Laksmana (2008) and O'Sullivan *et al.* (2008), who concluded that the frequency of board's meetings has positive associations with the disclosure.

Nevertheless, this result is in line with Allini *et al.* (2016), who revealed that the board's meetings have no effect on the corporate risk disclosure. Furthermore, it is consistent with studies in other fields, such as those of Qadorah and Fadzil (2018), who state that frequent board meetings have no relation with the earnings management or financial performance in Jordan. A possible explanation for the weak effectiveness of the board's meeting frequency is the high ownership concentration in Jordan. In other words, when only a few people control most of the shares in a company, they may receive most risk information from the informal networks in a company's headquarters or through personal relationships with the management rather than from official meetings (Al-Shammari, 2014), thus resulting in reducing the effectiveness of such meetings. Moreover, the firms often conduct unofficial meetings to discuss the firm's important issues. These meetings may not be counted as board meetings, when the firm releases information about the meetings number in their annual reports. Another explanation for the insignificant relationship is that the Jordanian firms attempt to comply with the corporate governance code's requirements, which state that they should hold at least six meetings a year. Hence, they might hold many meetings to be simply recorded in their annual reports in order to show themselves to be more compliant with such requirements rather than having a real desire for efficient monitoring tools.

This study hypothesised a negative association between CEO duality (CEO) and corporate risk disclosure (CRD). Table 9 shows a significant negative relationship between CEO duality and corporate risk disclosure ($t = -1.93, p = 0.054$), thereby supporting H3. This means that a firm which separates between the CEO and the chairman's positions tends to disclose more risk information. This result is supported by Al-Shammari (2014); Elgammal *et al.* (2018); Ibrahim *et al.* (2019) and Neifar and Jarboui (2018), who found negative relationships between the risk disclosure and the role duality of the CEO. It is further supported by the arguments of agency theory, which states that combining the functions of the chairman and CEO in one person is likely to weaken the monitoring functions of the board and increases the agency costs (Neifar and Jarboui, 2018). In line with this expectation, Al Daoud (2018) and Alzoubi (2016a) reported that CEO duality contributes in increasing the earnings management practices in Jordan. Abu Qa'dan and Suwaidan (2018) and Aldaoud (2015) also found that

CEO duality has a significant negative relationship with the corporate social responsibility disclosure and with the timeline of the financial reporting in Jordan.

This study also predicted a positive effect of the board expertise (BEXP) on the level of risk disclosure (CRD). Table 9 represents that the relation between the board members' expertise and the risk disclosure is significant and positive ($t = 2.32$, $p = 0.020$). Thus, H4 is supported. The findings of this study are matching with the argument of agency theory and resource dependence theory, which posits that the board members with experienced directors could enrich a board with critical competitive resources, constructive advice and more experiences, thus contributing to improve the board's monitoring functions, which improves the quality of the financial reporting (Pfeffer and Salancik, 2003). This relationship confirms the significance of accounting and financial experience of directors in monitoring and observing the financial reporting. That is, the findings of the present study are similar to others in Jordan, such as those of Alzoubi (2016b) who states that the board directors who have accounting and financial experience effectively monitor their manager's attitudes towards engaging in earnings management practice. Another study by Makhlouf *et al.* (2018) reported a positive significant relationship between a board's expertise and accounting conservation. Hence, the findings are aligned with the previous findings conducted on the disclosure studies (e.g. Dahya *et al.*, 1996; Gul and Leung, 2004; Williams and O'Reilly, 1998) which found that the board's expertise has a positive effect on disclosure. In addition, Ismail and Rahman (2011) found that the education of directors has a positive impact on the risk disclosure.

The relation between the firm's size (SIZE) and the corporate risk disclosure (CRD) is insignificantly positive ($t = 1.22$, $p = 0.222$). This result is in line with Hassan (2009) and Aljifri and Hussainey (2007) who revealed an insignificant association between the two variables. Similarly, Alabdullah (2018) and Sartawi *et al.* (2014) revealed an insignificant relationship between a firm's size, firm's performance and voluntary disclosures in Jordan. Table 9 shows a significant positive relationship between the type of sector (SECTR) and corporate risk disclosure (CRD) ($t = 2.36$, $p = 0.018$), suggesting that firms in the industrial sector disclose risk information more than those in the service sector. This result is consistent with those reported by Cooke (1992) and Mangena and Pike (2005) who found a significant positive correlation between the type of sector and the corporate disclosure. In addition, Rajab and Handley-Schachler (2009) revealed that the industry type was significantly and positively related to the risk information that the companies disclose.

The result represents an insignificant association between the firm which is audited by big audit firms (Big 4) and the level of risk disclosure (CRD) ($t = 1.12$, $p = 0.261$). It could be concluded that no significant differences in the level of risk disclosure in the firms that are audited by big audit firms and the firms that are audited by non-Big 4 audit firms exist, and this finding is in line with Aldaoud (2015) and Alhadab (2018) who revealed that Big 4 has no effect on the timeliness of the financial reporting and earnings management in Jordan. This result is also consistent with the results of Barako *et al.* (2006) and Al-Shammeri (2014). It was also found that the leverage of firms (LEVER) has an insignificant association with the corporate risk disclosure (CRD) ($t = 0.67$, $p = 0.501$). This result indicates that the leverage does not affect the level of risk disclosure. This result is similar to previous studies of Linsley and Shrives (2006); Abraham and Cox (2007); Konishi and Ali (2007); Rajab and Handley-Schachler (2009); Elzahar and Hussainey (2012); Miihkinen (2012) and Nitm *et al.* (2013), who found an insignificant relationship between the leverage and the risk disclosure. In the same vein, Alrabba *et al.* (2018); Sartawi *et al.* (2014) and Kikhia (2014) revealed an insignificant relationship between leverage, voluntary disclosures and audit fees in Jordan.

6.4 The moderating effect of family ownership

The study predicts that the family ownership moderates the relationship between the board of directors' characteristics and the level of risk disclosure. Table 10 shows the findings of the

Table 10.
The moderating effect of family ownership

$$\text{CRD} = \beta0 + \beta1\ \text{BSIZ}_{it} + \beta4\ \text{BM}_{it} + \beta3\ \text{CEO}_{it} + \beta4\ \text{BEXP}_{it} + \beta5\ \text{SIZE}_{it} + \beta6\ \text{SCTR}_{it} + \beta7\ \text{BIG4}_{it} + \beta8\ \text{LEVER}_{it} + \beta9\ (\text{FAW*BSIZ})_{it} + \beta10\ (\text{FAW*BM})_{it} + \beta11(\text{FAW*CEO})_{it} + \beta12\ (\text{FAW*BEXP})_{it} + \varepsilon_{it}$$

CRD	Coef.	*t*-value	*p*-value	Sig
BSIZ	−0.483	−1.20	0.231	
BM	0.276	1.06	0.291	
CEO	−1.319	−0.54	0.591	
BEXP	5.824	0.89	0.375	
SIZE	1.650	1.01	0.312	
SECTR	4.492	2.66	0.008	***
BIG4	1.566	1.15	0.250	
LEVER	0.010	0.38	0.701	
FAW*BSIZ	0.026	2.49	0.013	**
FAW*BM	0.007	1.09	0.274	
FAW*CEO	−0.087	−1.80	0.072	*
FAW*BEXP	0.082	0.59	0.553	
Constant	4.800	0.39	0.695	
Number of Obs	376			
R-squared	0.400			
Prob > chi^2	0.000			

Note(s): $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

second model (moderating effect of family ownership). The R^2 of this regression model is 0.400. In comparison with the value in the main regression (direct relationship) in Table 9, which was 0.344, it can be clearly concluded that R^2 has dramatically increased (from 0.344 to 0.400). According to Hair *et al.* (2006), the increase in R^2 indicates the significance of the moderator. That is, the family ownership does moderate the relationship between the board of directors and the corporate risk disclosure.

As reported in Table 10, the findings show that the interaction between the family ownership and the board size (FAW*BSIZ) has a positive and significant effect on the level of risk disclosure (CRD) ($t = 2.49$, $p = 0.013$). However, the direct association between the board size (BSIZ) and the corporate risk disclosure (CRD) is negative but insignificant ($t = -0.01$, $p = 0.988$), thereby indicating that the family ownership moderates the relationship between the board size and the corporate risk disclosure (CRD). Thus, H5a is supported. When the number of board of directors is large, the level of risk disclosure is higher in firms with higher family ownership compared to firms with lower family ownership. That is, the existence of family-concentrated owners suggests the presence of a dominant group that might strongly affect a board's effectiveness (Lokman *et al.*, 2014). The result may be driven based on the fact that given the long-term presence of family owners in a company, this stimulates them to expend great efforts on discipline and monitor the managers in order to maintain the reputation and goodwill of the family, thus mitigating the agency costs (Bartholomeusz and Tanewski, 2006; DeAngelo and DeAngelo, 1985; Wang, 2006). In addition, the family-concentrated owners or family members serving on the board are likely to have a great ability to monitor the management strictly (Ghosh and Tang, 2015; Villalonga and Amit, 2006). This result is in line with Aldaoud (2015), who found that the ownership concentration moderates the relationship between the board size and the timeliness of the financial reporting in Jordan.

The results of the moderating effect of the family ownership (FAW) on board's meeting frequency (BM) presented in Table 10 show no significant effect on the corporate risk disclosure (CRD) ($t = 1.09$, $p = 0.274$), which indicates that FAW has no moderating role on the relationship between BM and CRD. Thus, H5b is rejected. A reasonable explanation of this result is that when family members control most shares, they will try to align their interests with their manage'rs interests, thereby leading to communicate the risk information among themselves without the need to disclose the information in the annual reports or official meetings (Al-Shammari, 2014; Ismail *et al.*, 2014; Kamaruzaman *et al.*, 2019), which results in reducing the effectiveness of such meetings. Under these circumstances, other stakeholders will not receive relevant risk information via the official meetings (Konishi and Ali, 2007).

The study examined whether the interaction between the family ownership and CEO duality (FAW*CEO) has an influence on the risk disclosure (CRD) ($t = -1.80$, $p = 0.072$). The finding shows that the family ownership negatively moderates the association between CEO duality and the corporate risk disclosure. Thus, H5c is supported. This result is consistent with the entrenchment argument predicted by agency theory. That is, the family members usually occupy executive positions in the firm or they may select one person to occupy both positions (CEO duality). This might be because the family owners have high voting rights to nominate a chairman or a CEO (Anderson and Reeb, 2003). Even when CEOs are not family members, the family directors recruit them, which implies that the family members restrict their decisions (Jaggi *et al.*, 2009; Li and Hung, 2013), and this problem is exacerbated when the CEO is also the chairman, thus degrading the CEOs' monitoring role.

Table 10 shows that the interaction between family ownership and board expertise (FAW*BEXP) does not influence the corporate risk disclosure (CRD) ($t = 0.59$, $p = 0.553$) although the results in Table 9 (direct relationship) indicate that a board's expertise is significantly and positively related to the level of risk disclosure. Hence, a board's expertise effectiveness is impaired in the presence of concentrated family ownership. This result is consistent with the argument of agency theory. The family owners who serve on the board usually do not have sufficient qualifications, skills or experience, thereby adversely affecting the information disclosed (Sciascia and Mazzola, 2008). In addition, as family members have great access to information, there is no need to afford high monitoring costs of appointing outside expert directors to improve the quality of the public information (Chau and Gray, 2010; Ismail *et al.*, 2014). When the firms do not have a family intervention, the diversity of boards would become high, including education and expertise, and then they are more likely to bring more resources to protect the stakeholders' interests, which may enhance the ability of the board to perform their responsibilities more effectively without pressures by the family members (Chang *et al.*, 2017) and ultimately more risk disclosure. Moreover, family-owned firms perceive a board's expertise as a symbolical role to improve the organizational legitimacy rather than serving as an effective governance mechanism (Oh *et al.*, 2019).

7. Theoretical and practical implications

The current study is theoretically significant because the findings provide more deep theoretical understanding of the relationships between board of directors and the amount of risk information. The study results lend more support to the agency theory in relation to expounding upon why companies involve themselves in different levels of risk disclosure in the context of Jordan. Although, several studies have focused on the topic of corporate disclosure to mitigate the agency problem, limited studies have been directed to the risk disclosure. By bridging this gap, the present study adds to the body of knowledge in this field by providing evidence to the important role played by risk information in minimizing the agency problem and reducing the information asymmetry in Jordan as a developing country. More specifically, this study conducted a comprehensive investigation of risk disclosure practices in Jordan by measuring and identifying the level of aggregate risk reporting and examining the potential factors, which may have an effect on the presentation of risk-related information in the annual reports of the Jordanian-listed companies. In addition, the family ownership concentration is predominant within the markets of the developing countries.

That is, the agency conflict is more complex. Therefore, the current study explores the influence of family ownership as a moderator variable on the relationship between internal corporate governance mechanisms and corporate risk disclosure.

This study also has practical implications because it provides an initial understanding of the level of risk disclosure practices in the Jordanian firms as well as which sector of the firms discloses risk information more than the other ones. In this regard, the risk disclosure practices in Jordan are still at the initial stage. Moreover, the finding of this study are more likely to be useful for many concerned parties, researchers, authorities, investors and financial analysts in understanding the importance of risk disclosure in Jordan, and it highlight the importance of board of directors in controlling the management and overseeing the financial reporting processes. Moreover, despite Jordan companies seeming to be compliant with the requirements of corporate governance such as board size and board meeting, they were found to be ineffective in improving risk disclosure practices. Importantly, the results of the study could be beneficial for the regulators and stock exchanges to reconsider the efficiency of such requirements and encouraging them to apply the accounting standards in order to provide more integrity and transparency for risk information and enhance the quality of financial reporting.

Because family ownership is found to be related to ineffective board of directors with respect to supervising risk disclosure practices, the Jordanian regulations and Jordan Securities Commission need to motivate companies to diversify their ownership structure. Policy makers and investors alike should recognise that ownership concentrated in the hands of families has led to weaken the performance of corporate governance mechanisms. Accordingly, minority shareholders in family firms receive less risk information. To protect minority shareholders' rights, the accounting bodies and Jordan Securities Commission should exert more pressure on family-controlled listed companies and impose more regulations on them to provide more disclosure of risk-associated information.

8. Conclusion

This study investigated empirically how board of directors' characteristics, namely size, board meetings, CEO duality and board expertise contribute to the level of risk disclosure. The current study provides contributions to the literature of risk disclosure to understand the behaviour of management regarding risk disclosure in several aspects by studying the risk disclosure practices in the annual reporting of the Jordanian-listed companies because previous studies have paid little attention to this topic in Jordan. In addition, given very few studies have taken further steps to investigate the factors that might hinder the effectiveness of corporate governance mechanisms in improving the level of risk disclosure, the study updates the existent knowledge by going a further step than prior risk disclosure literature by examining the moderating role of family ownership on the relationship between board of directors and risk disclosure level, which to date has been ignored. To the best of the researcher's knowledge, this study is the first to examine this effect that was previously unexplored.

A sample of 94 Jordanian-listed firms' annual reports in the four years period from 2014 to 2017 was examined. Content analysis method was used to compute the number of risk-related sentences. A random effect method was used for the empirical analysis. The findings show that boards' expertise and sector type are related positively with the level of risk disclosure. In other words, board of directors with knowledge and expertise can improve the integrity of financial reporting by exploiting their experience to control the financial reporting processes. In contrast, CEO duality has a negative impact on risk disclosure practices. These results are in line with the agency theory's view that CEO duality would create a greater power for a CEO that would adversely impact the effectiveness of control role that the board exercises (Samaha *et al.*, 2012), thereby reducing the level of disclosure. The results also failed to support that the board size, board meetings, firm size, audit firm and leverage have a significant effect on the level of risk disclosure. Regarding family ownership as a moderator, despite that not all developed hypotheses of the present study are supported, the study has successfully discovered the moderating effect of family ownership on the relationship between board of directors and the corporate risk disclosure.

The study has several limitations that suggest new avenues for future research. First, the study is limited to some corporate governance variables, whereby it ignored other variables. In other words, other variables potentially affect the risk disclosure level. Moreover, further research could be conducted to investigate the consequences of risk disclosure (e.g. cost of capital, analysts’ forecast, firm value and share prices). The study used risk-related sentences, and this method is susceptible to subjective judgement. It would be beneficial to use a qualitative approach by conducting interviews with the regulators, managers and annual reports’ users to improve the risk information disclosed by the Jordanian firms. This study focused on the effect of the corporate governance on the corporate risk disclosure in a single country; therefore, the result of this study could not be applicable to other countries. Accordingly, further future cross-country studies on risk disclosures are being stimulated to improve our understanding of the corporate risk disclosure practices in different nations and explore the differences of results. In addition, this study used annual reports as a resource of data; however, it ignored other resources of data (e.g. interim reports, web sites, prospectuses and press releases) which could be useful for decision makers. Furthermore, a computerized analysis approach of the annual reporting is likely to be more appropriate if the sample is large.

References

Abdullah, S.N. and Ismail, K.N.I.K. (2016), “Women directors, family ownership and earnings management in Malaysia”, *Asian Review of Accounting*, Vol. 24 No. 4, pp. 525-550.

Abdullatif, M. and Al-khadash, H.A. (2010), “Putting audit approaches in context: the case of business risk audits in Jordan”, *International Journal of Auditing*, Vol. 14 No. 1, pp. 1-24.

Abraham, S. and Cox, P. (2007), “Analysing the determinants of narrative risk information in UK FTSE 100 annual reports”, *The British Accounting Review*, Vol. 39, pp. 227-248.

Abu Qa’dan, M.B. and Suwaidan, M.S. (2018), “Board composition, ownership structure and corporate social responsibility disclosure: the case of Jordan”, *Social Responsibility Journal*, Vol. 15 No. 1, pp. 28-46.

Achmad, T., Faisal, F. and Oktarina, M. (2017), “Factors influencing voluntary corporate risk disclosure practices by Indonesian companies”, *Corporate Ownership and Control*, Vol. 14 No. 3, pp. 286-292.

Agrawal, A. and Chadha, S. (2005), “Corporate governance and accounting scandals”, *The Journal of Law and Economics*, Vol. 48 No. 2, pp. 371-406.

Agyei-Mensah, B.K. and Buertey, S. (2019), “Do culture and governance structure influence extent of corporate risk disclosure?”, *International Journal of Managerial Finance*, doi: 10.1108/IJMF-09-2017-0193.

Alabdullah, T.T.Y. (2018), “The relationship between ownership structure and firm financial performance: evidence from Jordan”, *Benchmarking: An International Journal*, Vol. 25 No. 1, pp. 319-333.

Aldaoud, K.A.M. (2015), *The Influence of Corporate Governance and Ownership Concentration on the Timeliness of Financial Reporting in Jordan*”, Unpublished doctoral dissertation, Universiti Utara Malaysia, Sintok.

Al Daoud, K. (2018), “The role of the Audit Committee and the Board of Director in mitigating the practice of earnings management: evidence from Jordan”, *Proceedings of Business and Management Conferences (No. 6809892)*, International Institute of Social and Economic Sciences, Italy, Venice.

Al Daoud, K.A., Ismail, K.N.I.K. and Lode, N.A. (2014), "The timeliness of financial reporting among Jordanian companies: do company and board characteristics, and audit opinion matter?", *Asian Social Science*, Vol. 10 No. 13, pp. 191-201.

Al-Akra, M. and Ali, M.J. (2012), "The value relevance of corporate voluntary disclosure in the Middle-East: the case of Jordan", *Journal of Accounting and Public Policy*, Vol. 31 No. 5, pp. 533-549.

Al-Akra, M. and Hutchinson, P. (2013), "Family firm disclosure and accounting regulation reform in the Middle East: the case of Jordan", *Research in Accounting Regulation*, Vol. 25 No. 1, pp. 101-107.

Al-Akra, M., Jahangir Ali, M. and Marashdeh, O. (2009), "Development of accounting regulation in Jordan", *International Journal of Accounting*, Vol. 44 No. 2, pp. 163-186.

Alhababsah, S. (2019), "Ownership structure and audit quality: an empirical analysis considering ownership types in Jordan", *Journal of International Accounting, Auditing and Taxation*, Vol. 35, pp. 71-84.

Alhadab, M.M. (2018), "Real and accrual earnings management around initial public offerings in Jordan", *International Business Research*, Vol. 11 No. 1, pp. 204-216.

Ali, M.M. and Taylor, D. (2014), "Corporate risk disclosure in Malaysia: the influence of pre-dispositions of chief executive officers and chairs of audit committee", *Research Journal of Finance and Accounting*, Vol. 5 No. 2, pp. 92-106.

Aljifri, K. and Hussainey, K. (2007), "The determinants of forward-looking information in annual reports of UAE companies", *Managerial Auditing Journal*, Vol. 22 No. 9, pp. 881-894.

Alkhawaldeh, A.A. (2012), "Effects of family and foreign ownership structure on Jordanian credit risk assessments", *International Research Journal of Finance and Economics*, Vol. 90, pp. 92-113.

Alkurdi, A., Hussainey, K., Tahat, Y. and Aladwan, M. (2019), "The impact of corporate governance on risk disclosure: Jordanian evidence", *Academy of Accounting and Financial Studies Journal*, Vol. 23 No. 1, pp. 1-16.

Allegrini, M. and Greco, G. (2013), "Corporate boards, audit committees and voluntary disclosure: evidence from Italian Listed Companies", *Journal of Management and Governance*, Vol. 17 No. 1, pp. 187-216.

Allini, A., Rossi, F. and Hussainey, K. (2016), "The board's role in risk disclosure: an exploratory study of Italian listed state-owned enterprises", *Public Money and Management*, Vol. 36 No. 2, pp. 113-120.

Al-Maghzom, A., Hussainey, K. and Aly, D. (2016), "Corporate governance and risk disclosure: evidence from Saudi arabia", *Corporate Ownership and Control Journal*, Vol. 13 No. 2, pp. 1-22.

Alrabba, H.M., AlQudah, A.M. and Azzam, M.J. (2018), "The mediating role of foreign ownership in the relationship between board characteristics and voluntary disclosures of Jordanian banks", *Academy of Accounting and Financial Studies Journal*, Vol. 22 No. 6, pp. 1-15.

Al-Shammari, B. (2014), "An investigation of the impact of corporate governance mechanisms on level of corporate risk disclosure: evidence from Kuwait", *International Journal of Business and Social Research*, Vol. 4 No. 6, pp. 51-70.

Al-Shattarat, W.K., Haddad, A.E. and Al-hares, O.M. (2010), "The extent of voluntary disclosure in an emerging capital market: the case of Jordan", *Journal of Modern Accounting and Auditing*, Vol. 6 No. 10, pp. 39-51.

Alsmady, A.A. (2018), "The effect of board of directors' characteristics and ownership type on the timeliness of financial reports", *International Journal of Business and Management*, Vol. 13 No. 6, pp. 276-287.

Alzoubi, E.S.S. (2016a), "Audit quality and earnings management: evidence from Jordan", *Journal of Applied Accounting Research*, Vol. 17 No. 2, pp. 170-189.

Alzoubi, E.S.S. (2016b), "Disclosure quality and earnings management: evidence from Jordan", *Accounting Research Journal*, Vol. 29 No. 4, pp. 429-456.

Amman Stock Exchange (2017), "Annual report", available at: https://www.ase.com.jo/_sites/_default/files/English%202016%20Annual%20Report.pdf.

Amran, A., Bin, A. and Hassan, B. (2009), "Risk reporting: an exploratory study of risk management disclosure in Malaysian annual reports", *Managerial Auditing Journal*, Vol. 24 No 1, pp. 39-57.

Anderson, R.C. and Reeb, D.M. (2003), "Founding-family ownership and firm performance: evidence from the S&P 500", *The Journal of Finance*, Vol. 58 No. 3, pp. 1301-1328.

Anderson, R.C. and Reeb, D.M. (2004), "Board composition: balancing family influence in S&P 500 firms", *Administrative Science Quarterly*, Vol. 49 No. 2, pp. 209-237.

Anderson, R.C., Mansi, S.A. and Reeb, D.M. (2004), "Board characteristics, accounting report integrity, and the cost of debt", *Journal of Accounting and Economics*, Vol. 37 No. 3, pp. 315-342.

Arnold, B. and De Lange, P. (2004), "Enron: an examination of agency problems", *Critical Perspectives on Accounting*, Vol. 15 Nos 6-7, pp. 751-765.

Aryani, D.N. and Hussainey, K. (2017), "The determinants of risk disclosure in the Indonesian non-listed banks", *International Journal of Trade and Global Markets*, Vol. 10 No. 1, pp. 58-66.

Barakat, A. and Hussainey, K. (2013), "Bank governance, regulation, supervision, and risk reporting: evidence from operational risk disclosures in European banks", *International Review of Financial Analysis*, Vol. 30, pp. 254-273.

Barako, D.G., Hancock, P. and Izan, H.Y. (2006), "Factors influencing voluntary corporate disclosure by Kenyan companies", *Corporate Governance: An International Review*, Vol. 14 No. 2, pp. 107-125.

Baroma, B. (2014), "The association between the level of risk disclosure and corporation characteristics in the annual reports of Egyptian companies", *American Journal of Business, Economics and Management*, Vol. 2 No. 1, pp. 9-16.

Barros, C.P., Boubaker, S. and Hamrouni, A. (2013), "Corporate governance and voluntary disclosure in France", *Journal of Applied Business Research*, Vol. 29 No. 2, pp. 561-577.

Bartholomeusz, S. and Tanewski, G.A. (2006), "The relation between family firms and corporate governance", *Journal of Small Business Management*, Vol. 44 No. 2, pp. 245-267.

Beasley, M.S., Clune, R. and Hermanson, D.R. (2005), "Enterprise risk management: an empirical analysis of factors associated with the extent of implementation", *Journal of Accounting and Public Policy*, Vol. 24 No. 6, pp. 521-531.

Beretta, S. and Bozzolan, S. (2004), "A framework for the analysis of firm risk communication", *The International Journal of Accounting*, Vol. 39, pp. 265-288.

Bertrand, M. and Schoar, A. (2006), "The role of family in family firms", *Journal of economic perspectives*, Vol. 20 No. 2, pp. 73-96.

Bowman, E.H. (1984), "Content analysis of annual reports for corporate strategy and risk", *Interfaces*, Vol. 14, pp. 61-71.

Brick, I.E. and Chidambaran, N.K. (2010), "Board meetings, committee structure, and firm value", *Journal of Corporate Finance*, Vol. 16 No. 4, pp. 533-553.

Cabedo, J.D. and Tirado, J.M. (2004), "The disclosure of risk in financial statements", *Accounting Forum*, Vol. 28 No. 2, pp. 181-200.

Carmona, P., Fuentes, C.de and Ruiz, C. (2016), "Risk disclosure analysis in the corporate governance annual report using fuzzy-set qualitative comparative analysis", *Revista de Administração de Empresas*, Vol. 56 No. 3, pp. 342-352.

Carter, D.A., D'Souza, F., Simkins, B.J. and Simpson, W.G. (2010), "The gender and ethnic diversity of US boards and board committees and firm financial performance", *Corporate Governance: An International Review*, Vol. 18 No. 5, pp. 396-414.

Chami, R. (1999), *What's Different about Family Business?*, Working Paper, University of Notre Dame and International Monetary Fund.

Chang, Y.K., Oh, W.Y., Park, J.H. and Jang, M.G. (2017), "Exploring the relationship between board characteristics and CSR: empirical evidence from Korea", *Journal of Business Ethics*, Vol. 140, pp. 225-242.

Chau, G. and Gray, S.J. (2010), "Family ownership, board independence and voluntary disclosure: evidence from Hong Kong", *Journal of International Accounting, Auditing and Taxation*, Vol. 19 No. 2, pp. 93-109.

Cheng, E.C. and Courtenay, S.M. (2006), "Board composition, regulatory regime and voluntary disclosure", *The International Journal of Accounting*, Vol. 41 No. 3, pp. 262-289.

Conger, J., Finegold, D. and Lawler, E. (1998), "Appraising board room performance", *Harvard Business Review*, Vol. 76, pp. 136-48.

Cooke, T.E. (1992), "The impact of size, stock market listing and industry type in disclosure in the annual reports of Japanese listed corporations", *Accounting and Business Research*, Vol. 22 No. 87, pp. 229-237.

Dahya, J., Lonie, A.A. and Power, D.M. (1996), "The case for separating the roles of chairman and CEO: an analysis of stock market and accounting data", *Corporate Governance: An International Review*, Vol. 4 No. 2, pp. 71-77.

DeAngelo, H. and DeAngelo, L. (1985), "Managerial ownership of voting rights: a study of public corporations with dual classes of common stock", *Journal of Financial Economics*, Vol. 14 No. 1, pp. 33-69.

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

Dobler, M., Lajili, K. and Zeghal, D. (2011), "Attributes of corporate risk disclosure: an international investigation in the manufacturing sector", *Journal of International Accounting Research*, Vol. 10 No. 2, pp. 1-22.

Dong, N.Y. and Zhang, J.R. (2008), "Does ownership structure matter when CPA deciding types of audit opinions", *Journal of Modern Accounting and Auditing*, Vol. 4 No. 4, pp. 44-48.

Duréndez, A. and Madrid-Guijarro, A. (2018), "The impact of family influence on financial reporting quality in small and medium family firms", *Journal of Family Business Strategy*, Vol. 9 No. 3, pp. 205-218.

Elgammal, M.M., Hussainey, K. and Ahmed, F. (2018), "Corporate governance and voluntary risk and forward-looking disclosures", *Journal of Applied Accounting Research*, Vol. 19 No. 4, pp. 592-607.

Elshandidy, T., Fraser, I. and Hussainey, K. (2013), "Aggregated, voluntary, and mandatory risk disclosure incentives: evidence from UK FTSE all-share companies", *International Review of Financial Analysis*, Vol. 30, pp. 320-333.

Elshandidy, T., Fraser, I. and Hussainey, K. (2015), "What drives mandatory and voluntary risk reporting variations across Germany, UK and US?", *The British Accounting Review*, Vol. 47 No. 4, pp. 376-394.

Elshandidy, T. and 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, pp. 331-356.

Elzahar, H. and Hussainey, K. (2012), "Determinants of narrative risk disclosures in UK interim reports", *The Journal of Risk Finance*, Vol. 13 No. 2, pp. 133-147.

Ezat, A. and El-Masry, A. (2008), "The impact of corporate governance on the timeliness of corporate internet reporting by Egyptian listed companies", *Managerial Finance*, Vol. 34 No. 12, pp. 848-867.

Fan, J.P.H. and Wong, T.J. (2002), "Corporate ownership structure and the informativeness of accounting earnings in East Asia", *Journal of Accounting and Economics*, Vol. 33, pp. 401-425.

Fama, E.F. and Jensen, M.C. (1983), "Agency problems and residual claims", *The Journal of Law and Economics*, Vol. 26 No. 2, pp. 327-349.

Foerster, S.R., Sapp, S.G. and Shi, Y.Q. (2014), "The effect of voluntary disclosure on firm risk and firm value: evidence from management earnings forecasts", *Advances in Quantitative Analysis of Finance and Accounting*, Vol. 12, pp. 179-213.

Fung, B. (2014), "The demand and need for transparency and disclosure in corporate governance", *Universal Journal of Management*, Vol. 2 No. 2, pp. 72-80.

Ghosh, A. and Tang, C.Y. (2015), "Assessing financial reporting quality of family firms: the auditors' perspective", *Journal of Accounting and Economics*, Vol. 60 No. 1, pp. 95-116.

Gujarati, D. and Porter, D. (2009), *Basic Econometric*, McGraw-Hill International, New York.

Gul, F.A. and Leung, S. (2004), "Board leadership, outside directors' expertise and voluntary corporate disclosures", *Journal of Accounting and Public Policy*, Vol. 23 No. 5, pp. 351-379.

Haddad, A.E., AlShattarat, W.K., AbuGhazaleh, N.M. and Nobanee, H. (2015), "The impact of ownership structure and family board domination on voluntary disclosure for Jordanian listed companies", *Eurasian Business Review*, Vol. 5 No. 2, pp. 203-234.

Haddad, A.E., Sbeiti, W.M. and Qasim, A. (2017), "Accounting legislation, corporate governance codes and disclosure in Jordan: a review", *International Journal of Law and Management*, Vol. 59 No. 1, pp. 147-176.

Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (2006), *Multivariate Data Analysis*, 6th ed., Prentice Hall, Upper Saddle River, NJ.

Hassaan, M. (2013), "The influence of corporate governance structures on compliance with mandatory IFRSs disclosure requirements in the Jordanian context", *International Journal of Research in Business and Social Science IJRBS*, Vol. 2 No. 3, pp. 14-26.

Hassan, M. (2009), "UAE corporations-specific characteristics and level of risk disclosure", *Managerial Auditing Journal*, Vol. 24 No. 7, pp. 668-687.

Hassanein, A. and Hussainey, K. (2015), "Is forward-looking financial disclosure really informative? Evidence from UK narrative statements", *International Review of Financial Analysis*, Vol. 41, pp. 52-61.

Hermalin, B.E. and Weisbach, M.S. (2001), "Boards of directors as an endogenously determined institution: a survey of the economic literature", *Economic Policy Review*, Vol. 7 No. 1, pp. 7-26.

Hillman, A.J. and Thomas, D. (2003), "Boards of directors and firm performance: integrating agency and resource dependence perspectives", *Academy of Management Review*, Vol. 28 No. 3, pp. 383-396.

Ho, S.S.M. and Wong, K.S. (2001), "A study of the relationship between corporate governance structures and the extent of voluntary disclosure", *Journal of International Accounting, Auditing and Taxation*, Vol. 10, pp. 139-156.

Htay, S.N.N., Rashid, H.M.A., Adnan, M.A. and Meera, A.K.M. (2011), "Corporate governance and risk management information disclosure in Malaysian listed banks: panel data analysis", *International Review of Business Research Papers*, Vol. 7 No. 4, pp. 159-176.

Hussainey, K., Schleicher, T. and Walker, M. (2003), "Undertaking large-scale disclosure studies when AIMR-FAF ratings are not available: the case of prices leading earnings", *Accounting and Business Research*, Vol. 33 No. 4, pp. 275-294.

Ibrahim, A., Habbash, M. and Hussainey, K. (2019), "Corporate governance and risk disclosure: evidence from Saudi Arabia", *International Journal of Accounting, Auditing and Performance Evaluation*, Vol. 15 No. 1, pp. 89-111.

Ismail, R.F., Arshad, R. and Othman, S. (2014), "The influence of insider ownership and board independence on the narrative risk reporting", *Asian Social Science*, Vol. 10 No. 1, pp. 28-42.

Ismail, W.A.W., Dunstan, K.L. and Van Zijl, T. (2010), "Earnings quality and corporate governance following the implementation of Malaysian code of corporate governance", *SSRN 1543524*.

Ismail, R. and Rahman, R.A. (2011), "Institutional investors and board of directors' monitoring role on risk management disclosure level in Malaysia", *The IUP Journal of Corporate Governance*, Vol. 10 No. 2, pp. 37-61.

Ivers, M. (1991), *The Random House Guide to Good Writing*, Random House. Jensen, New York, NY.

Jaggi, B., Leung, S. and Gul, F. (2009), "Family control, board independence and earnings management: evidence based on Hong Kong firms", *Journal of Accounting and Public Policy*, Vol. 28 No. 4, pp. 281-300.

Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360.

Johnson, J.L., Daily, C.M. and Ellstrand, A.E. (1996), "Boards of directors: a review and research agenda", *Journal of Management*, Vol. 22 No. 3, pp. 409-438.

Kakanda, M.M., Salim, B. and Chandren, S. (2017), "Corporate governance, risk management disclosure, and firm performance: a theoretical and empirical review perspective", *Asian Economic and Financial Review*, Vol. 7 No. 9, pp. 836-845.

Kamardin, H. (2014), "Managerial ownership and firm performance: the influence of family directors and non-family directors", *Ethics, Governance and Corporate Crime: Challenges and Consequences*, Vol. 6, pp. 47-83.

Kamaruzaman, S.A., Ali, M.M., Ghani, E.K. and Gunardi, A. (2019), "Ownership structure, corporate risk disclosure and firm value: a Malaysian perspective", *International Journal of Managerial and Financial Accounting*, Vol. 11 No. 2, pp. 113-131.

Khalil, A. and Maghraby, M. (2017), "The determinants of internet risk disclosure: empirical study of Egyptian listed companies", *Managerial Auditing Journal*, Vol. 32 No. 8, pp. 746-767.

Kiel, G.C. and Nicholson, G.J. (2003), "Board composition and corporate performance: how the Australian experience informs contrasting theories of corporate governance", *Corporate Governance: An International Review*, Vol. 11 No. 3, pp. 189-205.

Kikhia, H.Y. (2014), "Board characteristics, audit committee characteristics, and audit fees: evidence from Jordan", *International Business Research*, Vol. 7 No. 12, pp. 98-110.

Klein, A. (2002), "Audit committee, board of director characteristics, and earnings management", *Journal of Accounting and Economics*, Vol. 33 No. 3, pp. 375-400.

Kline, B. (2005), *Principles and Practice of Structural Equation Modeling*, 2th ed., Guilford Press, New York, NY.

Konishi, N. and Ali, M.M. (2007), "Risk reporting of Japanese companies and its association with corporate characteristics", *International Journal of Accounting, Auditing and Performance Evaluation*, Vol. 4 No. 3, pp. 263-285.

Krippendorff, K. (1980), *Content Analysis: An Introduction to its Methodology*, Sage, London.

Kuo, Y.P. and Hung, J.H. (2012), "Family control and investment-cash flow sensitivity: moderating effects of excess control rights and board independence", *Corporate Governance: An International Review*, Vol. 20 No. 3, pp. 253-266.

Kutum, I. (2014), "Investigating voluntary risk disclosure: the case of Jordanian banks", *Journal of Modern Accounting and Auditing*, Vol. 10 No. 12, pp. 1153-1166.

Lajili, K. (2009), "Corporate risk disclosure and corporate governance", *Journal of Risk and Financial Management*, Vol. 2 No. 1, pp. 94-117.

Laksmana, I. (2008), "Corporate board governance and voluntary disclosure of executive compensation practices", *Contemporary Accounting Research*, Vol. 25 No. 4, pp. 1147-1182.

Latham, C.K. and Jacobs, F.A. (2000), "Monitoring and incentive factors influencing misleading disclosures", *Journal of Managerial Issues*, Vol. 12 No. 2, pp. 169-187.

Li, I.-C. and Hung, J.-H. (2013), "The moderating effects of family control on the relation between managerial overconfidence and earnings management", *Review of Pacific Basin Financial Markets and Policies*, Vol. 16 No. 2, pp. 1-33.

Li, J., Pike, R. and Haniffa, R. (2008), "Intellectual capital disclosure and corporate governance structure in UK firms", *Accounting and Business Research*, Vol. 38 No. 2, pp. 137-159.

Linsley, P. and Shrives, P. (2000), "Risk management and reporting risk in the UK", *Journal of Risk*, Vol. 3 No. 1, pp. 115-129.

Linsley, P. and Shrives, P.J. (2005), "Transparency and the disclosure of risk information in the banking sector", *Journal of Financial Regulation and Compliance*, Vol. 13 No. 3, pp. 205-214.

Linsley, P.M. and Shrives, P.J. (2006), "Risk reporting: a study of risk disclosures in the annual reports of UK companies", *The British Accounting Review*, Vol. 38 No. 4, pp. 387-404.

Linsmeier, T.J., Thornton, D.B., Venkatachalam, M. and Welker, M. (2002), "The effect of mandated market risk disclosures on trading volume sensitivity to interest rate, exchange rate, and commodity price movements", *The Accounting Review*, Vol. 77 No. 2, pp. 343-377.

Lipton, M. and Lorsch, J.W. (1992), "A modest proposal for improved corporate governance", *The Business Lawyer*, Vol. 48 No. 1, pp. 59-77.

Lokman, N., Mula, J.M. and Cotter, J. (2014), "Importance of corporate governance quality and voluntary disclosures of corporate governance information in listed Malaysian family controlled business", *International Journal of Sustainable Development and World Policy*, Vol. 3 No. 1, pp. 1-24.

Macchioni, R., Allini, A. and Rossi, F. (2014), "Does corporate governance characteristics affect non-financial risk disclosure in government-owned companies? the Italian experience", *Financial Reporting*, Vol. 1, pp. 5-31.

Makhlouf, M.H., Al-Sufy, F.J. and Almubaideen, H. (2018), "Board diversity and accounting conservatism: evidence from Jordan", *International Business Research*, Vol. 11 No. 7, pp. 130-141.

Mangena, M. and Pike, R. (2005), "The effect of audit committee shareholding, financial expertise and size on interim financial disclosures", *Accounting and Business Research*, Vol. 35 No. 4, pp. 327-349.

Marston, C.L. and Shrives, P.J. (1991), "The use of disclosure indices in accounting research: a review article", *The British Accounting Review*, Vol. 23 No. 3, pp. 195-210.

Mazumder, M.M.M. and Hossain, D.M. (2018), "Research on corporate risk reporting: current trends and future avenues, *The Journal of Asian Finance, Economics and Business*, Vol. 5 No. 1, pp. 29-41.

McConaughy, D., Walker, M., Henderson, G. and Mishra, C. (1998), "Founding family controlled firms: efficiency and value", *Review of Financial Economics*, Vol. 7 No. 1, pp. 1-19.

Miihkinen, A. (2012), "What drives quality of firm risk disclosure? The impact of a national disclosure standard and reporting incentives under IFRS", *The International Journal of Accounting*, Vol. 47 No. 4, pp. 437-468.

Milne, M.J. and Adler, R.W. (1999), "Exploring the reliability of social and environmental disclosures content analysis", *Accounting, Auditing and Accountability Journal*, Vol. 12 No. 2, pp. 237-256.

Mkumbuzi, W.P. (2016), "Influence of intellectual capital investment, risk, industry membership and corporate governance mechanisms on the voluntary disclosure of intellectual capital by UK listed companies", *Asian Social Science*, Vol. 12 No. 1, pp. 42-74.

Mokhtar, E.S. and Mellett, H. (2013), "Competition, corporate governance, ownership structure and risk reporting", *Managerial Auditing Journal*, Vol. 28 No. 9, pp. 838-865.

Mardini, G.H., Tahat, Y. and Power, D. (2013), "Determinants of segmental disclosures: evidence from the emerging capital market of Jordan", *International Journal of Managerial and Financial Accounting*, Vol. 5 No. 3, pp. 253-276.

Morris, R. (1987), "Signalling, Agency theory and accounting policy choice", *Accounting and Business Research*, Vol. 18 No. 69, pp. 47-56.

Moumen, N., Othman, H.B. and Hussainey, K. (2015), "The value relevance of risk disclosure in annual reports: evidence from MENA emerging markets", *Research in International Business and Finance*, Vol. 34, pp. 177-204.

Moumen, N., Ben Othman, H. and Hussainey, K. (2016), "Board structure and the in formativeness of risk disclosure: evidence from MENA emerging markets", *Advances in Accounting*, Vol. 35, pp. 82-97.

Mousa, G.A. and Elamir, E.A.H. (2014), "The effect of governance mechanisms on the quality of risk disclosure: using bootstrap techniques", *American J. Finance and Accounting*, Vol. 3 Nos 2-4, pp. 25-27.

Naiker, V. and Sharma, D.S. (2009), "Former audit partners on the audit committee and internal control deficiencies", *The Accounting Review*, Vol. 48 No. 2, pp. 559-587.

Nahar, S., Azim, M. and Jubb, C. (2016), "The determinants of risk disclosure by banking institutions: evidence from Bangladesh", *Asian Review of Accounting*, Vol. 24 No. 4, pp. 426-444.

Nawaiseh, M.E., Bader, A. and Nawaiseh, H.N. (2019), "Ownership structure and audit pricing: conventional versus Islamic banks in Jordan", *Academy of Accounting and Financial Studies Journal*, Vol. 23 No. 2, pp. 1-20.

Nazieh, A. and Ezat, M. (2014), "Risk disclosure for EGX 100 Egyptian listed companies: trends, determinants and consequences", *Egyptian Journal of Commercial Studies*, Vol. 38 No. 4, pp. 79-152.

Neifar, S. and Jarboui, A. (2018), "Corporate governance and operational risk voluntary disclosure: evidence from Islamic banks", *Research in International Business and Finance*, Vol. 46, pp. 43-54.

Neuendorf, K.A. (2002), *The Content Analysis Guidebook*, Vol. 300, Sage Publications, Thousand Oaks, California, CA.

Ntim, C.G., Lindop, S. and Thomas, D.A. (2013), "Corporate governance and risk reporting in South Africa: a study of corporate risk disclosures in the pre-and post-2007/2008 global financial crisis periods", *International Review of Financial Analysis*, Vol. 30, pp. 363-383.

Ntim, C.G. and Osei, K.A. (2011), "The impact of corporate board meetings on corporate performance in South Africa", *African Review of Economics and Finance*, Vol. 2 No. 2, pp. 83-103.

Oh, W.Y., Chang, Y.K. and Jung, R. (2019), "Board characteristics and corporate social responsibility: does family involvement in management matter?", *Journal of Business Research*, Vol. 103, pp. 23-33.

Oliveira, J., Lucia, R. and 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, pp. 271-288.

Oliveira, J., Serrasqueiro, R. and Mota, S. N. (2018), "Determinants of risk reporting by Portuguese and Spanish non-finance companies", *European Business Review*, Vol. 30 No. 3, pp. 311-339.

Omar, B. and Simon, J. (2011), "Corporate aggregate disclosure practices in Jordan. Advances in Accounting", *Incorporating Advances in International Accounting*, Vol. 27 No. 1, pp. 166-186.

O'Sullivan, M., Percy, M. and Stewart, J. (2008), "Australian evidence on corporate governance attributes and their association with forward-looking information in the annual report", *Journal of Management and Governance*, Vol. 12 No. 1, pp. 5-35.

Pallant, J. (2005), *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS Version 12*, 2th ed., Open University Press.

Pangestuti, D., Takidah, E. and Anggraini ZR, R. (2017), "Firm size, Board Size, and ownership structure and risk management disclosure on Islamic Banking in Indonesia", *Journal Akuntansi Dan Keuangan Islam*, Vol. 5 No. 2, pp. 121-141.

Peasnell, K.V., Pope, P.F. and Young, S. (2005), "Board monitoring and earnings management: do outside directors influence abnormal accruals?", *Journal of Business Finance and Accounting*, Vol. 32 Nos 7-8, pp. 1311-1346.

Pfeffer, J. and Salancik, G.R. (2003), *The External Control of Organizations: A Resource Dependence Perspective*, Stanford University Press, Standford, CA.

Qadorah, A.A.M. and Fadzil, F.H.B. (2018), "The effect of board independence and board meeting on firm performance: evidence from Jordan", *Journal of Finance and Accounting*, Vol. 6 No. 5, pp. 105-109.

Rajab, B. and Handley-Schachler, M. (2009), "Corporate risk disclosure by UK firms: trends and determinants", *World Review of Entrepreneurship Management and Sustainable Development*, Vol. 5 No. 3, pp. 224-243.

Rubino, F.E., Tenuta, P. and Cambrea, D.R. (2017), "Board characteristics effects on performance in family and non-family business: a multi-theoretical approach", *Journal of Management and Governance*, Vol. 21 No. 3, pp. 623-658.

Saggar, R. and Singh, B. (2017), "Corporate governance and risk reporting: Indian evidence", *Managerial Auditing Journal*, Vol. 32 Nos 4-5, pp. 378-405.

Samaha, K., Dahawy, K., Hussainey, K. and Stapleton, P. (2012), "The extent of corporate governance disclosure and its determinants in a developing market: the case of Egypt", *Advances in Accounting, Incorporating Advances in International Accounting*, Vol. 28 No. 1, pp. 168-178.

Sartawi, I.I.M., Hindawi, R.M., Bsoul, R. and Ali, A.E.J. (2014), "Board composition, firm characteristics, and voluntary disclosure: the case of Jordanian firms listed on the Amman stock exchange", *International Business Research*, Vol. 7 No. 6, pp. 67-82.

Sawalqa, F.A.L. (2014), "Corporate governance mechanisms and voluntary disclosure compliance: the case of banks in Jordan", *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 4 No. 2, pp. 369-384.

Sciascia, S. and Mazzola, P. (2008), "Family involvement in ownership and management: exploring nonlinear effects on performance", *Family Business Review*, Vol. 21 No. 4, pp. 331-345.

Siam, Y.A., Idris, M. and Al-Okdeh, S. (2018), "The moderating role of family control on the relationship between audit committee financial expertise and earnings management", *International Journal of Business and Management*, Vol. 13 No. 12, pp. 31-37.

Silver, M. (1997), *Business Statistics*, 2nd ed., McGraw-Hill.

Singh, H. and Harianto, F. (1989), "Management board relationships, takeover risk, and the adoption of golden parachutes", *Academy of Management Journal*, Vol. 32 No. 1, pp. 7-24.

Solomon, J.F., Solomon, A., Norton, S.D. and Joseph, N.L. (2000), "A conceptual framework for corporate risk disclosure emerging from the agenda for corporate governance reform", *The British Accounting Review*, Vol. 32 No. 4, pp. 447-478.

Tahat, Y.A. (2014), "Risk disclosure associated with financial statements reporting of Jordanian public corporations", *International Journal of Business and Emerging Markets*, Vol. 6 No. 2, pp. 139-162.

Vafeas, N. (1999), "Board meeting frequency and firm performance", *Journal of Financial Economics*, Vol. 53 No. 1, pp. 113-142.

Vafeas, N. (2000), "Board structure and the informativeness of earnings", *Journal of Accounting and Public Policy*, Vol. 19 No. 2, pp. 139-160.

Villalonga, B. and Amit, R. (2006), "How do family ownership, control and management affect firm value?", *Journal of Financial Economics*, Vol. 80, pp. 385-417.

Wang, D. (2006), "Founding family ownership and earnings quality", *Journal of Accounting Research*, Vol. 44 No. 3, pp. 619-656.

Wang, M. and Hussainey, K. (2013), "Voluntary forward-looking statements driven by corporate governance and their value relevance", *Journal of Accounting and Public Policy*, Vol. 32 No. 3, pp. 26-49.

Watson, A. and Marston, C. (2002), "Voluntary disclosure of accounting ratios in the UK", *The British Accounting Review*, Vol. 34, pp. 289-313.

Weber, R.P. (1988), *Basic Content Analysis. Qualitative Applications in the Social Sciences*, Sage, Beverly Hills, California, CA.

Williams, K.Y. and O'Reilly, C.A. III (1998), "Demography and diversity in organisations: a review of 40 years of research", *Research in Organisational Behaviour*, Vol. 20, pp. 77-140.

Woods, M., Linsley, P. and Maffei, M. (2017), "Accounting and risk special issue", *The British Accounting Review*, Vol. 49, pp. 1-3.

Xie, B., Davidson, W.N. and DaDalt, P.J. (2003), "Earnings management and corporate governance: the role of the board and the audit committee", *Journal of Corporate Finance*, Vol. 9 No. 3, pp. 295-316.

Zaheer, N. (2013), "Effects of duality, board Size and board composition on corporate governance disclosure in Pakistan", *International SAMANM Journal of Finance and Accounting*, Vol. 1 No. 3, pp. 1-16.

Zeitun, R. and Tian, G. (2007), "Capital structure and corporate performance: evidence from Jordan", *Australasian Accounting Business and Finance Journal*, Vol. 1 No. 4, pp. 1-36.

Zhang, X., Taylor, D., Qu, W. and Victoria Wise (2013), "Institutional ownership, audit committee and risk disclosure – evidence from Australian stock market", *Corporate Board: Role, Duties and Composition*, Vol. 9 No. 3, pp. 66-81.

Zraiq, M.A.A. and Fadzil, F.H.B. (2018), "The impact of ownership structure on firm performance: evidence from Jordan", *International Journal of Accounting, Finance and Risk Management*, Vol. 3 No. 1, pp. 1-4.

Zureigat, Q.M. (2011), "The effect of ownership structure on audit quality: evidence from Jordan", *International Journal of Business and Social Science*, Vol. 2 No. 10, pp. 38-46.

Appendix 1

Risk disclosure categories adopted from Linsley and Shrives (2006)
Financial risk

(1) Interest rate
(2) Exchange rate
(3) Commodity
(4) Liquidity
(5) Credit

Operations risk

(1) Customer satisfaction
(2) Product development
(3) Efficiency and performance
(4) Sourcing
(5) Stock obsolescence and shrinkage
(6) Product and service failure
(7) Environmental
(8) Health and safety
(9) Brand name erosion

Empowerment risk

(1) Leadership and management
(2) Outsourcing

(3) Performance incentives

(4) Change readiness

(5) Communications

Information processing and technology risk

(1) Integrity

(2) Access

(3) Availability

(4) Infrastructure

Integrity risk

(1) Management and employee fraud

(2) Illegal acts

(3) Reputation

Strategic risk

(1) Environmental scan

(2) Industry

(3) Business portfolio

(4) Competitors

(5) Pricing

(6) Valuation

(7) Planning

(8) Life cycle

(9) Performance measurement

(10) Regulatory

(11) Sovereign and political

Appendix 2

Decision rules for risk disclosures

(1) To identify risk disclosures a broad definition of risk is to be adopted as explained below.

(2) Sentences are to be coded as risk disclosures if the reader is informed of any opportunity or prospect or of any hazard, danger, harm, threat or exposure that has already been 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.

(3) Although the definition of risk is broad, disclosures must be specifically stated; they cannot be implied.

(4) The risk disclosures shall be classified into the categories in Appendix 1.

(5) If a sentence has more than one possible classification, the information will be classified into the category that is most emphasised within the sentence.

(6) Any disclosure that is repeated shall be recorded as a risk disclosure sentence each time it is discussed. If a disclosure is too vague in its reference to risk, then it shall not be recorded as a risk disclosure.

Corresponding author
Malek Hamed Alshirah can be contacted at: shraamalek@gmail.com