The Role of Board of Directors in Risk Management: Empirical Study

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ملخص البحث :

تناولت الدراسة دور مجلس الادارة في تحسين ادارة المخاطر، حيث اختبرت الدراسة أثر فعالية خصائص مجلس الادارة في تحسين ادارة المخاطر وذلك من خلال اختبار الخصائص التالية: حجم، واستقلالية، وعدد مرات اجتماع مجلس الادارة ، وازدواجية دور المدير التنفيذي . ولتحقيق ذلك فقد تم إعداد مؤشر لقياس ادارة المخاطر يتكون من ١٣ بند مقاسة بعدد الجمل ذات الصلة بلجنة ادارة المخاطر من خلال تحليل يدوى للتقارير السنوية للشركات التي تم اخذ عينات منها، ثم تم تحليل التقارير المالية الصادرة من عام ٢٠١٤ حتى عام ٢٠١٧ والخاصة بـ٥٠ شركة غير المالية مقيدة بالبورصة المصرية حيث بلغ إجمالي عدد المشاهدات ٢٠٠ مشاهدة لثلاث عشر قطاع، وذلك لاختبار الفروض التالية:

الفرض الاول: "لا توجد علاقة ذات دلالة إحصائية بين حجم مجلس الإدارة وإدارة المخاطر".

الفرض الثاني: "لا توجد علاقة ذات دلالة احصائية بين استقلالية اعضاء مجلس الإدارة وإدارة المخاطر".

الفرض الثالث: "لا توجد علاقة ذات دلالة احصائية بين عدد مرات اجتماع مجلس الإدارة وإدارة المخاطر".

الفرض الرابع: "لا توجد علاقة ذات دلالة احصائية بين ازدواجية دور المدير التنفيذي وإدارة المخاطر".

وتوصلت الدراسة الى عدة نتائج منها ان خصائص مجلس الادارة تؤثر على إدارة المخاطر. وكشفت النتائج على وجود علاقة ايجابية ذات دلالة احصائية بين استقلالية مجلس الادارة، وعدد مرات اجتماع المجلس، والازدواجية وبين إدارة المخاطر، وعدم وجود علاقة ذات دلالة إحصائية بين حجم مجلس الإدارة وإدارة المخاطر. واوصت الدراسة بضرورة ان يتمتع اعضاء مجلس الإدارة بمؤهلات وخبرات حتى يتمكنوا من القيام بوظائفهم بكفاءة وفعالية في إدارة المخاطر.

Abstract

The current study examines the role of board of directors in improving risk management. It examines the impact of board of directors' characteristics on risk management effectiveness through board size, board independence, the number of board meetings, and CEO duality. In order to achieve this goal, the study introduced an index to measure the risk management. The proposed index is consisted of thirteen items, which are measured by the count of risk management related sentences through a manual content analysis of annual reports of a sample of listed Egyptian companies. The financial reports issued from 2014 to 2017 were analyzed. The research sample includes 50 non-financial firms listed in Egyptian stock exchange with a total number of observations equal to 200 from 13 sectors. for testing the following hypotheses:

- The first hypothesis: "There is no significant relationship between board size and the risk management in the Egyptian listed companies".

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- The second hypothesis: "There is no significant relationship between board independence and the risk management in the Egyptian listed companies".
- The third hypothesis: "There is no significant relationship between the number of board meetings and the risk management in the Egyptian listed companies".
- The fourth hypothesis: "There is no significant relationship between CEO duality and the risk management in the Egyptian listed companies".

The overall results revealed that the board of directors' characteristics affects risk management. The results reveal that board independence, board meetings, and CEO duality are positively and significantly correlated with risk management index. On the other hand, board size shows statistically insignificant correlation with risk management index. The study recommended that members of the board should have qualifications and experience so that they can perform the functions efficiently in risk management.

1. Introduction

Corporate governance has been receiving a tremendous concern from government, accounting professional bodies, auditing as well as public, particularly after a series corporate collapses which took place in Europe and the USA (e.g. Enron 2001 and WorldCom 2002), causing loss of confidence of shareholders and other stakeholders in the financial market in the United States and the rest of the world. In response to these scandals, regulators, professional organizations, and governments have passed a wide range of laws and Corporate Governance Code with the purpose of enhancing the investment atmosphere, encouraging economic development and transparency of financial reporting.

Following the financial crisis, many companies have started to pay more attention to risk management and focus concern from government, accounting professional bodies as well as the public. It appeared that most firms consider that risk management should remain the responsibility of line managers (Ellul, 2015). Responding to public and/or shareholder pressures, some company boards, especially in widely-held companies, have started to review their incentive structure, through the reduction of potential incentives for excessive risk-taking, notably stock options for top executive. One of the main corporate governance objectives is to manage the firm risk level; in line with this, the attention is paid to corporate governance principles and directly related to the risk level (Horia & Dana, 2015).

Risk management is considered an integral component of corporate governance and good management, received a considerable attention in the later years. One of the initiatives is provided by Committee of Sponsoring Organizations of The Treadway Commission (COSO), which has introduced an integrated framework for Enterprise Risk Management (COSO, 2004). Therefore Sarbanes Oxley Act in (2002) emphasized the significance of a strong board to improve the risk management in firms. Those board characteristics are board size, board independence, board meetings, CEO

role. There are mix findings of the previous empirical findings on the contribution board characteristics to improve the risk management. This paper is investigating the relationship between the board characteristics and risk management in the Egyptian environment.

2. Literature Review

The board of directors is considered the most important control mechanism in a company’s internal governance structure and the central part of decision-making process. It is responsible for setting objectives, monitoring and controlling company's activities.

Wan Daud et al., (2011) the purposed of this study was to test the relationship between the quality of Board of Directors (BOD) with regard to the level of ERM adoption using a sample of 587 from the seven industries among public listed companies in Malaysia in 2007.

The results of multivariate regression showed that the adoption of ERM is associated with the quality of BOD. Having a quality BOD, companies are likely to adopt ERM, because most of the directors seek to protect their reputations as expert monitors. Consequently, the adoption of ERM demonstrates their commitment and awareness of improved risk management in companies as ERM is the latest technique in protecting companies from potential risk exposures. Furthermore, directors with multiple directorships tend to be more supportive in respect of monitoring the company's business operations to avoid company's poor performance that may lead to eventual corporate failures. As an overall result, there was a significant positive association between the quality of BOD and the level of adoption of ERM in companies listed in Malaysia Bourse.

Lotfi & Malgharni (2013) investigated the relationship between the board of directors' composition and risk management in listed Tehran stock exchange during the years 2007-2012 using a sample consisted of 107 companies from 20 different industries. Results of correlation and multiple regression tests revealed that there is a significant positive correlation between the size of board of directors, board meeting frequency, financial literacy of the board, the CEO dual functions and risk management. However, there were no significant correlation between the independence of the board of directors and risk management.

Zemzem & Kacem (2014) worked with sample of 17 lending institutions listed in the stock exchange of Tunis over the period 2002-2011to scrutinize the relationship between risk management, board characteristics and performance. The empirical results from using regression analysis and descriptive statistics revealed that some corporate governance mechanisms, specifically those related to the board of directors, affect firm performance, the study also found that risk management negatively affects corporate performance.

Mathew et al., (2016) conducted study on UK to identify the board attributes that significantly increase firm risk. The study aimed to find whether board size, percentage of non-executive directors, women on the board, a powerful chief executive officer, equity ownership amongst executive board directors and institutional investor ownership were associated with firm risk. This was the first study that examined which Board attributes increase firm risk using a UK-based sample. Therefore, the sample used is an unbalanced panel of 260 large companies from 2005 to 2010 from the FTSE 350 Index with available data. The sample did not include financial and utility firms because of stricter regulation in these sectors.

This empirical study had shown that a decrease in board size could significantly increase firm risk. The percentage of women on the board was consistently negatively related to firm risk, this could be due to the fact that women had an input in better monitoring of management, though the association is not significant. Independent directors were associated with less firm risk, but this relation was not significant. Powerful CEO was found to be significantly and positively related to only asset return risk. Higher board executive equity ownership and the percentage of institutional investors holding firm equity significantly increases firm's total risk. Therefore, a board with a small board size, high equity ownership by executive board members and high institutional investor ownership could increase firm risk. The policy implication of the findings was that they could inform regulators in the use of board attributes as internal risk control mechanisms. The results were useful for investors who invest in large firms to have the knowledge about the board attributes that could increase firm risk.

3. Responsibilities and Tasks of Board of Directors

The ECGC (2016, P.18-19) determined the responsibilities and tasks of the board of directors as follows:

- Setting out a training plan for the members of the board including, the thought and culture of corporate governance, board tasks, its committees, and any other topic deemed important to all board members;
- Determining the powers delegated to its members or committees or others, as well as, the authorization period, period reports from the committees and executive management, and monitoring the results of the practice of those delegated powers;
- Setting out mechanisms and systems that ensures the compliance of companies' employees with laws, charters, and internal policies, and also responsible for setting an early warning system that directs its attention to any defects or deviations that might occur. Therefore, speed

relevant procedures can be taken. This system should comprise methods of protecting information sources and whistleblowers;

- Supervising generally on the disclosure of data and communication channels, ensuring the integrity of financial and accounting reports issued by the company as well as ensuring the independence of both the company's internal audit activity and compliance; and
- Appointing a board secretary with competences for the understanding of all the company's affairs.

4. The Effect of Board of Directors Characteristics on the Risk Management

The board of directors is one of the internal governance mechanisms that provide good monitoring function towards maximizing shareholders' wealth in order to ensure that the interests of managers and shareholders are closely aligned, and to control or remove ineffective management teams (Zemzem, 2014).

A strong board of directors is characterized by adequate representation of independent directors, small membership size, meeting frequency and separation of CEO-chairman roles. The independent directors protect the rights of shareholders by implementing the principles of corporate governance and playing a mediator role (Bhagat & Jefferris, 2002). The board meetings are typically chaired by the firm chairman who might be an executive director or a non-executive director, and CEO duality occurs when the same individual holds both positions in the same time, which is a contentious issue in the current corporate governance environment (Farhat, 2014).

Among the main functions of board of directors is the setting of rules for the internal control system. In order to ensure that adequate and effective control procedures of risk management must be provided to forecast the potential risks facing a company and disclose these risks with transparency (CMA, 2006). In addition, Board of directors play a major role in the relationship between the corporate governance and risk management. An effective board of directors is essential to the success of a company and has two most important functions, namely advising and monitoring the management (Adams & Ferriera,2007).

Most literature that focused on corporate governance looks at how the board characteristics affect risk management (Zemzem & Kacem, 2014; Mathew et al., 2016). Because of the increasing importance of boards to firm,

it is crucial at this stage to recognize which board characteristics could make one board more effective than the other (Amer, 2016).

Accordingly, the board based on some characteristics. These characteristics include Board independence, Duality role, Board size, and Board meeting. The current research examines the effect of those characteristics on the risk management as follows:

4.1 Board Size

Size of the board of directors is a major determinant of the board's proper functioning (Metwally, 2018). Board of directors comprised mainly of two groups: inside directors, whose contractual relationships allow them to make management decisions, and non-executive or external directors, who can be independent and represent majority shareholders (Fuente, 2017).

According to Cadbury (1992) every firm should have a board of directors, selected by shareholders, which is responsible for the good governance and the long-term success of the firm and that board should be of sufficient size that meets the business's requirements. Lipton & Lorsch (1992) suggested that the ideal board size should not exceed seven or eight members in order to function effectively and that boards with seven or more directors make it easier for a CEO to dominate. Firstenberg & Malkiel (1994) postulated that small boards are more effective than larger ones because they encourage more board participation, focus, interaction and debate. Otherwise, Coles et al.,(2008) argue that a bigger board size is feasible for larger firms with complex operations which require more advice and monitoring by the board, so such companies will require more directors than a small company.

From an efficiency perspective, Jensen (1993), suggested that smaller size of board members may be effective, communication and decision-making, which would suggest better monitoring of management actions and higher-quality financial reporting. However, agency theorists support large board size, as large size is expected to be more capable of monitoring and controlling the top management actions (Mak & Rousch et al.,2000). Coles et al.,(2008) argue that a larger board size is feasible for larger firms with complex operations which require more advice and monitoring by the board, so such companies will require more directors than a small company. According to Arosa (2013), optimal board size depends on firm characteristics and the environment in which it is operating.

According to the company law in Egypt, boards must have an odd number of members, not less than three, chosen by the General Assembly for three years to carry out its various tasks and responsibilities, with the exception of the first board, which is appointed by the founders for a maximum of five years (Bahaa El-Din & Shawky, 2005).

The ECGC, (2016, P.16) also stipulated that majority of board of director members should be from non-executives, including at least two independent members with technical and analytical skills that will benefit the company's board.

Previous studies examined the relationship between the board of directors' size and risk management provided conflicting results. For instance, (Firstenberg &Malkiel ,1994;Hambrick et al, 2008;Mathew et al., 2016) found that the small size of boards was enhance risk management because they encourage more board participation, focus, interaction, and debate, and that small board are less likely to face free riding problems. Thus, companies with larger board would better aid in improving risk management as brings more knowledge, opinions and investment proposals that would eventually benefit shareholders (Ujunwa, 2012; Lotfi & Malgharni ,2013; Saibaba,2013). In the light of the above, the following hypothesis can be formed:

H_1: There is no significant relationship between Board size and risk management.

4.2 Board Independence

An independent board is a measurement of the percentage of non-executive members who are an outside director on the board (Amer,2016), and who are not affiliated to the firm through any commercial dealings, thus avoiding potential conflicts of interest (Namanya,2017). The presence of a higher proportion of non-executive directors provides better monitoring of the firm to mitigate owners-managers and also expected to induce a more effective monitoring function which then lead to more reliable financial statements (Alzoubi & Selamat,2012; Namany, 2017).

According to FRC (2014), the majority of the board, excluding the chairman, should comprise independent non-executive directors, while a small firm should have at least three non-executive directors, two of whom should have non-financial or personal ties to executives (independent directors).

Agency theory suggested that, in order to make sure that effective monitoring functions are in place board of director members should comprise of a representative from outsider members (non-executive directors) who is independent of management and provide impartial assessment in favor of stockholder that establish a good check and balance on the action of top management(Alzoubi & Selamat,2012).

There are many benefits from using independent directors in the corporate decision making; the primary rationale is that outsiders provide an effective mechanism to monitor the managements' actions, to balance the

different perspectives, to prevent abuses of power, and to broaden the experience base of the governing body of the firm (Farhat, 2014).

The extant literature on corporate governance and risk management provides opinions about the relationship between corporate governance and risk management. The study of Carson (2002) revealed that the board of directors (BODs) with more independent willing to form or establish risk management committee and also, argued that more independent BODs demonstrated good corporate governance. Moreover, Yatim, 2010; Lotfi & Malgharni,2013) confirmed that there was a positive correlation between independent directors and risk management. They indicated that board independence from management provides, among other things, the most effective monitoring and control of firms activities in reducing opportunistic managerial behaviors and expropriation of firm resources.

Sanusi et al., (2017) also showed a significant relationship between the board of directors' independence and risk management. Thus, firms with greater non-executive directors on boards are expected to favor more extensive risk management and internal or external auditing in order to complement their own monitoring responsibilities and they play an active role in the decision making of risk management policy.

Based on the above discussion, the following hypothesis is formulated, as follows:

H_2: There is no significant relationship between board independence and risk management.

4.3 Board Meeting

One of the important proxies to measure the intensity and the effectiveness of corporate monitoring and disciplining is the frequency of meeting, as this is one of the main characteristics of the active boards to perform their duties in accordance with the interests of the shareholders (Vefeas, 1999). The time by which directors have to perform their duties and the level of monitoring activity are being proxied by the frequency of meetings (Amer, 2016).

Board of directors meetings are platforms for discussing the performance and behavior of management apart from deciding on the strategic directions for the firm(Metwally,2018). The ECGC,(2016,P.17) stipulated that the board should meet at least once three months, and the number of board meetings should be disclosed in the firm's annual reports and board of director report, also, board meetings should consider the venue, timing, and arrangements that are convenient for the board members' attendance.

Prior literature has shown that meeting frequency provides several benefits to shareholders. Definitely, the first benefit is providing more time for directors to set and discuss corporate strategies and to monitor the

management (Vafeas,1999). Besides, meeting frequently enhanced the level of oversight on the financial reporting process (Carcello et al., 2002), increased the degree of transparency about the executive compensation practices and generated more frequent earnings forecasts (Laksmana,2008). Additionally, Chen et al.(2006) suggested that a higher meeting frequency reduce the possibility of fraud since regular meetings allow the directors to identify and resolve potential problems, especially those that are related to the financial report quality

Previous studies examined the relationship between board of directors meeting and risk management. For instance, (Yatim,2010; Lotfi & Malgharni,2013; Ishak & Nor,2016)) found that there is a positive relationship between board of directors meeting and the establishment of risk management committee. Theoretically, if the board of directors a ware and diligent in discussing the risk issues, they intend to establish another board sub-committee to discuss more on the related issues such as the establishment of RMC to creates a broader range of knowledge, experiences, skills, and also brings more sensitive and responsive to the firm's issues including risk management. In the light of the above, the following hypothesis can be formed:

H_3: There is no significant relationship between Board meeting and risk management

4.4 CEO Duality

The ECGC, (2016, P.12) stipulated that the board of directors undertakes the separation of the roles of the chairperson and managing director. It is preferred that two roles not be held by the same person. Should joining the roles be necessary, its reasons should be clarified in the firm's annual report. In addition, a non-executive vice chairperson should be appointed and should also head the board meetings that discuss the performance of executive management.

Leighton and Thain (1993) highlighted that the board chair played a significant role in the decision making process of the firm, and they also noted the effectiveness of the board chair in monitoring the management headed by the chief executive. Stewardship theorists supported this view, referring to it as CEO Duality, arguing that it enhanced the effectiveness of leadership on firms (Finkelstein &D'Aveni, 1994). On the other hand, agency theorists favorite the separation of the two positions to ensure an efficient and effective monitoring managerial opportunistic behaviors (Amer, 2016).

The researcher agrees with the opinion suggests that the separation of chairperson and managing directors is a good practice to constraint full control of the controlling owners over the decision made by the board (Sarun,2016), and functions should be performed by different persons to

clearly separate between management of firm's activities and the control of firm's activities which enhance the directing, controlling and monitoring role of the board of director (Metwally,2018).

The previous studies examined the relationship between CEO duality and risk management. Gul & Leung (2004) found out that a significantly negative relationship existed between CEO duality and corporate disclosure of risk by using a sample of 385 Hong Kong listed firms. Other study were reported in Tehran firms by Lotfi & Malgharni (2013) who studied the relationship between CEO duality and risk management. Their study showed that there is a positive relationship between combining the functions of the CEO and chairperson with risk management.

In the light of the above, the following hypothesis can be formed:

H_4: There is no significant relationship between CEO Duality and risk management

5. Research Methodology

5.1 Research Hypotheses

Based on the problem and questions of the research, the answer to these questions was calculated by formulating the hypotheses of the study as follow.

- **The First Hypothesis H_1:** There is no significant relationship between board size and the risk management in the Egyptian listed companies.
- **The Second Hypothesis H_2:** There is no significant relationship between board independence and the risk management in the Egyptian listed companies.
- **The Third Hypothesis H_3:** There is no significant relationship between board meetings and the risk management in the Egyptian listed companies.
- **The Fourth Hypothesis H_4:** There is no significant relationship between CEO duality and the risk management in the Egyptian listed companies.

5.2 Sample Selection and Data Collection

The research sample of the field study was selected from non-financial Egyptian listed firms according to number of criteria. First, annual reports of the sample firms are available for four years 2014, 2015, 2016, and 2017 covers the Egyptian firms listed in the (EXG 100). Second, the study excluded financial and insurance firms because they are regulated by other and different rules which may influence risk management and the nature and

type of financial firms and their business activities are different from those of non-financial firms and hence they might face other types of risk. So if financial and insurance firms were included, this could confound the results and the analysis would be unrealistic. All annual reports of the sampled firms were obtained from websites of these firms, Naeem brokerage website and Mubasher website.

A number of 50 firms were selected covering wide range of industries which included according to the Egyptian stock exchange classification: Construction and Materials; Real Estate; Industrial goods, Service and Automobile; Basic resources; Personal and Household products; Healthcare and Pharmaceuticals; Food and Beverage; Chemicals; Oil and Gas; Utilities; Media; Travel and Leisure and Telecommunication. Table (1) presents the sampled industry sectors with the number of firms and the percentage of those firms included in each industry sector.

Table (1): Sample Companies Classified According to Industry

No	Sector	No. of Companies	%
1	Construction and Materials	4	8
2	Real Estate	11	22
3	Industrial goods, Service and Automobile	8	16
4	Basic resources	7	14
5	Personal and Household products	3	6
6	Healthcare and Pharmaceuticals	2	4
7	Food and Beverage	5	10
8	Chemicals	4	8
9	Oil and Gas	1	2
10	Utilities	1	2
11	Media	1	2
12	Travel and Leisure	2	4
13	Telecommunications	1	2
Total Sample		**50**	**100%**

5.3 Description of Variables and Measurements

In this research the variables were selected based on alternative theories and previous empirical studies related to corporate governance and risk management. In accordance with the theory and empirical studies, the independent, dependent, and control variables of the study were identified in order to investigate the impact of corporate governance mechanisms on risk management**.**

5.3.1 Independent variables

One of the main objectives of this research is to investigate the relationship between a number of corporate governance mechanisms and risk management in the Egyptian listed companies. Therefore, to test the hypotheses, each of these independents variables are measured as follows:

Table (2): Characteristics of the Board of Directors

Symbol	Variable Name	Variable Description
BSIZE	Board of directors size	The total number of members on the board.
BIND	Board independence	The percentage of non-executive directors on boards.
BMEET	Board meeting	The number of meetings per year held by the board
CEODUAL	CEO duality	Dummy variable = 1 if the CEO and chairman is the same person, and (0) otherwise

5.3.2 Dependent Variables

Another major objective of this research is to determine how risk management is measured. It will be measured by independence of risk management committee related sentences through a manual content analysis of annual reports of the sample companies.

Table (3):Risk Management Index

Symbol	Variable Name	Variable Description
RMC	Risk management committee	If the company has an independent specialized risk management committee, the number (1) is given and (0) otherwise.
The Characteristics of the Risk Management Committee:		
RMCIND	Risk management committee independence	If the company has an independent members on the risk committee, the of number (1) is given and (0) otherwise.
RMCAFQ	Risk management committee accounting and financial qualifications	If the company has at least one independent financial expert sits on risk management committee, the number (1) is given and (0) otherwise.
RMCSIZE	Risk management committee size	The number of members on risk management committee
RMM	Risk management manager	If the company has a risk management manager, the number (1) is given and (0) otherwise
RMCR	Clarity role of risk management committee	If the company has clearly role in risk management, the number of (1) is gives and (0) otherwise.
DIR	Disclosure of internal risks	If the company disclosure of internal risks, it gives a number (1) and (0) otherwise.
DECR	Disclosure of economic risks	If the company disclosure of external economic risks, it gives a number (1) and (0) otherwise.
DENR	Disclosure of	If the company disclosure of environmental risks,

Symbol	Variable Name	Variable Description
	environmental risks	it gives a number (1) and (0) otherwise.
DSR	Disclosure of social risks	If the company disclosure of social risks, it gives a number (1) and (0) otherwise.
DLR	Disclosure of legal risks	If the company disclosure of legal risks, it gives a number (1) and (0) otherwise.
DPR	Disclosure of political risks	If the company disclosure of political risks, a number (1) is given and (0) otherwise.
RMQI	Risk management quantitative indicators	If the company identifies quantitative indicators for risk management, a number (1) is given, and (0) otherwise.

5.3.3 Control Variables

In addition to the independent and dependent variables mentioned previously, a number of control variables are comprised in this study to control for firm characteristics that may affect the extent of risk management. These variables are considered to be fundamental for ensuring that the tests concentrate more accurately on the differences created by variations in corporate governance. The researcher used three control variables: firm size, leverage and profitability.

Table (4): control variables

Symbol	Variable name	Measurement Method
FSIZE	Firm size	Natural logarithm of total assets at year end
LEV	Leverage	Total long term debt divided by the total assets
PR	Profitability ratio	Net profit divided by total assets

6. Description Statistics:

Descriptive statistics are used to describe the basic features of the data in the study. It divided into two sections in this research; the first section presents descriptive statistics of independent variables, and the second section presents descriptive statistics of the characteristics of risk management committee index. The following table (5) shows descriptive statistics of independent variables (the characteristics of board of directors).

Table (5): Descriptive statistics of independent variables

Variable Name	Symbol	N	Mean	(±)SD	Max	Min
Board size	BSIZE	200	8.145	0.104	17	3
Board independence	BIND	200	0.81	0.222	4	0
Board meeting	BMEET	200	10.84	0.18	17	4
CEO duality	CEODUAL	200	0.745	0.432	1	0
Firm size	FSIZE	200	20.926	1.887	25.02	17.04
Firm leverage	FLEV	200	1.049	1.337	11.04	-5.44
Profitability ratio	PR	200	0.161	0.182	0.340	0

The table shows the following:

1. The mean percentage of non-executive directors on the board (BIND) is 0.81 with a standard deviation is 0.222, that means 81% of board directors in sampled companies are non-executive directors.
2. The mean of the CEO duality role (CEODUAL) is 0.745 with a standard deviation of 0.432, which means 43% from sampled companies chief executive officer serves as both the CEO and chairman of the board.
3. The mean of the board size (BSIZE) is 8.145, ranges from 3 to 17, with a standard deviation of 0.104, than means there is no wide dispersion between sampled companies.
4. There is a large variation in the number of board meetings between the sample firms, with a minimum of 4 meetings, a maximum of 17, and the mean of board is 10.84 that means almost number of board meeting in sampled companies equal 10 times in the year and this is good indicator because according to corporate governance code 2016 No. of board meetings equal 4 times in the year.
5. The mean of the firm size (FSIZE) in the study sample companies as measured by the natural logarithm of the total assets is 20.926 with a standard deviation of 1.887 which is a small deviation, and this confirms the homogeneity of the sample of the study in the size.
6. The firm leverage (LEV) ranges from -5.44 to 11.04 with an average of 1.049 and a standard deviation of 1.337.

The mean of the profitability ratio (PR) is 0.161 with a range between 0 to 0.340, and with a standard deviation of 0.18.

The following table (6) shows the descriptive statistics of dependent variable(the characteristics of risk management index)

Table (6):Descriptive statistics of Items of Risk Management Index

	Study Years								**General Statistics**				
Index Items	2014		2015		2016		2017		N	Mean	(±)SD	Max	Min
	No	%	No	%	No	%	No	%					
RMC	7	14	9	18	11	22	12	24	200	0.195	0.332	1	0
RMCIND	1	2	4	8	11	22	11	22	200	0.135	0.118	1	0
RMCAFQ	1	2	5	10	11	22	11	22	200	0.145	0.400	1	0
RMCSIZE	-	-	-	-	-	-	-	-	200	3.25	0.211	5	3
RMM	12	24	13	26	16	32	18	36	200	0.295	0.266	1	0
RMCR	47	94	48	96	48	96	48	96	200	0.955	0.101	1	0
DIR	15	30	17	34	22	44	29	58	200	0.415	0.168	1	0
DECR	24	48	26	52	29	58	29	58	200	0.542	0.285	1	0
DENR	14	28	17	34	16	32	18	36	200	0.325	0.352	1	0
DSR	3	6	3	6	3	6	5	10	200	0.070	0.441	1	0
DLR	14	28	18	36	21	42	20	40	200	0.365	0.320	1	0

DPR	16	32	15	30	14	28	18	36	200	0.315	0.180	1	0
RMQI	15	30	16	32	16	32	17	34	200	0.32	0.139	1	0

The table shows the following:

1. For risk management committee (RMC), there is a very small number of companies that have an independent risk management committee, but this number increases over the years from 7 in 2014 to 12 in 2017. The mean of the variable is 0.195 with a standard deviation of 0.332 ranging from 0 to 1.
2. Regarding the independence risk committee members (RMCIND), the sample shows a percentage of companies setting up RMCIND increased by 2% in 2014 to 22% in 2017, and the mean was 0.135 with standard deviation 0.118, a minimum value of zero and maximum value 1.
3. For the accounting and financial qualifications of members of risk management committee (RMCAFQ), the percentage of companies have members with accounting and financial experience increased from 2% in 2014 to 22% in 2017, and the mean is 0.145with standard deviation is 0.400, the minimum value is zero and the maximum value is 1.
4. The sample shows the mean of the size of risk management committee (RMCSIZE) is 3.25 with a standard deviation of 0.211, and the minimum and maximum value of 3 and 5 members respectively. The results indicate that there is a number of companies have at least 5 members and this is good indicator because according to corporate governance code 2016 No. of members of the committee not less than 3.
5. Regarding the appointment of risk management manager (RMM) the percentage of companies appointed risk manager increase from 24% in 2014 to 36% in 2017. The mean is 0.295 with a standard deviation of 0.266, and the mimimum value is 0 and the maximum value is 1.
6. For clarity role of risk management committee (RMCR), the results of the analysis of the annual financial reports shows the percentage of companies increased from 94% in 2014 to 96% in 2017, and the mean is 0.955 with a standard deviation 0.101, the minmum value is 0 and the maximum value is 1.
7. The disclosure of internal risks (DIR),The number of companies disclosuring of the internal risk increased from 15 in 2014 to 29 in 2017 of the sample companies, with the mean of 0.415 and a standard deviation 0.168. The minimum value is zero and the maximum value 1.
8. The percentage of companies disclosure of economic risk (DECR) increased from 48% in 2014 to 58% in 2017 of the sample companies, and the mean of the variable is 0.542 with a standard deviation 0.285, the minimum value is zero and the maximum value 1.

9. The number of companies disclosure of environmental risk (DENR) increased from 14 in 2014 to 18 in 2017, and the mean is 0.325 with a standard deviation 0.352.
10. For disclosure of social risk (DSR), the number of companies increased from 3 in 2014 to 5 in 2017,with a mean equal to 0.070 and standard deviation 0.441.
11. The percentage of companies disclosure of legal risk (DLR) increased from 28% in 2014 to 40% in 2017, with the mean is 0.365, and a standard deviation of 0.320.
12. The number of companies disclosure of political risk (DPR) increased from 16 in 2014 to 18 in 2017, and the mean of the variable is 0.315 with a standard deviation 0.180.
13. For quantitative indicators of risk management (RMQI), the percentage of companies increased from 30% in 2014 to 34% in 2017 on the sample of study, and the mean is 0.320 with a standard deviation 0.139.

6. Data Analysis and Results:

The collected data were analyzed by using Statistical Package for Social Science (SPSS). This section includes Pearson correlations and multiple regressions results analysis.

6.1 Testing the Relationship between Board Characteristics and Risk Management

The Pearson correlations were used to test the correlation amongst the variables of the board of directors' characteristics and risk management. The correlation coefficients were checked for the presence of high collinearity amongst variables using Pearson correlations. Table (7) presents the Pearson correlation.

The table (7) shows the correlation matrix that predicts the likely relationship of the risk management index with board size, board independence, board meetings, and CEO duality as independent variables and profitability ratio, leverage, and firm size as control variables of the study.

Based on the Pearson correlation independent variables; board independence, board meetings, and CEO duality are positively and significantly correlated at 5 percent and 1 percent level of significance with risk management index. On the other hand, board size shows statistically insignificant correlation with risk management index. Firm size is the only control variables which has a significant association with risk management index at 5 percent significance level with a correlation coefficient of 52

percent. Firm leverage and profitability ratio are not statistically significant. As it can be easily understand from correlation coefficients of the variables both independent and control variables of the study have a weak correlation with risk management index except board independence, CEO duality and firm size which shows a moderate correlation of 62% ,41% and 52%

Table (7): The correlation analysis for Board Characteristics and Risk Management

	RM Index	BSIZE	BIND-	BMEET	CEODUAL	PR	FLEV	FSIZE
RM Index	1.000							
BSIZE	0.180	1.000						
	0.161	……						
BIND	0.624**	0.134	1.000					
	0.000	0.059	……					
BMEET	0.264*	-.175*	-0.067	1.000				
	0.011	0.013	0.347	……..				
CEODUAL	0.411**	0.166*	0.086	0.013	1.000			
	0.000	0.019	0.228	0.851	…….			
PR	-0.251	-0.140*	0.015	-0.032	-0.283**	1.000		
	0.093	0.048	0.833	0.648	0.000	…..		
LEV	0.055	-0.127	0.064	0.012	0.121	-0.134	1.000	
	0.436	0.074	0.370	0.871	0.089	0.058	……	
FSIZE	0.521**	-0.151*	0.058	-0.127	-0.053	0.088	0.452**	1.000
	0.000	0.033	0.413	0.072	0.455	0.214	0.000	…….
Correlation is significant at the 0.05 level (2-tailed).*								
**Correlation is significant at the 0.01 level (2-tailed).								

The results showed also, that the correlation coefficients between the independent variables are less than 0.70. This indicates that there is no auto correlation between these variables, so multiple linear regression can be used.

6.2 Multiple Regression Results Analysis

Before interpreting the results of the regression model, the researcher determined the ability of board size as an independent variable (BSIZE) to interpret the change in the dependent variable namely, risk management committee independence (RMCIND). The following table (8) presents the relationship between board size and risk management committee independence.

Table (8): The Relationship between Board Size and Risk Management Committee Independence

Model	Dependent variables	R	R^2	B	T	p-value	F	p-value
Independent Variable BSIZE	RMCIND	0.389	0.151	0.025	2.712	.004	7.357	0.004
Constant=0.585								

It is clear from the above table (8) that there is a moderate correlation between board size and the independence of the members of risk committee as the R value equal to 0.389. In addition, the R square value which is equal to 0.417. This means that the independent variable (BSIZE) explained 15.1% of the total change in the dependent variable (RMCIND). The value of F equal to 7.357 at a significant level $\alpha = 0.004$ is less than the approved level of significant (0.05), which indicated that the model was suitable for interpreting the relationship between dependent and independent variables, and the regression is significant.

Table (9) Multiple Regression Analysis Results

Model	Indep. variables	R	R^2	B	T	P-value*	Rank	F	p-value**
Dep. variable RM Index	BSIZE	-0.180	0.032	-0.120	-5.67	0.047	6	25.34	0.000
	BIND	0.624	0.389	0.414	18.31	0.000	1		
	BMEET	0.264	0.069	0.299	7.140	0.000	4		
	CEODUAL	0.411	0.169	5.443	15.94	0.000	3		
	PR	-0.251	0.063	-0.014	-3.39	.189	5		
	FLEV	0.055	0.003	0.045	0.073	.821	7		
	FSIZE	0.521	0.271	0.471	22.89	0.000	2		
	Constant =2.426 Model R =0.721 R^2=51.9 Durbin-Watson = 0.792								

The results shows that R Square equal 0.519 which means 51.9% of variation in dependent variable due to the variance in independent variables and 48.1% was due to other factors (e.g. companies disclosed to justify its poor performance to shareholders and investors such as closing branches and achieving losses). The value of p-value is less than 0.05 which means that there is significance relationship.

7. Conclusions

According to the results, there is positive relationship between the board size and board's independence and risk management, that meaning by increasing the board size the risk management is increased. However, a larger board is more likely to be alert to the agency's problems, because, more people will supervise the work of the management. When the board is greater, it is likely to have more independent members with valuable expertise. The reason is that the number and frequency of board meetings, is considered an important factor in the effective performance of supervisory duties. It can be proved that by increasing the board meeting frequency, the performance of the commercial unit is improved and so, there is a direct positive relationship between risk management and the number of board meetings. There is a direct positive relationship between the CEO duality role and risk management, meaning that by increasing the frequency of duality of managing director and CEO, the risk management increases. The reason is that there should be a balance of power between the board members so that no one be able to control the firm's process of decision making unconditionally.

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