

CORPORATE GOVERNANCE SYSTEMS AND FINANCIAL RISKS: A DEVELOPING COUNTRY EVIDENCE

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Abstract

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Banks are one of the essential pillars of the financial sector (Alzuod & Alqhaiwi, 2022), however, banking is a high-risk industry (de Andres & Vallelado, 2008). The aim of this paper is to investigate the impact of the board's structure and ownership structure on the financial risks of Jordanian commercial banks. Data was gathered manually from the financial reports. Notably, the study addressed two types of financial risks: liquidity risk and credit risk. The study sample included commercial banks listed on the Amman Stock Exchange (ASE) to cover the period 2014-2019. To achieve the study's objectives, multiple regression analysis was run to test the hypotheses. The results reveal a negative, statistically significant impact of the board size, institutional ownership, and bank size on liquidity risk. The results also demonstrated a negative effect of board independence, ownership concentration, bank size, and CEO duality on credit risk. In sum, the results support previous studies that found a statistically significant role of corporate governance mechanisms in reducing financial risks. The study recommended the need to enhance foreign investment and institutional ownership.

Keywords: Governance Systems, Ownership Structure, Agency Theory, Board Attributes, Credit Risk, Liquidity Risk

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1. INTRODUCTION

The financial sector plays a critical role in developing economies, therefore, its contribution to growing economies should be continuously observed (Adegboye et al., 2019). In their activities, banks depend largely on the confidence of customers, and therefore these institutions have received great attention from governments to support their stability and enhance their capabilities to face risks (Bastomi et al., 2017). The financial sector considers risk to be of paramount importance, key reasons for the recent financial crisis have been traced back to deficiencies within institutions' governance systems and risk-management functions. This led to the launch of significant guidelines and principles aimed at strengthening corporate governance systems and thus contributing to risk management

(Dupire & Slagmulder, 2019). The financial crisis in 2008 resulted in the collapse of many banking institutions, which negatively affected investors' confidence in the financial systems. The collapses revealed many opportunistic behaviors carried out by the management of these institutions caused by the regulatory systems and legislation that govern these institutions (Al-Smadi, 2013). Shahrour et al. (2022) argued that the legal environment is important because it affects the policies and goals of businesses. The surrounding legal framework will also affect the agreements between owners and other interested parties because of its effect on corporate governance, moreover, numerous financial and social outcomes have been influenced by national legislation. The causes of financial failures include weak governance and risk-management systems, in addition to the weakness of the financial

and accounting system (Gennaro & Nietlispach, 2021; Clark, 2010; Yeoh, 2010). As a result of the foregoing, developed and developing countries have tended to review the governance systems and enhance their content and the extent of their mandatory power to protect the shareholder's wealth. The Jordanian banking sector offers a valuable opportunity to examine the association between governance dimensions and financial risks due to the high regulation, which corresponds to the best international practices in this field, which is supervised by the Jordanian central bank which has kept pace with global legislations that seek to reform and develop the corporate governance system in banks by adopting the governance rules launched by the Organisation for Economic Co-operation and Development (OECD), which were used as a basis for issuing a series of instructions the latest of which was the Corporate Governance Instructions for Commercial Banks No. 58/2014, which have a mandatory status in order to follow the best governance system practices to enhance stability and financial robustness and to reduce risks. The instructions include a set of rules that are binding for implementation by banks including (board size, board independence, and CEO duality) in addition to the ownership structure including (ownership concentration, institutional ownership, and foreign ownership). Despite the increasing interest of researchers in the topic of corporate governance, these studies showed conflicting results, which indicates the need for further studies (Permatasari, 2020; Al-Smadi, 2013). Previous studies examined the contribution of the governance system in managing financial risks. However, the convergence — and alternatively, divergence — in the literature, could be related to the employed measures (Berg et al., 2022; Shahrour, 2022b; Revelli & Viviani, 2015), the institutional environment where firms operate (Scott, 1995; Permatasari, 2020). Indeed, studying a phenomenon in one country may lead to a misconception that the conclusion can be replicated in other countries (Schwaab et al., 2017; Shahrour et al., 2021).

This study is compatible with scholars' call for studies on corporate governance (Shahrour, 2022a; Tenuta & Kostyuk, 2020) and inspired by Permatasari (2020), Kostyuk et al. (2011), and Permatasari (2021), who suggested that some corporate governance attributes determine how financial risks are associated with the governance system. The current research aims to fill a gap in empirical research by investigating the impact of governance attributes on financial risks in the Jordanian context as a developing country. This paper pursues to answer the following research questions:

RQ1: Does the board's structure and ownership structure affect liquidity risks in commercial banks?

RQ2: Does the board's structure and ownership structure affect credit risk in commercial banks?

The major result of this paper is that the dimensions of corporate governance — represented by the ownership structure and the board structure — significantly related to managing and reducing credit and liquidity risks. The study's results would be useful to bank management, policymakers, regulators, and investors who desire to support strong governance standards. The study's

findings might also assist managers seeking corporate governance development in focusing on practices that mitigate financial risks. The banking sector was chosen as a sample for several reasons. First, banks are among the most significant financial institutions, which play a major role in revitalizing the economy by attracting and directing resources to serve investment, and thus they control the assets and the economic benefits generated by them (Alzuod & Alqhaiwi, 2022; Mamo et al., 2021; Lassoued et al., 2016). Second, banking is a high-risk industry and banks are more exposed to agency conflict as a result of their involvement in the management of shareholders' wealth (de Andres & Vallelado, 2008). The research was carried out in Jordan, a developing country with an emerging economy that faces pressures on resources as a result of the surrounding political conflicts.

The remainder of this paper is structured as follows. Section 2 examines the literature. Section 3 explains the study methodology. Section 4 presents and discusses the main findings and Section 5 presents the conclusion.

2. LITERATURE REVIEW

Corporate governance aims to provide and maintain a business environment characterized by a high degree of transparency and accountability in order to enhance stability. Governance systems should not be a goal but a means to encourage investment that requires a high degree of trust and integrity (OECD, 2015). Corporate governance aims to reduce management's ability to make opportunistic decisions and adopt excessive risk (Balachandran & Faff, 2015). de Andres and Vallelado (2008) look at corporate governance legislation from two different dimensions. On the one hand, these legislations can be considered auxiliary tools for strengthening institutional governance in order to reduce agency costs. On the other hand, these legislations are seen as restrictions that limit the shareholders' ambitions in maximizing their wealth. This study argues that the aim of the governance legislation is to help build trust to attract investment and achieve stability. Governance legislation seeks to organize a complex network of relationships between the firm, management, and stakeholders (OECD, 2015). According to prior research, corporate governance requirements can reduce risk by improving transparency, defending shareholders' interests, and keeping an eye on management (Balasingham & Robert, 2015; de Andres & Vallelado, 2008; Ahmed & Hamdan, 2015; Haddad et al., 2017). De Andres and Vallelado (2008) believe that banks are more vulnerable to agency conflict as a result of their direct involvement in the management of shareholders' wealth, and Lassoued et al. (2016) justify this view that bank management may raise the risk appetite by relying on banks' reserves and the role of the central bank of the state as a final resort in case of financial hardship. Corporate governance legislation has multiple dimensions, the most important of which are boards' structure and ownership structure.

Many studies have addressed the role of governance systems in restoring investor confidence, enhancing the financial stability of banks, and reducing agency costs. Using data from 54 banks

and 33 insurance firms, Dupire and Slagmulder (2019) investigated the role of corporate governance attributes of European financial firms in shaping the risk governance procedures and practices, the results revealed a strong relation between the ownership concentration and risk committees.

Gull et al. (2023) examined the role of the governance system in enhancing risk disclosure level in Pakistan, the sample included all of the listed companies except the companies in the financial sector. A manual analysis of the financial reports was performed to obtain the necessary information covering the years 2009-2015. The main results revealed that governance systems contribute to enhancing risk disclosures, the findings also highlighted the contribution of CEO duality and independent board members in improving risk disclosure practices. Nirino et al. (2022) examined whether corporate governance as a mediating variable had an effect on the relationship between social responsibility activities and financial risk for the period 2015-2019, the study sample consisted of the largest 500 companies listed on the New York Stock Exchange (NYSE). The findings revealed that corporate governance practices positively impacted the negative association between corporate social responsibility (CSR) and financial risks. Li et al. (2021) evaluated the efficacy of corporate governance dimensions in predicting financial distress in China, panel data was collected for multiple corporate governance measures. The findings indicated that effective governance practices play a key role in improving the predictive power of financial distress indicators. The study by Tai et al. (2020) also examined the effect of governance principles on financial risks through the attributes of the audit committee and board structure, data were collected through published financial reports, and for the period 2004-2010. The results reported a direct positive effect of the board size on the financial risks, the results also revealed that the audit committees improve the risk management decisions. Permatasari (2021) examined the association between governance practices on liquidity risk, and credit risk, data was gathered from financial reports of the Indonesian banks for the period 2010-2016. The findings suggested that the implication of governance principles of the board structure and the ownership contributes to reducing liquidity and credit risks. In the same context, using a large sample of 1,153 enterprises from various countries and a total of 3,946 observations spanning the years 2004-2017, Shahrour et al. (2022) examined the impact of legal origins on the correlation between CSR and financial risks. The results showed that enterprises' social practices and individuals' social views are significantly influenced by their countries of origin's legal systems.

In the Jordanian context, Ahmed and Hamdan (2015) investigated the role of the governance rules in managing the unsystematic risks for Jordanian banks. A questionnaire was sent to 300 members of the personnel of the financial departments of the sample banks, through which the rules of corporate governance were measured as an independent variable using multiple indicators (the governance framework, shareholders' rights, the functions of shareholders, and the board's tasks in addition to the level of disclosure and transparency). As for the dependent variable represented by unsystematic risk, it was measured

through the published financial reports of the study sample and for the period 2007-2013. The results showed a positive effect of various governance indicators on unsystematic risk. In the same context, Haddad et al. (2017) investigated how governance practices contribute to managing and extending banking risks, a questionnaire was developed and distributed to 112 members of Jordanian commercial banks' corporate governance committees, audit committees, and risk committees, out of which, 77% were recovered and analyzed. The study concluded that an efficient risk committee may have an important contribution in developing and managing the risk level, and the findings suggested an "important" role for the governance committees and audit committees in banking risk management.

Al-Smadi (2013) tested the impact of the implication of governance principles on a bank's risk and performance, the results showed that there is an inverse relationship between the board size, ownership concentration, and institutional ownership, on the one side, and the financial risk, on the other side. While the results found no significant effect of different committees in reducing banking risks. In the same vein, Alam and Shah (2013) investigated the relationship between the governance dimensions and financial risk, the study results revealed that family ownership and the duality of the CEO position are directly related to risks. Therefore, the study recommended issuing the necessary legislation to reduce the proportion of family ownership in companies. Al Manaseer et al. (2012) found that foreign ownership is directly related to banking risks, justifying that foreign investors give a greater opportunity for the bank to link with foreign investments. With regard to ownership concentration, Htay et al. (2011) found that the high percentage of institutional ownership and foreign ownership will reduce banking risks. In the same context, Bastomi et al. (2017) investigated the impact of applying the corporate governance rules on the credit and operational risks of Indonesian banks, the results suggested that adopting a good governance system will contribute to reducing credit and operational risks. Liu and Han (2010) also suggested that good corporate governance is a source of attracting investors, as a strong governance system may enable companies to avoid risks. Although this study mainly focuses on the role of the dimensions of corporate governance in risk management, it is worth mentioning that risk management is not limited to corporate governance tools only. Previous studies have examined the role of CSR activities in managing and reducing risk to the target level (Boubaker et al., 2020; Do, 2021; Habermann & Fischer, 2021; Shahrour et al., 2022; Sun & Cui, 2014).

2.1. Board size and the financial risks

The board of directors carries out a critical role in ensuring the effectiveness of the governance system by revising management policies and implementing the company's strategy (Kemp, 2006). Prior research explores board size highlighting the significance of sound corporate governance for a proper business function. Previous studies look at the board size from two different perspectives. On the one hand, some studies believe that increasing the number of board members will provide more experiences that will contribute to activating and rationalizing

oversight over management decisions (Alam & Shah, 2013). On the other hand, some other researchers believe that the greater the number of board members, the more difficult the coordination, which leads to a weakening of the governance system (Adnan et al., 2010). De Andres and Vallelado (2008) concluded that the greater the number of board members, the greater the board's experience and hence, the board's ability to direct and control management. Huang and Wang (2015) also indicated that the board is an influential means for implementing governance legislation as it has the authority to employ senior management, terminate management's contracts, and determine management's remunerations. The researchers examined the association between the board size and risk policy. The results showed that smaller board sizes of directors with modest experience will adopt investments with high levels of risk. The researchers concluded that increasing the board size will provide a higher level of expertise, which contributes to reducing risks. However, some studies found no association between board size and risk (Nakano & Nguyen, 2012; Cheng, 2008), justifying that the increase in the board size will lead to difficulty in coordination and communication, which will weaken its effectiveness in performing its supervisory role. Wang (2012) also investigated the function of board size in forming the company's risk policy, and the researcher concluded that the small number on the board of directors indicates that the board gives the CEO high incentives and forces him/her to take greater risks, and therefore the board size negatively affects the risk level in the company. Depending on the previous empirical results, the first hypothesis is formulated as follows:

H1: The size of the board of directors is negatively associated with the bank's financial risks.

2.2. Board independence and the financial risks

The agency theory assumes that when board members enjoy independence, they will be able to carry out their oversight duties, protect investors, and control the agency conflict (Birindelli et al., 2020). The independent board is considered an effective tool in controlling management decisions. The governance instructions issued by the Central Bank of Jordan recommended that the bank's board should have a high percentage of independent directors (non-executive) who contribute to minimizing potential management opportunistic behaviors and reducing agency costs (Fama & Jensen, 1983). Previous research that examined the correlation between board independence and business risk have revealed mixed results. For instance, Khan and Awan (2012, as cited in Djerbi & Anis, 2015) reported a positive correlation between board independence and risk level, while other studies found evidence that an independent board is inversely related to a firm's risk. While some other studies failed to find a significant impact of board independence on a firm's risk (Alam & Shah, 2013; Al-Smadi, 2013). Depending on the argument above, the second hypothesis is:

H2: The board's independence is negatively associated with the bank's financial risks.

2.3. CEO duality and the financial risks

Agency theory suggests the necessity of separating the functions of the chairman and the CEO, because this enhances the control over the decisions taken by the CEO, and because the lack of separation between the two positions refers to the weakness of the governance system as a whole. The separation between the two positions will lead to clarity of responsibilities and the strengthening of accountability procedures. Some researchers have claimed that the principal-agent dilemma is more visible in a corporation when the CEO performs a dual function (Larcker et al., 2007). According to Ghazali (2010), the function of the independent chairman is critical in ensuring that board policies represent the majority's views rather than those of a dominant personality. Adnan et al. (2010) believe that firms with separate leadership structures may be less risky than those with a single leadership structure. Adnan et al. (2010) concluded that the separation between the two positions is related to an inverse relationship with risks, furthermore, organizations without CEO duality are more likely to gain more trust and boost their prospects of acquiring new additional capital. Depending on the above argument, the next hypothesis is formulated as follows:

H3: The separation between the CEO and the chairman positions (CEO duality) is negatively associated with the bank's financial risks.

2.4. Institutional ownership and the financial risks

The term "institutional ownership" refers to substantial blocks of shares owned by institutions. Institutional investors typically play a significant monitoring role in corporate management. Additionally, because they are experts, they can keep an eye on CEOs (Al-Smadi, 2013). The institutional investor is seen as having the experience and competence in controlling management decisions, in addition to having the ability and tools to access information, especially when the institutional ownership is high, and thus will lead to reducing risks by contributing to the rationalization of management decisions. Using a sample of twelve publicly traded bank-holding corporations, over a ten-year period (1996-2005), Adnan et al. (2010) found that higher institutional ownership appears to be a risk-reducing factor. This study will adopt the same view that institutional ownership will contribute to reducing risks. Depending on the above argument, the next hypothesis is stated as follows:

H4: Institutional ownership is negatively associated with the bank's financial risks.

2.5. Ownership concentration and the financial risks

The relevance of ownership structure in improving corporate governance is emphasized by agency theory. According to Daily et al. (2003), the concentration of ownership is one of the most effective tools in mitigating agency conflict, but they could not agree on how ownership concentration impacts banking risk Lassoued et al. (2016). Major investors are considered one of the most important control tools over management behaviors, driven by

their concern for their wealth and their desire to maximize it, which may lead them to replace poorly performing management, as a result, organizations with highly concentrated ownership are more likely to be risk-taking than firms with dispersed ownership (Franks et al., 2001; Haw et al., 2010). Previous studies examined the effect of ownership concentration on financial risks. Htay et al. (2011) and Al-Smadi (2013) found that increasing the percentage of ownership concentration will lead to strengthening management oversight and thus linked to risk reduction. Based on the prior discussion, the fifth hypothesis is as follows:

H5: Ownership concentration is negatively associated with the bank's financial risks.

2.6. Foreign ownership and the financial risks

Foreign ownership can be viewed from two different dimensions. On the one hand, the foreign investor is a reason for the expansion of the company's activity to the regional and international levels and will contribute to attracting capital and foreign funding sources, but all of that may be accompanied by a greater appetite to bear risks (Berger et al., 2005). This view was supported by the findings of Rokhim and Susanto (2011), who examined the effect of foreign ownership of 115 banks on financial risks, the results concluded that foreign ownership contributes to increasing risks. On the other hand, foreign ownership is seen as having a key role in reducing financial risks through the experience of the foreign investor in analyzing risks and monitoring management behavior. This study assumes that increasing the proportion of foreign ownership will contribute to reducing risks, therefore, the sixth hypothesis states that:

H6: Foreign ownership is negatively associated with the bank's financial risks.

2.7. Governance instructions and risk assessment of banks

The instructions issued by the Central Bank of Jordan No. 58/2014 define corporate governance as a set of rules that constitute a system by which the bank is managed so that its application contributes to achieving the bank's objectives, taking into account the commitment to its responsibilities towards stakeholders. And the scope contained in Article 3 included all except for the Islamic ones, for which a special guide has been issued. These instructions indicated that board members should not be less than eleven members, with the condition that four of them should be independent members as these instructions indicated the obligations and duties of the board members, which include the supervision and follow-up of the bank's performance through the key performance indicators (KPIs). These instructions also required the necessity of finding procedures to protect the executive management from owner's influence, for example, the executive management should exercise its authority through the board without the influence of shareholders. Article 9 required the formation of a separate risk department that is responsible for auditing the application of credit terms. Article 22 related to disclosure and transparency emphasized the need to publish financial and non-financial

information that will contribute to enhancing transparency and integrity toward stakeholders, including:

1. Disclosure of the bank's organizational chart.
2. Details related to the members of the board of directors, such as qualifications, experience, and the percentage of their ownership in the bank.
3. A statement as to whether the member is independent or not.
4. Stockholders who control 1% or more of the bank's shares.

To enhance the adoption of the rules contained in the aforementioned instructions, Article 10 indicated a number of committees to be formed among the board members, including the Governance Committee, the Audit Committee, the Nomination, and the Remuneration Committee, in addition to the Risk Management Committee.

3. METHODOLOGY

3.1. Sample and data

Jordanian commercial banks were considered as the population for this study. During the study period, there were thirteen commercial banks listed on ASE, all of which met the criteria to be included in the sample. All commercial banks fulfilled the conditions for listing and trading in addition to the availability of information during the study period of 2014-2019. The study sample and the study period were selected because the Central Bank of Jordan released the corporate governance guide (Deloitte, 2014), which was mandatory for all banks except Islamic banks, 2019 was also chosen as the end of the study period to avoid the effects of the coronavirus pandemic. Table A.1 in the Appendix displays a breakdown of the sample. The major source of data is the yearly financial reports published on the ASE website. Thus, manual content analysis was undertaken for each variable in order to gather data and measure study variables.

3.2. Method and econometric models

This research uses panel data for analytical purposes. The effect of governance characteristics on liquidity risk and credit risk was analyzed using multiple regression analysis. It is worth noting that other alternative methods can be used to conduct this research, such as partial least squares (PLS) and structural equation modeling (SEM). The following two multiple regressions have been derived:

$$LIQRISK_{i,t} = \beta_0 + \beta_1 BSIZE_{i,t} + \beta_2 CEO_DUALITY_{i,t} + \beta_3 BINDEP_{i,t} + \beta_4 INSOWNER_{i,t} + \beta_5 OWNCONC_{i,t} + \beta_6 FOROWN_{i,t} + \beta_7 SIZE_{i,t} + \dots \quad (1)$$

$$CRERISK_{i,t} = \beta_0 + \beta_1 BSIZE_{i,t} + \beta_2 CEO_DUALITY_{i,t} + \beta_3 BINDEP_{i,t} + \beta_4 INSOWNER_{i,t} + \beta_5 OWNCONC_{i,t} + \beta_6 FOROWN_{i,t} + \beta_7 SIZE_{i,t} + \dots \quad (2)$$

where, i represent the banks ($i=1$ to 13) and subscript t indicates the year ($t=2014$ to 2019). Table 1 presents the definition of the previous terms.

3.2.1. Dependent variables

To fulfill the goal of the research, this study will employ financial risks as the dependent variable. More precisely, two types of financial risks: *liquidity risk* and *credit risk*.

Liquidity risk: The company's inability to fulfill its outstanding obligations. This indicator will be measured through the following equation: The percentage of cash + Investments to total current deposits (Incekara & Harun, 2019; Al-Smadi, 2013; Bastomi et al., 2017).

Credit risk: This indicator will be measured by the ratio of non-performing loans to total loans. This ratio indicates that the interest or principal of

the loan has not been paid during the last 91 days, thus it is considered a non-performing loan (Bawa & Basu, 2020; Al-Smadi, 2013; Bastomi et al., 2017).

3.2.2. The independent variables

The current paper employed six independent factors. Three of them are standard measures of corporate governance which are: the size of the board, board independence, and the separation between the CEO and the chairman position. The other three measures concern ownership structure namely: institutional ownership, ownership concentration, and foreign ownership. Table 1 presents variables definitions and measurements.

Table 1. Variables definitions and measurement

	<i>Variables</i>	<i>Label</i>	<i>Measurement</i>	<i>Previous studies</i>
Dependent variables	Liquidity risks	<i>LIQRISK</i>	Total liquid assets/Total deposits	Permatasari (2020)
	Credit risks	<i>CRERISK</i>	Non-performing loans/Total loans	Permatasari (2020)
Independent variables	Board size	<i>BFSIZE</i>	The number of board members in total	Alam and Shah (2013)
	Board independence	<i>BINDEP</i>	The percentage of independent board members to the total number of board members	Khan and Awan (2012)
	The separation between the CEO and the chairman positions	<i>CEO_DUALITY</i>	Takes number 1 when the positions of CEO and the chairman are occupied by two different people	Adnan et al. (2010)
	Institutional ownership	<i>INSOWNER</i>	The proportion of total shares owned by institutions	Adnan et al. (2010)
	Ownership concentration	<i>OWNCONC</i>	The proportion of significant shareholders who hold more than 5% of the company's stock	Htay et al. (2011), Al-Smadi (2013)
	Foreign ownership	<i>FOROWN</i>	The proportion of total shares held by foreigners	Rokhim and Susanto (2011)
Control variable	The banks' size	<i>SIZE</i>	The total assets - Natural logarithm	Adnan et al. (2011), Al-Smadi (2013)

Source: Authors' modifications depending on previous studies.

3.2.3. Data validity test

A number of tests were performed to ensure the data validity. The researcher tested the normal distribution of the study variables through the Kolmogorov-Smirnov test. It was found that the study data followed the normal distribution, except for the bank size variable, where the significance value reached (Sig. = 0.001). As such, the banks' size was measured using the natural logarithm of assets. Table 2 presents the variance inflation factors (VIFs) test, which measures the amount by which the variance of the regression coefficients increases if the independent variables are correlated, the values of the VIFs were all less than 10 and greater than 1, which indicates that the data does not suffer the multicollinearity problem.

Table 2. Collinearity statistics

<i>Variables</i>	<i>Tolerance</i>	<i>VIF</i>
<i>BFSIZE</i>	0.453	2.08
<i>CEO_DUALITY</i>	0.425	2.43
<i>BINDEP</i>	0.787	1.30
<i>INSOWNER</i>	0.842	1.21
<i>OWNCONC</i>	0.705	1.54
<i>FOROWN</i>	0.831	1.33
<i>SIZE</i>	0.744	1.65

4. RESULTS

4.1. Descriptive statistics

Table 3 presents a description of the study variables. The average board size is 10.7, this result indicates compliance in banks with the instructions of the Central Bank regarding the board size which required that the sum total members should not be less than eleven. Table 3 also shows a description of CEO duality, where the number of cases of separation between the two positions totaled 70 cases during the study period which amounted to 90% of the total observations, while the number of cases of duality between the two positions was only 8 cases which formed 10% of the total observations. Accordingly, 90% of Jordanian commercial banks separate the CEO position and the chairman of the board. As for the percentage of independence of the board members, it averaged 0.86, bearing in mind that the instructions of the Central Bank of Jordan require that should be a minimum of four independent members on the board, and these results are similar to those achieved by Al Hanini (2014) and Al-Smadi (2013). With regard to the percentage of ownership concentration, it reached an average of 0.62, and this result is in line with the findings of Lassoued et al. (2016), which demonstrated that the three largest banks in Jordan own the equivalent of 90% of the banks' assets, and the results indicate a weak percentage of foreign ownership with an average of 0.06.

Table 3. Descriptive statistics

Variables	Minimum	Maximum	Mean	Std. deviation
BSIZE	7.00	14.00	10.7564	1.73719
CEO_DUALITY	No duality: 70 Duality: 8			
BINDEP (%)	0.45	1.00	0.8687	0.32155
INSOWNER (%)	0.00	22.79	8.1573	7.66102
OWNCONC (%)	33.00	90.24	62.604	98.58
FOROWN (%)	0.00	20.49	6.6457	5.996
CRERISK (%)	1.94	22.50	9.24	4.22
LIQRISK (%)	4.01	26.98	11.10	4.84
SIZE	58.815	23.541	5.34	99.92

4.2. The regression results

Table 4 shows the results for the first model, in which the dependent variable is the liquidity risk, while Table 5 shows the multiple regression results for the second model, which depends on credit risk as the dependent variable.

4.2.1. The first model: Liquidity risk and governance attributes

The results presented in Table 4 show that the board structure and ownership structure has a statistically significant effect on liquidity risks, as the value of F-statistic = 2.490 at a level of statistical significance of Prob. F = 0.000, which is less than 5%. The results also confirm the model's validity to test the hypotheses with an explanatory power factor of $R^2 = 0.234$.

The results presented in Table 4 show a positive and significant impact of the board size on the liquidity ratio of the bank indicating that the larger the board size, the higher the liquidity ratio, and thus the lower the liquidity risk. This is in line with Al-Smadi (2013) and Alam and Shah (2013). This result supports the point of view that increasing the size of the board will lead to an improvement in the oversight capacity and thus increase the effectiveness of the governance system as a whole.

The results revealed a positive impact of institutional ownership on the liquidity ratio with a value of p-value = 0.007, which indicates that

the higher the institutional ownership, the higher the liquidity ratio, and thus the lower the liquidity risk. This is in line with Adnan et al. (2010) and Bastomi et al. (2017). While the results showed that the liquidity ratio is inversely affected by ownership concentration. Therefore, liquidity risk is inversely proportional to ownership concentration. These findings may be justified by the inclinations of the largest shareholders to achieve greater returns to maximize their wealth, driven by their confidence in the banking sector's measures to protect the shareholders' wealth.

As expected, the results revealed that the greater the size of the bank, the higher the liquidity ratio, and the lower the liquidity risk. This result implies that higher total assets may reflect positively on the liquidity ratio. This result agrees with previous studies (Htay et al., 2011; Al-Smadi, 2013).

The results found no effect of the variables foreign ownership, independence of board members, and CEO duality on liquidity risks, these results can be explained by the low foreign ownership, which amounted to only about 6% in Jordanian commercial banks, which may prevent it from having an impact on liquidity risk. As for the board independence and the CEO duality, they were in place even before the issuance of the mandatory instructions, it was part of the corporate governance guide, which was adopted by Jordanian banks before issuing the mandatory instructions, which may be the reason for the lack of impact of these variables on liquidity risk.

Table 4. Hypotheses testing results (Dependent variable: *Liquidity risk*)

Liquidity risk	Coeff.	Std. Error	T	P-value
Constant	19.95	5.55	3.59	0.001
BSIZE	0.654	0.325	2.011	0.001*
CEO_DUALITY	1.052	2.801	0.376	0.709
BINDEP	0.236	3.575	0.066	0.94
INSOWNER	0.199	0.072	2.784	0.007
OWNCONC	-0.073	0.038	-1.913	0.051**
FOROWN	0.015	0.113	0.130	0.897
SIZE	2.721	0.342	7.201	0.000
R ²	0.234			
F-statistic	2.490			
Prob. (F)	0.027			

4.2.2. The second model: Credit risk as a dependent variable

The second model considers credit risk as the dependent variable, the results presented in Table 5. There is a significant impact of board structure and ownership structure on credit risk

with a value of F-static = 2.156 at the level of statistical significance Prob. F = 0.000 and $R^2 = 0.296$.

The results show a negative statistically significant effect of CEO duality on the non-performing loans' ratio as a proxy of credit risk, meaning that the application of this principle will reduce the credit risk, due to the view that

the separation between the two positions contributes to increasing the effectiveness of supervision on the basis of granting credit terms. In the same context, the results also revealed that credit risk is negatively affected by boards' independence, which means that independent members contribute to reducing credit risks. The appearance of this result may be due to the ability of the independent member to exercise effective control over the application of credit terms so that the focus will be on their quality, which will inevitably reduce the number of non-performing loans. These findings were similar to those achieved by previous studies (Adnan et al., 2010; Bastomi et al., 2017; Al-Smadi, 2013).

The findings also suggest a negative impact of ownership concentration on the ratio of non-performing loans as a proxy of credit risk. Therefore, the increase in the percentage of ownership concentration of an investor may enhance his desire to monitor the application of the credit terms, which

will contribute to reducing the percentage of non-performing loans. This result can be justified through the positive theory point of view in its claim that people are directed by their own interests. The results also showed a negative impact of the bank's size variable on credit risks, which means that the increase in the bank's resources motivates the management to focus on the quality of the loans, but not their quantity. Therefore, the increase in the bank's size will contribute to reducing the ratio of non-performing loans.

The results did not show evidence of an impact of the variables foreign ownership and institutional ownership on credit risk. These results can be justified by the low value of both variables in the study sample, which might be the cause for not having a significant impact. As for the board size, it showed a weak negative impact on credit risk which is consistent with Alam and Shah (2013) and Al-Smadi (2013).

Table 5. Hypotheses testing results (Dependent variable: *Credit risk*)

<i>Credit risk</i>	<i>Coeff.</i>	<i>Std. Error</i>	<i>T</i>	<i>P-value</i>
Constant	0.830	0.225	3.682	0.000
<i>BFSIZE</i>	-0.001	0.015	-0.093	0.929
<i>CEO_DUALITY</i>	0.066	0.127	0.519	0.005
<i>BINDEP</i>	-0.300	0.150	-2.005	0.049
<i>INSOWNER</i>	0.000	0.003	0.096	0.924
<i>OWNCONC</i>	-0.001	0.001	-1.046	0.021
<i>FOROWN</i>	-0.005	0.004	-1.413	0.162
<i>SIZE</i>	-0.001	0.025	-3.59	0.000
R ²	0.296			
F-static	2.156			
Prob. (F)	0.051			

5. CONCLUSION

The importance and sensitivity of the banking sector's role in the local and global economy is not a secret; therefore, this sector requires specific regulation that takes into consideration the business environment, which can vary greatly between developed and developing countries, although the rules of global governance still believe that one corporate governance code fits all economics. This study came after obligating the banking sector in Jordan to implement institutional governance instructions specific to commercial banks, focusing in its content on boards' attributes and ownership structure, which were derived from the rules issued by the (OECD). This study assumes that the characteristics of the board play a vital role in the implementation of the supervision function, directing function, and control function. This study also believes that the ownership structure represents a dimension capable of explaining the strength and validity of the governance system by the percentage of ownership concentration, foreign ownership, and institutional ownership. Using a sample of the thirteen Jordanian commercial banks. This study suggests that board attributes and ownership structure reflect a sound governance system, in sum, the results found a statistically significant contribution of corporate governance attributes in mitigating and managing financial risks. The results also revealed that some of the

governance mechanisms have a weak effect, either because of the different characteristics of the business environment or because of the low percentage of that indicator, as is the case with the variables (institutional ownership and foreign ownership). The results of this study lead to say that an effective governance system represents the safety valve for the health of the financial and economic system, besides the valuable benefits for shareholders and the banking industry. The current paper recommends following up on the implementation of the governance instructions via the regulators' agencies and the Central Bank of Jordan in particular. The paper also encourages The ministry of Investment in Jordan to attract foreign investment and enhance the institutional investment ratio. The researcher does not claim that this study is free of limitations, the most important of which is that this study considered the banking sector only, and therefore the results may not be generalized to other sectors. Secondly, this study focused on liquidity risks and credit risks, which were calculated through manual analysis of financial reports. Therefore, this study recommends future researchers include the use of other types of risks, such as capital risks. This study encourages future research to extend the research using systematic risk as a dependent variable. Future studies can also include other dimensions of governance, such as gender, remuneration of the board of directors, and the characteristics of the various committees.

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APPENDIX

Table A.1. The study sample

No.	Code	Bank title
1	ARBK	Arab Bank
2	BOJX	Bank of Jordan
3	AHLI	Jordan Ahli Bank
4	CABK	Cairo Amman Bank
5	JOKB	Jordan Kuwaiti Bank
6	JCBK	Jordan Commercial Bank
7	THBK	The Housing Bank for Trade and Finance
8	ABCO	Arab Banking Corporation — Jordan
9	EXFB	Capital Bank of Jordan
10	AJIB	Arab Jordan Investment Bank
11	INVB	Investment Bank
12	UBSI	Bank Al Etihad
13	SGBJ	Societe General Bank — Jordan