

The Impact of Board and Audit Committee Characteristics on the Credit Risk in Jordanian Commercial Banks

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Abstract

This study empirically investigates the impact of board characteristics and audit committee characteristics on the credit risk of Jordanian commercial banks during the period 2009–2016.

The study used three board characteristics: board size, board independence, and chief executive director (CEO) duality. In addition, four audit committee characteristics were employed: audit committee size, audit committee independence, number of committee meetings, and audit committee experience. Credit risk, the dependent variable, was measured by the ratio of non-performing loans to total loans. Bank size was used as a control variable and was measured by the natural logarithm of total assets.

Using panel data regression, the results indicated that the only significant board characteristic was board independence, which had a positive and significant effect on credit risk, while two audit committee characteristics were found to have an effect on credit risk. Number of audit committee meetings and audit committee independence were negative and significant, indicating that more frequent meetings and more independent members lead to lower credit risk.

Our findings suggest that effective credit risk management requires fewer independent directors, an increase in the number of audit committee meetings, and an increase in the number of independent members in the audit committees.

Key Words: Corporate Governance, Credit Risk, Banks, Jordan.

JEL Classification: G20, G28, M42.

1. INTRODUCTION

The board of directors of the banks and the audit committee, one of the committees emanating from the board, have been paid considerable attention in recent years in both developed and developing countries, where the global financial meltdowns have played a major role in shaking investors' confidence, leading to a lack of confidence in the procedures and regulations applicable and related to the management of these companies (Ben Amer, 2014).

There has been increasing demand from investors for rules and mechanisms to control the work of managers and those concerned with the management of an enterprise to increase confidence in the accounting system outputs, increase the efficiency and effectiveness of operational processes, and improve the level of disclosure and transparency to meet the aspirations of shareholders and other parties to protect their interests and avoid risks and bankruptcy.

As one of the rules of corporate governance, the characteristics of the board and the audit committees have played a major role in increasing their efficiency and effectiveness in performing their work and reducing the risks that may cause serious financial losses. Many regulatory and legislative bodies have undertaken reforms related to the structure and composition of the board of directors to make it more independent and experienced, which is reflected in the quality of decisions taken, and make the exclusive director responsible to both chairman and members of the board of directors for the good functioning of the organisation and its ability to achieve the objectives (Germain et al., 2014).

There is a need to distinguish between the administration and the board of directors and committees emanating from it, since both the board of directors and the audit committees have a control and supervisory role to play in protecting the public interest', particularly the role of audit committees in monitoring the compliance, adequacy and development of internal control systems, as well as their effective role and ability to reduce risks arising from the nature of legal activity and sound management of those risks and avoid the failure of companies and financial hardship (Aguilera & Cladera, 2015). As a result, these reforms have been part of the administrative and organisational reform within the organisation due to owners' awareness of their importance and role in promoting the rules of integrity and creating rules that constitute the cornerstone of protecting their interest and investments.

Audit committees are considered one of the most important committees in banks' work and banking sector in general, and this importance stems from its supervisory role on bank's operations and enhancing the efficiency of the internal and external audit. Audit committees have begun to appear in the United States in the late 1960s, and they emerged as a result of recommendations of New York Stock Exchange (NYSE) and American Institute of Certified Public Accounting (AICPA) and their emphasis on the importance of these committees in reducing manipulation, controlling and enhancing the performance of organizations' managements and enhancing the confidence of users of financial statements.

In 2002, the role of audit committees in the United States was strengthened through the implementation of the Sarbanes-Oxley Act (Abdullatif, 2007, Al-Kubaiji, 2015) due to the role of audit committees in assessing the boards of banks in their supervisory and control activities which consider one of board's control tools that began to appear in the early 1980s and after many scandals and financial collapses of major companies (Samaha, 2012).

Jordanian legislators recognised the importance of the role of banks' boards of directors and their committees through the Central Bank of Jordan (CBJ) by issuing Law No. 28 (2000), which obliges Jordanian commercial banks to establish an audit committee in addition to the instructions of banks' corporate governance No. 58 (2014), which obliges all Jordanian banks to implement the rules of corporate governance, as their application had been optional since 2002. The instructions stipulated how the board should be formed: the board should not include less than 11 members; there should be separation between the exclusive director and the chairman of the board; the number of independent members should not be less than four; and an audit committee, consisting of a majority of independent members including the chairman of the committee, should be established. Furthermore, the document outlined the functions and responsibilities of the board of directors and audit committees. The Jordan Securities Commission (JSC) issued Corporate Governance Guidelines for listed public shareholding companies (2017) concerning the characteristics of a company's board of directors and its committees and the statement of its responsibilities and tasks.

Risk management is the main activity of banking as banks' activity involves credit transactions, loans and other risky activities which are the basis of banking. Therefore, risk management and effective control of its operations must be established to reach acceptable levels of risk as its collapse and bankruptcy will lead to the collapse of the entire economic system. Basel Committee defined credit risk as "the risk arising from the possibility of loss to an organization as a result of client's failure to meet his/her due obligations on time" (Basel, 2008).

The board of directors is also accountable to the general assembly of shareholders as well as the audit committee as one of the committees mandated by the board of directors to carry out the responsibilities of supervising and controlling a department's work and its compliance with laws and regulations and enhancing the effectiveness of its internal control and accountability system (Madi et al., 2014), particularly with respect to the conditions of granting credit and guarantees, credit policy evaluation, and the liquidity ratio to be maintained in accordance with the requirements of the Basel Committee.

2. PREVIOUS STUDIES

Researchers have reviewed a large number of previous studies, including those applied to financial and non-financial organizations. There have been different results, but there is a tacit agreement that the characteristics of the board of directors and audit committees are working to reduce the risks that may be exposed to banks and reach to acceptable levels of risk.

The board and audit committees are considered to be key factors in controlling management's work, increasing transparency and reducing banks' risks (Samaha et al., 2015). Therefore, in this section, the results of previous studies will be reviewed as well as the linkage between the size of the board of directors and its independence, the separation between the positions of the chairman of the board of directors and the exclusive director, the remuneration of members of the board of directors, the ownership of members of the board of directors, audit committees and credit risk.

In Saudi Arabia, (Al-Smadi,2013) has examined the relationship between corporate governance, performance, and risk in Saudi banks. The study found that there was a negative impact on the size of the board of directors, audit committees and the separation of the chairman's positions on credit risk. The study of (Alam & Shah, 2013)

found a positive impact for administrative ownership and the separation of the positions of chairman of the board of directors and executive director on risks in companies listed on the Karachi Financial Market. Also, in Malaysia, (Adnan et al, 2001) have examined the impact of the application of corporate governance rules (Board size, Board independence, separation of positions of chairman of board of directors and executive director, ownership of banking risk management) and found that there was a negative impact of the independence of members of the board of directors on the market risk, and the separation of the positions of chairman and executive director has had an impact on reducing liquidity risk.

In South Africa, (Young, 2010) concluded that the separation of CEO duality plays a major role in risk reduction in the banking sector. In Vietnam, (Trinh et al., 2015) investigated the impact of corporate governance on liquidity risk, credit risk, and capital risk. The study showed an insignificant correlation between board size and liquidity, credit and capital risk. The board's independence had a positive impact on credit, liquidity and capital risk; and there was no impact of audit committees on banking risk.

Jiraporn et al. (2015) stated that firms which effectively apply corporate governance rules are less exposed to risk and that an effective board of directors plays a significant role in reducing risks. The study conducted by Lee et al. (2016) showed that the size of the board of directors had a negative impact on risk and the board's independence did not have a significant impact on risk.

In the Jordanian context, Hamdan et al. (2013) examined the impact of the characteristics of audit committees on the banks financial performance. The results revealed that audit committees have a positive impact on the financial performance. Al-Manaseer et al. (2012) found that the independence of members of the board of directors has a positive impact on banks' performance. The results of this study also revealed that the size of the board and the separation of the positions of chairman of the board of directors and executive director have a negative impact on performance.

3. PROBLEM OF THE STUDY

High efficient board of directors and audit committees with sufficient independence enable companies to reduce risks that may occur, especially in the banking sector as its work involves granting credit, risk management, and its activities is risky; thus affect its sustainability and competitiveness (Al-Sartawi, 2015). Therefore, there was a great interest in the characteristics and composition of the board of directors of companies, committees emerging from them and their role in reducing the risks. Based on what mentioned above, the problem of the study can be formulated through answering the following questions:

- 1- What is the impact of the characteristics of the board on credit risk in Jordanian commercial banks?
- 2- What is the impact of the characteristics of audit committees on credit risk in Jordanian commercial banks?
- 3-

4. SIGNIFICANCE OF THE STUDY

Banking sector plays a crucial role in supporting economic development, investment promotion, and growth. Therefore, a sound banking system that plays effectively the role of financial intermediation is needed to meet investors' needs for money and other important services (Odudu et al, 2016). The significance of the present study stems from the fact that it examines the most important topics affecting the success of banking, which one of the most exposed sectors to the credit risk resulting from the nature of its work based on granting credit. Therefore, this study has examined the impact of the characteristics of both the board of directors and audit committees on credit risk in Jordanian commercial banks.

In addition, to the best our knowledge, the present study is the first in Jordan that aims at examining the impact of board and audit committee characteristics on the credit risk, and so expected to help to fill the gap in this area.

5. HYPOTHESES OF THE STUDY

Based on the problem of the study and its objectives, the following hypotheses were formulated:

H₀₁: There is no statistically significant relationship between board's characteristics and credit risk in Jordanian commercial banks.

H₀₂: There is no statistically significant relationship between the characteristics audit committees and credit risk in Jordanian commercial banks.

Table 1. The code and measurement of the variable

Variable	Code	Measurement
Independent Variables		
Board Characteristics		
Board Size	BOS	It is a total of board member
Board Independence	BOIND	It is measured as the ratio of percentage of non-executive / total directors
CEO Duality	ECOD	Dummy variable takes the value (1) if the separation between the chief Executive Officer and Chairman of the board
Audit Committee Characteristics		
Audit Committee Size	ACS	It is a total of Audit Committee member
Audit Committee Independence	ACIND	It is measured as the ratio of percentage of non-executive / total directors
Number of Audit Committee Meetings	NACM	The number of meetings of audit committee per year.
Audit Committee Experience	ACE	The financial experience of the audit committee measured by dividing the number of qualified members in accounting financial and banking management to all member.
Dependent Variable		
Credit Risk	CR	It is measured as the ratio of nonperforming loans to total loans
Control Variable		
Bank Size	SIZE	Natural Logarithm of total assets

A model was used to show the impact of each of the board's characteristics (board size, board independence, separation of CEO/Chairman) and the characteristics of audit committees (Audit Committee Size, Audit Committee Independence, Number of Audit Committee Meetings, Audit Committee Experience). The model was formulated as follows:

Risk= f (CG, X, ε)

$$CR_{it} = \alpha + \beta_1 BOS_{i,t} + \beta_2 BOIND_{i,t} + \beta_3 ECOD_{i,t} + \beta_4 ACS_{i,t} + \beta_5 ACIND_{i,t} + \beta_6 NACM_{i,t} + \beta_7 ACE_{i,t} + \beta_7 SIZE_{i,t} + \epsilon_t$$

Where:

CR: Credit risk of the bank (i) in the year (t).

α: a fixed value in the model.

BOS: board size (number of board of directors of the bank (i) in the year (t)).

BOIND: board independence (number of independent members\ total of board members, board independence of the bank (i) in the year (t)).

ECOD: CEO Duality (the separation of the positions of chairman of the board of directors and executive director of the bank (i) in the year (t)).

ACS: Audit Committee Size (number of an audit committee of the bank (i) in the year (t)).

ACIND: Audit Committee Independence (number of independent members\ total number of committee members of the bank (i) in the year (t)).

NACM: Number of Audit Committee Meetings (number of audit committee meetings of the bank (i) in the year (t)).

ACE: Audit Committee Experience (experience of members of audit committees of the bank (i) in the year (t)).

BASSET: Bank Size (size of the bank (i) in the year (t)).

6. POPULATION AND SAMPLE OF THE STUDY

The population of the study includes all Jordanian commercial banks (13) as shown in the Bank Guide issued by the Central Bank of Jordan for the year 2016. Based on what has been mentioned above, the sample of the study will include all members of the study population of (13) Jordanian banks. Data of the study variables will be collected from the published annual reports of sample banks of the study from 2009 to 2016.

7. DATA COLLECTION

The data collection of the present study relies on two sources:

- 1- Preliminary sources: the annual published financial reports of the sample banks in order to obtain the necessary data and information related to the independent variables of the study (characteristics of the board of directors and audit committees), dependent variable (credit risk) and control variable (bank size).
- 2- Secondary sources: books, previous studies, and references related to the topic of the study.

8. METHODOLOGY

An analytical descriptive approach was used in addition to the statistical methods available in the E-VIEW program. As the data of the study included time series as well as cross-sectional data, the appropriate model for measuring the relationship between the variables is the Pooled Data Regression with Ordinary Least Squares (OLS).

- 1- Descriptive statistics: arithmetic mean, standard deviation, percentages, and frequencies in order to describe the variables of the study.
- 2- Correlation Analysis to measure the relationships between variables.
- 3- Pooled Data Regression.

RESULTS OF THE STUDY

A. Summary Statistics

Table 1 shows some descriptive statistics for the dependent variable, credit risk (CR), measured by the ratio of non-performing loans (NPLs) to total loans. The average credit risk for Jordanian commercial banks during the period 2009–2016 was 8.9%, which reflects the low level of credit faced by Jordanian banks in general. Many authors noted that when non-performing loans exceed 10%, this becomes a serious problem for banks, which should be handled carefully. However, credit risk ranged from 1.7% to 22.4% with standard deviation of 4.1%, which indicates that banks faced different levels of credit risk and some banks suffered from high credit risk. The dependent variable seems to follow the normal distribution, as shown by skewness, kurtosis and Jarque-Bera test statistics.

**Table (1):
Descriptive Statistics for the Dependent Variable**

	Credit Risk (CR)
<i>Mean</i>	0.0892
<i>Median</i>	0.0831
<i>Maximum</i>	0.2240
<i>Minimum</i>	0.0170
<i>Std. Dev.</i>	0.0412
<i>Skewness</i>	-0.5050
<i>Kurtosis</i>	2.8899
<i>Jarque-Bera</i>	4.3866
<i>Probability</i>	0.1116
<i>Observations</i>	104
<i>Cross sections</i>	13

Moreover, Figure 1 presents time-series trends of the dependent variable CR from 2009 to 2016. It can be noted here that credit risk increased from 9.1% in 2009 to 12.1% in 2011, which indicates the increasing credit risk faced by Jordanian banks during the period 2009–2011. This may be due to the general economic slowdown in Jordan after the global financial crises, which affected all economic sectors and the borrowers ability to repay their loans.

However, credit risk decreased significantly after 2012 and reached its lowest level (6.4%) in 2016, indicating the ability of Jordanian banks to manage their credit risk efficiently.

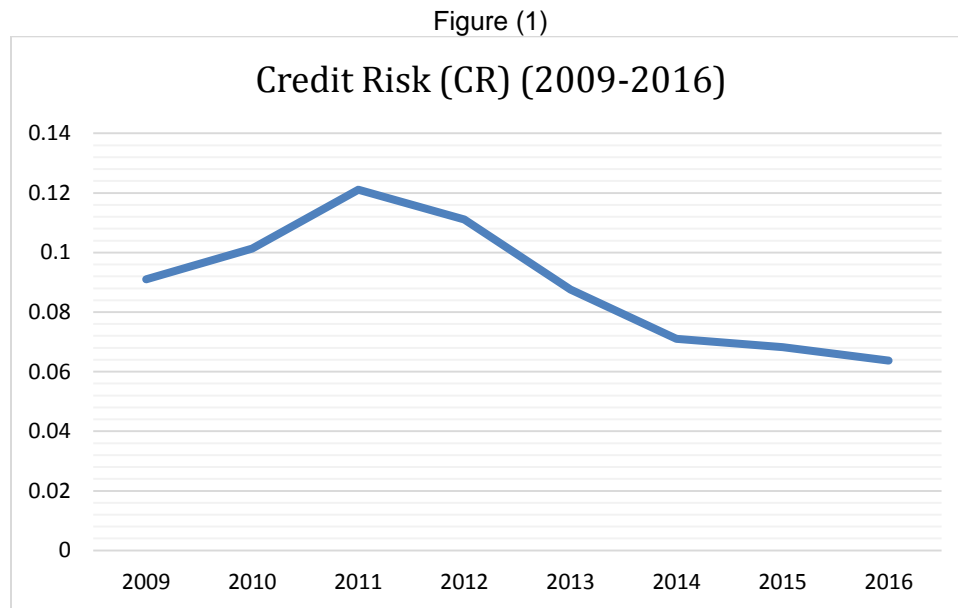


Table 2 shows some descriptive statistics for the independent variables. Based on this table, we can make the following observations:

A) Board Characteristics – three board characteristics were chosen in this study: board size, CEO duality, and board independence.

1. Board Size (BOS): the average size of the board in Jordanian banks was about 11 members and the number ranged from seven to 15 members. It is worth mentioning here that the CBJ issued the amended instructions of corporate governance for banks No. 63/2016 dated 1 December 2016. Article 6 stated that the number of board members should not be less than 11. Accordingly, all banks should have a minimum of 11 members on the board.
2. CEO Duality (ECOD): the average CEO duality was 0.89, which is close to one. This reflects that most banks have separated the position of CEO from the position of the chairman of the board. However, the chairman of the board is prohibited from holding the position of CEO according to the article 9, paragraph (E) in the amended corporate governance instructions (63/2016).
3. Board Independence (BOIND): the average ratio of board independence, measured by the ratio of independent members to the total number of directors, was 37.7%. This indicates that the independent directors represent more than one third of the board. In this regard, article 6, paragraph C in the corporate governance instructions indicates that at least four of the minimum 11 members should be independent directors, which represents a ratio of 36.4%. Comparing the required ratio with the actual ratio indicates that Jordanian banks have a sufficient number of independent directors.

B) Audit Committee Characteristics – four audit committee characteristics were chosen in this study: audit committee size, number of audit committee meetings, audit committee independence, and audit committee experience.

1. Audit Committee Size (ACS): the average size of the audit committee was four members and the number ranged from two to seven members. This indicates that Jordanian banks have a sufficient number of members in the audit committee.
2. Number of Audit Committee Meetings (NACM): the average number of audit committee meetings was six meetings per year, which may indicate the active performance of audit committees in Jordanian banks. However, the number of meetings ranged from 0 to 21 meetings, indicating the difference in the activity of the audit committee from one bank to another.

3. Audit Committee Independence (ACIND): the average ratio of independent members in the audit committees was 44% and ranged from 0% to 75%. However, the corporate governance instructions indicated in article 10, paragraph B1 that most audit committee members should be independent. Given that the ratio of independent members increased from 37.6% in 2009 to 54.4% in 2016, we can conclude that Jordanian banks comply with the instructions.
4. Audit Committee Experience (ACE): the experience of the audit committee was measured by the ratio of qualified members (holding a degree in accounting, finance and banking management) to all members. The average experience was 37.4% and ranged from 0% to 100%. However, the ratio increased from 29% in 2009 to 50% in 2016, which reflects the trend of acquiring more qualified members in the audit committees.

C) Bank Size (SIZE): the average size of Jordanian banks during study period amounted 9.287 logarithms (about JD 1936.6 million) and ranged from 8.48 to 10.41 logarithms, with standard deviation of 0.42, which indicates the existence of obvious differences in size among Jordanian banks.

**Table (2):
Descriptive Statistics for Independent Variables**

	<i>BOS</i>	<i>ECOD</i>	<i>BOIND</i>	<i>ACS</i>	<i>NACM</i>	<i>ACIND</i>	<i>ACE</i>	<i>SIZE</i>
<i>Mean</i>	10.892	0.892	0.377	3.961	6.196	0.441	0.374	9.287
<i>Median</i>	11.000	1.000	0.360	4.000	5.000	0.333	0.333	9.286
<i>Maximum</i>	15.000	1.000	0.909	7.000	21.000	0.750	1.000	10.413
<i>Minimum</i>	7.000	0.000	0.000	2.000	0.000	0.000	0.000	8.478
<i>Std. Dev.</i>	1.706	0.312	0.227	1.107	3.357	0.232	0.242	0.418
<i>Skewness</i>	1.100	-2.529	0.231	0.869	2.124	-0.321	0.507	1.038
<i>Kurtosis</i>	4.368	7.394	2.623	2.856	8.807	2.122	2.842	4.231
<i>Jarque-Bera</i>	28.515	190.732	1.511	12.924	220.00	5.030	4.482	24.766
<i>Probability</i>	0.000	0.000	0.470	0.002	0.000	0.081	0.106	0.000
<i>Observations</i>	104	104	104	104	104	104	104	104
<i>Cross sections</i>	13	13	13	13	13	13	13	13

Table 3 presents the Pearson correlation matrix for all the dependent and independent variables. There is a positive correlation of 0.356 between the dependent variable, CR, and the independent variable BOIND. The correlation between CR and ACE was -13.8%, while the correlation between CR and SIZE was -0.279. In general, the correlations between CR and other independent variables seem to be weak.

However, the correlations among independent variables are relatively low, indicating the absence of multicollinearity.

**Table (3):
Pearson Correlations Matrix**

	<i>CR</i>	<i>BOS</i>	<i>ECOD</i>	<i>BOIND</i>	<i>ACS</i>	<i>NACM</i>	<i>ACIND</i>	<i>ACE</i>	<i>SIZE</i>
<i>CR</i>	1.000								
<i>BOS</i>	-0.024	1.000							
<i>ECOD</i>	0.072	-0.061	1.000						
<i>BOIND</i>	0.356	0.008	-0.191	1.000					
<i>ACS</i>	-0.077	0.054	0.181	-0.248	1.000				
<i>NACM</i>	0.039	0.240	-0.181	0.532	-0.230	1.000			
<i>ACIND</i>	-0.009	0.000	-0.271	0.325	-0.260	0.108	1.000		
<i>ACE</i>	-0.138	0.101	0.350	-0.103	-0.102	-0.043	0.354	1.000	
<i>SIZE</i>	-0.279	0.272	-0.225	0.083	0.039	0.048	0.060	0.191	1.000

B. Regression Results

Table 4 shows the results of panel data regression for the study model that investigates the effect of board characteristics and audit committee characteristics on credit risk.

Based on this table, we can note that board independence (BOIND) is the only significant variable among board characteristics that affect credit risk. BOIND was positive and significant, which indicates that the increase in the number of independent directors leads to higher credit risk. This may be due to the nature of independent directors who may have less experience regarding banking operations, thus they may tend to formulate more risky credit policy to maximize returns. However, these findings are inconsistent with the findings of some authors such as (Rachdi & Ben Ameer, 2011) who find no relationship between board independence and credit risk.

Regarding audit committee characteristics, only two variables seem to have an effect on credit risk. NACM was negative and significant, indicating that more frequent meetings lead to lower credit risk. This finding seems to be logical because more frequent meetings enhance the control and monitoring of risk and reduce credit risk. In addition, ACIND was negative and significant, which indicates that audit committees with more independent directors are more effective in controlling credit risk.

SIZE was negative and significant, indicating that larger banks are more able to handle and mitigate credit risk than small banks.

The adjusted R-squared for the model was about 51%, which indicates that the independent variables can explain more than half of the change in credit risk. Moreover, the Durbin-Watson statistic was close to 2, which indicates the absence of an autocorrelation problem. Finally, F-statistic and its probability indicate the model's goodness of fit.

**Table (4):
Regression Results for the Study Model ***

$$CR_{it} = \alpha + \beta_1 BOS_{i,t} + \beta_2 BOIND_{i,t} + \beta_3 ECOD_{i,t} + \beta_4 ACS_{i,t} + \beta_5 ACIND_{i,t} + \beta_6 NACM_{i,t} + \beta_7 ACE_{i,t} + \beta_7 SIZE_{i,t} + \varepsilon_t$$

Variable	Coefficient	t-Statistic	Prob.
C	0.2576	3.7856	0.0003
BOS	0.0021	0.9964	0.3226
ECOD	0.0136	1.2407	0.2189
BOIND	0.0786	3.9890	0.0002
ACS	-0.0018	-0.7230	0.4721
NACM	-0.0023	-2.2387	0.0284
ACIND	-0.0241	-4.2206	0.0000
ACE	-0.0131	-0.8572	0.3943
SIZE	-0.0212	-3.3816	0.0012
Regression Statistics			
R-squared	0.5406		
Adjusted R-squared	0.5141		
S.E. of regression	0.0353		
Durbin-Watson stat	1.8197		
F-statistic	6.4546		
Prob. (F-statistic)	0.0000		

* Using White (1980) heteroscedasticity standard errors and covariance.

CONCLUSIONS

As one of the most important aspects of corporate governance, the relationship between board characteristics, audit committee characteristics and credit risk has been the subject of a great deal of debate among researchers. Indeed, the results of previous studies were mixed. Some found a positive relationship, others reported a negative relationship, while some researchers did not find any relationship between board characteristics or audit committee characteristics and credit risk.

Based on the above, this study empirically investigated the effect of board characteristics and audit committee characteristics on the credit risk of Jordanian commercial banks during the period 2009–2016.

The average credit risk of Jordanian commercial banks was less than 10% during the study period, reflecting the low level of credit risk faced by banks. Moreover, the credit risk witnessed a significant decline after 2012 to reach its lowest level in 2016, indicating the ability of Jordanian banks to manage their credit risk efficiently.

Three board characteristics were chosen in the study: board size, CEO duality, and board independence. The results indicate that Jordanian banks have a sufficient number of directors and comply with the amended instructions on corporate governance for banks. In addition, most banks have separated the position of CEO from the position of the chairman of the board. Moreover, the independent directors represent more than one third of the board, and thus banks have a sufficient number of independent directors on the board.

Regarding audit committee characteristics, the average size of the audit committee was four members, while the average number of audit committee meetings was six meetings per year. The ratio of independent members in the audit committees was 44% on average and increased from 37.6% in 2009 to 54.4% in 2016. Furthermore, the average experience of the audit committees was relatively good as more than one third of the audit committee members have a qualification.

The results of the regression analysis indicated that board independence is the only significant variable among board characteristics that affects credit risk positively, while two characteristics of audit committees seem to have an effect on credit risk. Number of audit committee meetings and audit committee independence were negative and significant, indicating that more frequent meetings and more independent members lead to lower credit risk.

Our findings suggest that effective credit risk management requires fewer independent directors, an increase in the number of audit committee meetings, and an increase in the number of independent members in the audit committees.

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