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Board Characteristics and Stock Price Crash Risk: The Mediating Role of Audit Committees Effectiveness

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Abstract. *Stock price crash risk has become a critical concern in investment decision making and risk management, drawing the attention of investors and regulators amid a dynamic global business environment and repeated financial crises. However, empirical evidence on this issue remains limited in developing countries, particularly in the Iraqi context. Therefore, this study examines the relationship between board characteristics—board gender diversity, board size, and board independence—and stock price crash risk, as well as the mediating role of audit committee effectiveness. The study uses secondary data from ten banks listed on the Iraq Stock Exchange (ISX) during the 2017–2023 period. The findings show that board gender diversity and board size significantly reduce stock price crash risk. Higher female representation on boards is associated with more conservative decision making and stronger monitoring, which improves financial reporting transparency. An appropriately sized board also enhances oversight and lowers the likelihood of extreme negative stock price movements. In addition, the results indicate that the frequency of audit committee meetings mediates the relationship between board independence and stock price crash risk, suggesting that board independence is more effective when supported by an active audit committee. This study recommends that investors and financial analysts consider board characteristics and audit committee effectiveness when assessing firm value and risk. Furthermore, regulators and policymakers are encouraged to promote gender diversity on corporate boards to strengthen governance quality and reduce the probability of stock price crashes*.

Keywords: *Audit Committee Effectiveness; Board Characteristics; Corporate Governance; Risk; Stock Price Crash.*

1. INTRODUCTION

The stock price crash risk has become an important issue in investment decisions and risk management, as it has captured the attention of investors and regulators, especially after a series of credit crises for several of prominent companies in the early 2000s and during the credit crisis of 2008 (Yeung & Lento, 2018:1). "Risk" is a term that is applied to refer to the fact that the value of the stock can drop sharply and considerably without any adequate causes to justify the crash. The issue of factors that affect the stock market crash has become a critical topic to be studied considering the ever changing business environment around the world and frequent financial crashes that the financial market has been subjected to within the past few decades.

One of the major aspects, which determine the level of risk to which a company is exposed to, is corporate governance and, more specifically, nature of the board of directors. The Board of Directors plays a very important role in ensuring the protection of shareholders and other stakeholders. An effective board of directors combines a diversity set of skills, provides an independent monitoring mechanism, and demonstrates a strong commitment to ethical principles, all of which have a profound effect on the risk profile, capital allocation, and

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sustainability (Tahir et al., 2024:2).Issues that directly influence the quality of the governance, and therefore augment the risk of the company.

The financial reporting, internal control, and risk management are some of the roles conducted by the audit committee that make it one of the most significant committees in companies. Audit committee effectiveness has been noted to be important by a number of studies.The effectiveness of the audit committee influences the value of the company significantly since they attempt to enhance the confidence of the investors and other stakeholders by claiming that the financial statements are precise and truthful and are not manipulated (Tamba et al., 2025:4). Nevertheless, the connection between the board characteristics and the potential of stock price crashes was not yet comprehensively explored, and it was not yet clearly how the effectiveness of the audit committee can mediate the relationship between the two variables.

To fill a research gap, the current paper will seek to establish the connection between the board characteristics and the stock price crash risk, and the mediating role of the effectiveness of audit committees on the connection between the board characteristics and the stock price crash risk. The significance of the research is that it offers a better idea of how the characteristics of boards influence the risk of crashes both directly or indirectly through enhancing the effectiveness of the audit committee as a mediator.

2. RESEARCH METHODOLOGY AND PREVIOUS LITERATURE

Research Problem

Two of the most urgent issues for scholars and accounting and governance professionals are the stability of stock markets and the transparency of financial reporting. Many financial crises have shown how poor performance of boards of directors and corporate governance can lead to the concealment of important information, which can lead to the accumulation of negative news within the company, and ultimately lead to a sharp decline in stock prices.

The conflicting evidence regarding the relationship between the board characteristics and the probability of a stock price crash risk indicates that intermediate factors could be the reason behind the nature of this relationship. The Audit Committee is one of the most important governance tools that shows the efficiency of the board of directors in monitoring the quality of financial reports and detecting irregularities early. Nonetheless, we do not learn how the audit committee effectiveness can lead to the enhancement of business relations. Therefore, the research issue is:

a. Is there a relationship between board characteristics and stock price crash risk?
b. Does audit committee effectiveness mediate the relationship between the board characteristics and stock price crash risk?

Research Objectives

This analysis concentrates on the mediator aspect of audit committees in corporations and attempts to research the correlation between the board characteristics and stock price crash risk. The study attempts to:

1) Understand how board characteristics (board gender diversity, board size, board independence) affect the likelihood of stock price crashes.
2) Exploring the moderating role of audit committee effectiveness in the relationship between board characteristics and stock price crash risk.
3) Provide legislators and policymakers with relevant information to enable them to develop corporate governance procedures that improve financial stability and transparency.

Research Hypotheses

Hypothesis 1: There is a relationship between board characteristics (board gender diversity, board size, board independence) and stock price crash risk.

Based on this main hypothesis, three sub-hypotheses are proposed:

a. There is a relationship between board gender diversity and stock price crash risk.
b. There is a relationship between board size and stock price crash risk.
c. There is a relationship between board independence and stock price crash risk.

Hypothesis 2: The audit committee (audit committee size) affects the relationship between board characteristics (board gender diversity, board size, board independence) and stock price crash risk.

Based on this main hypothesis, three sub-hypotheses are proposed:

1) There is an effect of the audit committee (audit committee size) on the relationship between board gender diversity and stock price crash risk.
2) There is an effect of the audit committee (audit committee size) on the relationship between board size and stock price crash risk.
3) There is an effect of the audit committee (audit committee size) on the relationship between board independence and stock price crash risk.

Hypothesis 3: The audit committee (audit committee meetings) affects the relationship between board characteristics (board gender diversity, board size, board independence) and stock price crash risk.

Based on this main hypothesis, three sub-hypotheses are proposed:

a. There is an effect of the audit committee (audit committee meetings) on the relationship between board gender diversity and stock price crash risk.
b. There is an effect of the audit committee (audit committee meetings) on the relationship between board size and stock price crash risk.
c. There is an effect of the audit committee (audit committee meetings) on the relationship between board independence and stock price crash risk.

Research Importance

The desire to know the factors that affect financial market stability is rising because the sudden crash in the price of stocks at any moment jeopardizes investor confidence and corporate survival. The characteristics of the board of directors are paramount to the system of corporate governance since they affect the degree of disclosure and financial judgments. However, it is not possible to assess the effectiveness of these characteristics if they do not take into account the internal control mechanisms, especially the audit committee, which is considered one of the most important tools to ensure the accuracy and transparency of reports.

This study is significant as it tries to adopt the intermediary position of the audit committee as a bridge between board characteristics and the risk of stock price crash, which has received little attention in the literature, especially in the Iraqi environment. Therefore, financial governance practitioners, decision-makers, and researchers can benefit from this work scientifically and practically.

Methodology and Data Collection

This study uses descriptive and inferential analysis to show whether or not there is a correlation between independent, dependent and intermediate variables. The quantitative approach was also followed to find out the effect between the different research variables. For the purpose of collecting data related to the practical aspect, the researcher relied on the financial statements published on the website of the (ISX) www.isx-iq.net and the website of the Iraqi Securities Commission www.isc.gov.iq.To collect, extract, organize and classify the necessary data within the (Excel) program, and then use the (Eviews 13) program to analyze

and test the hypotheses. As for the theoretical aspect, scientific books and articles published in reputable scientific journals were relied upon.

Sample and Limits

The study population includes all Iraqi shareholding banks listed on the (ISX) for the period 2017-2023, provided that they meet the following conditions:

a. The period of listing the banks on the market should be 2016-2024 because the stock price crash risk model needs the data of the previous year and the following year.
b. The financial year of the banks in the study sample ends on 31/12.
c. Banks should be continuous during the years of study.
d. Access to banks' financial statements.

Through the above conditions, a sample of 10 banks listed on the (ISX) was taken. The details were acquired on the official site of the Exchange and also on the Securities Commission which is mandated with the release of financial reports of the Exchange listed institutions.

Previous Literature

1) **Doku et al. (2023):** In this study, 22 Ghana Stock Exchange listed companies between 2011 and 2019 were examined to get an insight on how the size and independence of a corporate board influence the volatility of stock returns. The study also found that bigger boards are beneficial in minimizing stock returns volatility, which confirms the agency theory. Conversely, increased board independence is linked to increased volatility in stock returns which supports the risk-seeking hypothesis. This could be due to an immense difference between information of insider and outsider board members. Thus, it might not be enough to add more outside directors in order to reduce volatility. Moreover, the research established that stock returns in larger companies have a higher volatility. In order to alleviate such concerns, the paper proposes the enhancement of the skills of the independent board executives by providing them with specialized training and ensuring increased monitoring and disclosure of the related market information.
2) **Dang & Nguyen (2024):** This paper examines the role of external auditing and internal corporate governance in mitigating the risk of another crash in the stock market. The study finds a significant correlation between internal corporate governance and the probability of a future stock market crash using a sample of non-financial listed companies of the Hanoi and Ho Chi Minh City stock exchange in Vietnam (2010-2019,

655 companies). Specifically, the probability of future stock market disaster is positively related with strong boards. The relationship between the crash risk and the effectiveness of the audit committee is however negatively correlated. These results indicate that the risk of a stock market crash may be prevented by means of correct internal corporate governance.

3) **Mehri, et al., (2025):** This paper examined the relationship between the board composition and the stock price crash risk in emerging market, with Iran in focus. It researches on the effect of board characteristics, including diversity, financial experience, tenure, independence, and stability on the likelihood of a drop in stock prices. Adopting a descriptive correlational design, the study analyzed 1,217 firm-year observations of 152 Tehran Stock Exchange (TSE) listed companies in 2014-2021.Multiple regression analysis was performed with the help of the EViews software to identify the correlation between several board features and the likelihood of a decrease in stock price. The results showed a positive correlation between stock price crash risk and board chair stability and a negative correlation between CEO stability, board financial expertise, and independence.There seems to be no connection between crash risk, senior management stability, and gender diversity.

Research Variables

This relation between research variables can be demonstrated as follows:

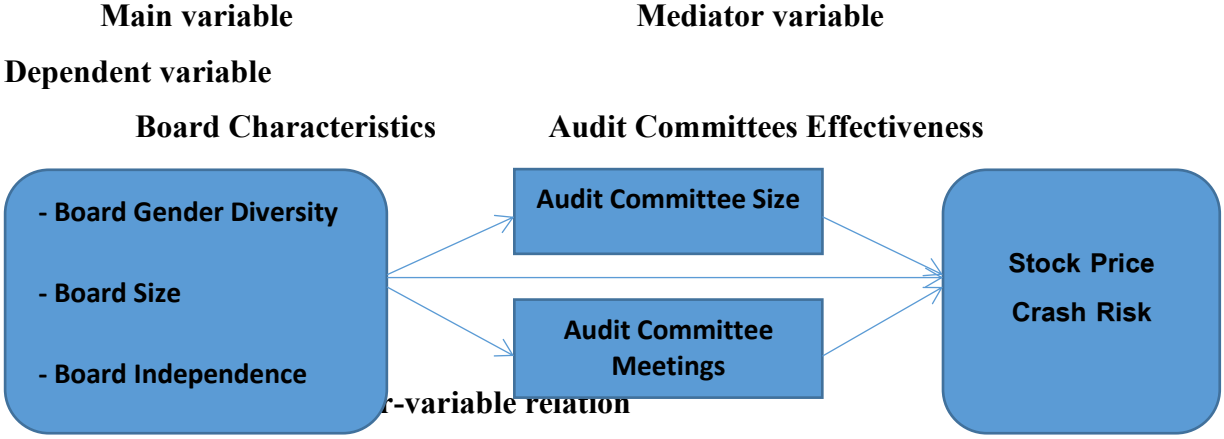

Figure 1. Relation Between Research Variables.

3. THEORETICAL ASPECT

Board Characteristics

The Board of Directors is one of the pillars of corporate governance, as it is an essential element in monitoring executive management and protecting the interests of shareholders and other stakeholders.

The formation of the board of directors aims to establish professional, competitive, profitable and independent governance, which helps to enhance the confidence of all stakeholders in the company.It is also aimed to provide assurance of the correctness of financial information, the complete and efficient accomplishment of the administrative matters of the company, adherence to the laws and regulations that are applicable, and safety of assets and investments of the company, thus enhancing the overall performance and avoiding deviations that may lead to losses to stakeholders.The effectiveness of monitoring activities depends on the composition and characteristics of the board of directors, which positively impacts the company's performance and value (Asyik et al., 2024:15).

According to the agency's theory, the board of directors is responsible for managing and overseeing companies on behalf of their owners. It aims to address divergences of interest between directors and shareholders. The composition of the board in terms of its structure and the characteristics of its members affects agency costs and performance enhancement (Tahir et al., 2024:3). This enables the company to establish goals and responsibilities particularly where the CEO is confronted with the balancing of financial and non-financial objectives (Krause, et al .,2024:661).

Board of Directors characteristics have a substantial influence on the company's strategy, decision-making, and performance, and on its contribution to achieving more transparency in the information disclosure. Consequently, there has arisen the need to learn about these attributes and their implication in the modern business environment.

Stock Price Crash Risk

It is possible to regard the stock price crash risk as one of the most dangerous phenomena that threatens the stability of the financial markets around the globe, since it is the rapid and unexpected drop in the value of the financial assets causing massive losses among the investors and the global market. According to (Zhu, 2016:401)" The risk of a firm's stock price crash refers to the probability of a sharp, sudden, and non-recurring decline in the company's stock price".

The causes that lead to such crashes are numerous and diverse such as economic factors, corporate level management practices, not to mention the psychological factors that affect the decision of investors.

The risk of stock price crashes is primarily attributed to the disproportionate dissemination of information between the management and external stakeholders. The idea on which the stock price crash theory is founded is that managers conceal or keep secret negative news from third parties over an extended period of time to secure some advantages, including high-level salaries and reputational gains to the company. This may continue until a critical point is reached.Once past this turn, the management is unable to withhold any bad news since it is expensive as compared to the benefits that are likely to be incurred. This means that there is a need to release all the information to the market immediately, causing a drastic reduction in stock prices (Li et al., 2022:173) (Cao et al., 2023:3).

Interrelationships between stocks within financial networks linked to systemic risk are inherently interrelated. According to Lu et al. (2018: 945) high levels of correlation between stocks can provide a relative stability at times of crisis, but their effect is so significant that even a minor decrease can cause the sudden drop of several stocks. This implies that any form of loss can be exponentially increased as a result of mass panic and will eventually cause a crash in the stock market.

The impact of a crash is evident on companies, investors, and financial markets. On the corporate side, a drastic decrease in prices diminishes the worth of an organization and the prosperity of its shareholders. On the market side, the volatility of financial markets is threatened by the possibility of a crash in the stock market. This risk arises when the stock prices fail to represent the true performance of a company. Thus, it is important to determine the causes of a stock market crash to make investment decisions and risk management.

Board Characteristics and Their Impact on Stock Price Crash Risk

The quality of the monitoring role by the board of directors has a direct relationship with the characteristics of the board, which define the longevity of the bad news and the risks of crashing the stock price.This risk is closely associated with the robustness of corporate governance mechanisms, as the ownership structure, the degree of transparency in accounting information, and the incentives of directors are all factors that affect the company's attachment to this risk (Askarzadeh et al.,2024:4).In this respect, the characteristics of the Board of Directors (gender, size, and independence) are important in the description of variability of risk

of stock price crash across different companies. A review of the effect of these factors on the risks of the occurrence of a crash is as follows.

Board Gender Diversity

Board gender diversity has attracted growing interest in recent years, as it is considered to be one of the most significant aspects in boosting the governance and performance of the company.

Studies show that the presence and participation of women on the board of directors can enhance a company's financial performance, positively impact a firm's sales, and the relationship between the ability to combine knowledge and innovation performance is positively managed through gender diversity (Sánchez –Teba et al., 2020:2).

The agency's theory states that directors (agents) may make a decision that is beneficial to them and inappropriate for shareholders, and therefore gender diversity in the board of directors makes monitoring stronger, as it limits the chances of directors exhibiting risky activities. Gender-diverse boards of directors also promote disclosure of information at both the public and private levels, improving transparency and reducing information asymmetry (Valls Martínez & Soriano Roman., 2022:5).

The relationship between the proportion of women on boards and the lower risk of stock price crashes. The Yue & Liu (2023:455) study found that the higher the proportion of women on boards, the lower the risk of stock price crashes.The reason is that female board members are conservative and reticent in making decisions, and they are more focused on ethical principles and disclosure. Similarly, Qayyum et al.(2021:269) reported that the impact of this correlation is higher in companies that have at least three female directors on their board of directors than those that have less than three female directors on their board.

Women managers tend to feel more comfortable taking control of the activities and resorting to short-term debt instruments in order to make directors and shareholders interests be common to each other. This result confirms the idea that risk management methods are positively proportional to the high population of women in organizations (Askarany et al., 2025:16).

Gender diversity in the board of directors is therefore effective in improving the quality of governance practices, minimizing the risk of stock price crash, tightening the monitoring practices, monitoring the actions of directors and improving transparency and integrity of the decision-making process.

Board Size

Board size is among the attributes that have received significant focus from researchers because it is one of the most crucial variables that influence the effectiveness and efficiency of the board.The number of members in the board is associated with the size of the board, which will be tasked with the responsibility of policing the policies and strategies adopted by the board (Tamba et al., 2025:3).

Researchers are divided on the optimal size of the board and its effects on mitigating the risk of a crash. A study (Awad et al., 2024:1) that dealt with the relationship between board characteristics and bank stock performance found that board size is negatively correlated with stock performance. Large boards may face problems with coordination and an inability to make decisions, which undermines their supervisory and monitoring capabilities, and leads to the so-called "free rider" effect when some members leave the monitor role to others. In contrast, other studies have found that the larger the boards, the better they perform their roles than smaller boards. Large boards are characterized by their ability to relieve work pressure, as they share many members. Moreover, these large boards have more experience and diversity, and therefore have more influence and independence compared to smaller boards, which are often family-owned. As a result, larger boards are likely to reduce the volatility of equity returns, thanks to their experience and skills, good capabilities, effective monitoring systems, and rational decision-making mechanisms (Alshhadat & Lafi., 2024:252) (Doku et al.,2023: 13).

Board independence

Independence is a characteristic of the board of directors, and the independence of directors is manifested in strengthening monitoring and limiting management excesses. Board independence is the extent to which the board relies on the company's external non-executive directors, i.e., non-executive board members. This can be measured by the ratio of non-executive directors to the total number of board members (Bergh et al., 2014:9) (Zabri et al., 2016:289).

Corporate governance is based on the independence of the board of directors, which contributes to safeguarding the interests of shareholders and enhancing transparency and accountability within companies.The independence of the board contributes to ensuring fair management, reducing the discretion of directors in preparing financial reports, and reducing the possibility of hiding negative news, which improves the quality of financial reporting (Wagdi, 2025:9)(Dan et al.,2024:28).

The study by (Fernandes et al., 2021:319) that dealt with the impact of board characteristics and CEO authority on banks' risk tolerance found that the proportion of

independent board members negatively affects banking risk in times of financial crisis. Mehri et al. (2025) also found that increased board independence is linked to a lower crash in stock price, which is in line with the argument of the agency. Independent board members, who are important in the network of relationships, are in a better position to recognize the agency's problems and are likely to prevent the practice of speculative management and behavior that leads to the transfer of resources into the hands of major shareholders, and discourages the risk of stock price crashes (Gong et al., 2023:5). Hence, the high number of independent directors will reduce the chances of a crash through more transparency and limiting the managers from hiding bad news.

In contrast, independent members are sometimes only formal members who are unable to monitor management, so their presence does not reduce the risk of a crash. The study by (Hassan, 2021:365), which examined the impact of the board of directors on the risk of stock price crash in the context of Egyptian companies, found that the independence of the board of directors does not play a role in explaining changes in the risk of stock price crash.

Audit Committees Effectiveness

The Audit Committee represents one of the core blocks of modern corporate governance, which is proven by laws, including the SOX of 2002 that compels all companies listed in the United States to organize the Board of Directors with the audit committee as one of the advisory committees (Preda et al., 2025:279).

Regulators, academics and policymakers have highlighted the distinctive oversight role of the audit committee (Imelda et al., 2025:74).

Audit Committee is an important factor in enhancing the quality of information disclosure practices through guidance. The audit committee assists in enhancing risk reporting through the creation of a culture of transparency and accountability. Moreover, the interaction and collaboration between the audit committee and management boost disclosures because they make them more important and reliable (Jamil and Wahyuni, 2025: 274). Information asymmetry is also mitigated with the application of effective, independent and experienced audit committees. This enables the owners access to transparent and high-quality information as well as increases accountability within the management (Kalembe et al., 2024:80).

The theory of the agency has emphasized the broad awareness and thorough comprehension of the fact that the efficacy of the audit committee is a vital corporate governance tool that, in turn, will allow enhancing management control and safeguarding

shareholder interests, decreasing agency expenses, and enhancing the quality of the audit (Elmashtawy et al., 2024:514).

As (Loi & Viet., 2024:2427) found that, the audit committee will enhance the quality of information in the financial statements of the listed companies. The Audit Committee is also helpful in managing and controlling risks, improving the efficiency and overall performance of the company, as per the interests of the stakeholders.

The effectiveness of the audit committee can be determined by the efficiency of the committee in carrying out its audit tasks through the control of financial reports, internal control systems and risks, and this depends on the characteristics of the audit committee.

The Effectiveness of the Audit Committee and Its Mediating Role in the Relationship between the Board of Directors and the Risks of Stock Price Crash

Adopting effective corporate governance positively affects investor confidence and corporate performance. Strong corporate governance frameworks help to attract investment, enhance performance, and mitigate risks, leading to long-term sustainability (Kumar & Rastogi, 2024:6-7). Audit committees are considered one of the important internal governance tools to make the management accountable and enhance financial reporting quality, which reduces the probability of stock crash (Sherif et al., 2024:2). For an audit committee to be effective, it must have a number of characteristics, and we will address the size and meetings of the audit committee.

Audit Committee Size

The size determines the effectiveness of the audit committee. An increase in the number of members, to some extent, leads to the enhancement of the financial and accounting control, and the quality of financial reporting. With bigger committees, there is a general increase in their knowledge and skills, which makes them more effective in risk identification, and increases transparency and shareholder trust and other stakeholders (khalf & Hussein, 2024:273). The bigger the audit committee, the lower the agency costs and the higher the internal control, which results in enhanced financial reporting and the performance of the firm in general (Asyik et al., 2024:8). Nonetheless, a large committee can also be characterized by inadequate coordination and an inability to make decisions, and thus there needs to be the proper balance between the size and efficiency of the committee.

Audit Committee Meetings

The audit committee is rather effective and efficient in regard to devoting time to reforms and monitoring, which can be demonstrated with references to the number of meetings held

annually.This allows it to track control and financial factors and helps in identifying mistakes in the financial statements during their early phases (Moses, 2016:15). Periodic meetings of audit committees also review their performance and this is extremely important as they are instrumental in enhancing the monitoring role and formulation of internal controls of the company. This helps to minimize conflicts of interest between the management and the shareholders. Additionally, these audit committee periodic meetings guarantee an adequate amount of time to examine the actions of management, and they improve the capacity of the board of directors to execute its responsibilities to shareholders (Mustafa et al.,2018:595). In a related context, audit committees that meet regularly are more familiar with the company's issues, and provide a better system of supervision and control, including the preparation and reporting of financial statements, which helps in improving the quality and informational value of financial reporting systems (Nay-ud, 2022:124) (Alawaqleh & Almasria, 2021:57).

Audit committees, board diversity, and independent monitoring have a role to play in reducing agency costs, enhancing the level of disclosure, and reducing risky behaviors by reducing opportunistic behavior that management may practice in hiding negative news, and enhancing monitoring and transparency (Soleiymani et al., 2025:5).

Many studies indicate the importance of the mediating role of the audit committee's effectiveness. Idris, et al. (2018:122) found that the size of the external auditor and the effectiveness of the audit committee have a positive interactive effect on earnings management, which supports the complementary relationship between the size of the external auditor and the effectiveness of the audit committee in reducing earnings management problems. On the same aspect, According to(Surana, 2025:377) internal control and audit committee effectiveness were observed to exert negative effects on financial risk in the Indian corporate governance environment, and the effectiveness of the audit committee mediates the relationship between internal control and financial risk,thus highlighting its central oversight role.

The correlation between the risks of stock price crash and the board characteristics depends on the effectiveness of the audit committee. Audit committee effectiveness has an impact on increasing transparency and quality of financial reporting and internal control, thus decreasing the information gaps and minimizing misleading administrative practices. Consistency between the size of the committee and the number of meetings is also a critical factor in its audit performance. Larger, more frequently convened committees are better suited to detect errors early and boost investor confidence. This is especially true for companies that

are riskier, where effective audit committees are the first line of defense against sudden stock price crashes.

4. PRACTICAL ANALYSIS

Models and measurement of study variables

The multiple linear regression models that were used in the test of the hypotheses of the study were as follows:

$$RSPC_{i.t} = \beta_0 + \beta_1 BGEN_{i.t} + \beta_2 BS_{i.t} + \beta_3\, BIND_{i.t} + \beta_4\, SIZE_{i.t} + \beta_5\, LEV_{i.t} + \beta_6\, ROA_{i.t} + \beta_7\, Age_{i.t} + \beta_8\, MTB_{i.t} + \varepsilon_{i.t}$$

$$RSPC_{i.t} = \beta_0 + \beta_1 BGEN_{i.t} + \beta_2 BS_{i.t} + \beta_3\, BIND_{i.t} + \beta_4 ACS_{i.t} + \beta_5 ACS * BGEN_{i.t} + \beta_6 ACS * BS_{i.t} + \beta_7\, ACS * BIND_{i.t} + \beta_8\, SIZE_{i.t} + \beta_9\, LEV_{i.t} + \beta_{10}\, ROA_{i.t} + \beta_{11}\, Age_{i.t} + \beta_{12}\, MTB_{i.t} + \varepsilon_{i.t}$$

$$RSPC_{i.t} = \beta_0 + \beta_1 BGEN_{i.t} + \beta_2 BS_{i.t} + \beta_3\, BIND_{i.t} + \beta_4 ACM_{i.t} + \beta_5 ACM * BGEN_{i.t} + \beta_6 ACM * BS_{i.t} + \beta_7\, ACM * BIND_{i.t} + \beta_8\, SIZE_{i.t} + \beta_9\, LEV_{i.t} + \beta_{10}\, ROA_{i.t} + \beta_{11}\, Age_{i.t} + \beta_{12}\, MTB_{i.t} + \varepsilon_{i.t}$$

In these models, the study variables are as follows:

Dependent variable: risk of stock price crash ($RSPC_{i.t}$) To determine the risk of a stock price crash, we use the approach suggested by Chen et al., 2001, which is based on two indicators.

The first indicator: The regression analysis using the extended market model to get the unique weekly returns of each company and year. The steps are as follows:

$$R_{i.t} = \beta_0 + \beta_{1i} R_{m.t-2} + \beta_{2i} R_{M.t-1} + \beta_{3i} R_{M.t} + \beta_{4\mathrm{i}} R_{m.t+1} + \beta_{5i} R_{m.t+2} + \varepsilon_{i.t}$$

The weekly returns on a given stock "i" in week "t" are represented by the expression (R_(i,t), and the returns on the value-weighted market index in weeks t - 2, t - 1, t + 1, and t + 2, are denoted by the symbols (R_(m, t - 2), (R_(m, t - 1), (R_(m, t + 1), and (R_(m, T+2).

To get the weekly return for each company and year, the remaining return is calculated using the above formula for each company individually.

$$w_{i.t} = \ln\,(1 + \varepsilon_{i.t})$$

Using $w_{i.t}$ the initial measure of assessing the probability of a crash is referred to as the "Negative Deviation Coefficient" (NCSKEW) of weekly stock returns. The negative deviation

coefficient for a particular company (i) in a given year (t) is calculated using the following formula:

NCSKEWi,t=n(n−1)3/2...*NCSKEWi,t=...n(n−1)3/2*

The variable *n* is the number of weekly records on returns of a firm that year.

-The second indicator that is used to measure the probability of a crash is known as the downward versus the upward volatility (DUVOL). This parameter splits the weekly returns into two categories, which are Rising Weeks and Falling Weeks. In particular, at a firm (i) and year (t), the weekly return falls into either the category of a rising week when the weekly return exceeds the average annual return of the company or into the category of a down week when it underperforms the average annual return of the company. The standard deviation of each category is then obtained, and the DUVOL indicator is calculated by use of the formula below:

DUVOLi,t=ln((nu−1)∑downWi,t2nd−1∑upWi,t2)*DUVOLi,t=ln(nd−1*∑upWi,t2*(nu−1)* ∑downWi,t2*)*

where nu (nd) refers to the weeks that the value increased (decreased) in value in year t.

The first independent variable: For this study is gender diversity, which is defined as$BGEN_{i.t}$ a binary variable, taking (1) if there is social diversity on the board otherwise taking (0).

The second independent variable: For this study, the size of the board of directors, which represents the number of board members.$BS_{i.t}$

The third independent variable: For this study is board independence, which represents the number of independent board members.$BIND_{i.t}$

The first intermediate variable: For this study, the size of the audit committee, which represents the number of members of the audit committee.$ACS_{i.t}$

The second intermediate variable: For this study, the audit committee meetings, which represents the number of audit committee meetings.$ACM_{i.t}$

The control variables for this study are as follows:

$ROA_{i.t}$: Return on Assets: Equal to Net Profit Before Taxes/Total Assets.

$SIZE_{i.t}$: Company Size: This is the natural logarithm of the company assets.

$LEV_{i.t}$: Leverage: Equal to total liabilities/total assets.

$MB_{i.t}$ Market Value to Book Value: Market capitalization is measured by the market share price in the number of shares.

$Age_{i.t}$: Company Age: Equal to the current year – the year of incorporation.

$\varepsilon\_(i.t) : Error\ value\ (residuals)$.

Findings of Statistical Analysis

Descriptive Analysis

To get a deeper look at the data, some central trend and dispersion indicators were first listed. The table below also shows the descriptive information of ten banks listed in the (ISX) under the seven-year study period of 2017 to 2023, which had (70) views per study variable.

Table 1. Descriptive statistics of research variables.

Variable	Mean	Median	Max	Min	S.D
RSPC	1.083	1.070	2.161	0.416	0.313
BS	6.632	7.000	9.000	5.000	0.945
BIND	0.872	0.857	1.000	0.800	0.063
ACS	3.029	3.000	4.000	2.000	0.298
ACM	5.794	4.000	47.000	2.000	7.587
Size	27.253	27.137	28.513	26.654	0.432
LEV	0.550	0.535	0.862	0.293	0.157
ROA	0.010	0.008	0.057	-0.033	0.014
Age	3.061	3.157	3.401	2.398	0.273
MB	0.363	0.326	0.980	0.069	0.227
Virtual variable		Frequency		Frequency %	
BGEN		30		0.435	

As indicated in the table above, the mean risk of stock price crash was (1.083), and over (44) percent of the sample banks used had women on the board of directors empowered in the study period. The mean board size variable was also (6.632) and the mean board independence variable was (0.872), which implies that most of the board members of the bank sample are independent.

Results of Hypothesis Verification

Verification of Hypothesis 1

The relationship between board characteristics and stock price crash risk. The multiple linear regression model was used to test the relationship between the characteristics of the board of directors (BGEN, BS, BIND) as independent variables and the dependent variable of stock price crash risk, as shown in the table 2.

Table 2. Verification of Hypothesis 1.

Variable	Coefficient	Std. Error	t-Statistic	Prob.	VIF
C	0.016	0.112	0.143	0.887	-
BGEN	-0.004	0.002	-2.277	0.027	1.854
BS	0.001	0.001	2.369	0.022	1.425
BIND	-0.010	0.010	-1.054	0.297	1.347
Size	0.000	0.004	0.098	0.922	1.004
LEV	0.006	0.013	0.468	0.642	2.088
ROA	-0.104	0.044	-2.359	0.022	1.233
Age	-0.006	0.005	-1.315	0.195	1.422
MB	0.003	0.003	0.831	0.410	1.924
R-squared	0.616	Adjusted R-squared		0.485	
F-statistic	4.712	Prob (F-statistic)		0.000	
Durbin-Watson stat			1.685		

As the table above indicates, the outcome of the statistical analysis indicates that the model is significant because the chances of the (F-statistic) test being significant (Prob) were less than (0.05) specifically (0.000), meaning that the model is valid in the test and its value can be relied on. The usefulness of the Durbin-Watson has also been proved, it attained (1.685) which is an optimal value that exists in (2.5-1.5) meaning that the values of the time series in the research sample model are devoid of self-correlation and spurious regression.

The value of (R-squared) was also found to be (0.616) which means that the explanatory power of the independent variables on the dependent variable is 62 percent and the value of (Adjusted R-squared) was (0.485) means that the independent variable has an effect of 49 percent on the dependent variable and the remaining 51 percent was attributed to other factors that were not included in the model. It is also indicated by the above results that the values of the variance inflation coefficient (VIF) of all variables used in the model are less than 10, which implies that there is no challenge of the independent variables in the study model overlapping linearly.

Interpretation of the result of the first sub-hypothesis

The results of the statistical analysis show that the probability value (Prob) of the independent variable of board characteristics (board gender diversity) is less than (0.05) where

it reached (0.027), which indicates the acceptance of the hypothesis, i.e.there is a relationship between the board gender diversity and the stock price crash risk.

Interpretation of the result of the second sub-hypothesis

The results of the statistical analysis reveal that the value of the probability (Prob) of the independent variable of board characteristics (board size) is less than (0.05) and it is equal to (0.022) and this implies that the hypothesis is accepted, i.e. there is a relationship between the board size and the stock price crash risk.

Interpretation of the result of the third sub-hypothesis

The outcomes obtained from the statistical analysis indicate that the probability value (Prob) of the independent variable (board characteristics) (board independence) exceeds (0.05) to (0.297), which means that the hypothesis is not accepted, i.e., there is no relationship between the board independence and the stock price crash risk.

Verification of Hypothesis 2

The impact of the audit committee (audit committee size) on the relationship between the characteristics of the board of director and the risk of stock price crash. The multiple linear regression model was used to test between the characteristics of the board of directors (BGEN, BS, BIND) as independent variables and the dependent variable (stock price crash risk) under the audit committee (audit committee size), as shown in the table 3.

Table 3. Verification of Hypothesis 2.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.032	0.100	0.319	0.761
BGEN	0.012	0.014	0.882	0.412
BS	-0.017	0.005	-3.240	0.018
BIND	0.101	0.107	0.946	0.381
ACS	-0.019	0.095	-0.196	0.851
ACS* BGEN	-0.015	0.012	-1.182	0.282
ACS*BS	0.017	0.005	3.530	0.012
ACS* BIND	-0.107	0.096	-1.110	0.310
Size	-0.001	0.001	-0.643	0.544
LEV	0.012	0.004	3.227	0.018
ROA	-0.003	0.038	-0.067	0.949
Age	0.007	0.005	1.413	0.207
MB	0.003	0.002	2.013	0.091
R-squared	0.759	Adjusted R-squared		0.596
F-statistic	4.662	Prob (F-statistic)		0.000
Durbin-Watson stat			2.020	

The statistical analysis outcome as indicated in the table above clearly indicates that the model is significant as the probability value (Prob) of the (F-statistic) test was below (0.05), It was (0.000) which means that the model is valid for the test and the results are reliable. Another finding is that the Durbin-Watson value has met (2.020), which is an optimum finding, since the value falls between (2.5-1.5), which shows there is no self-correlation or spurious regression of the time series value of the research sample model. It was also found out that the value of (R-squared) was (0.759), which means that the explanatory power of the dependent variables is 76, and the value of (adjusted R-squared) was (0.596), which means that the independent variable influences the dependent variable by 60 percent, and the rest 40 percent was contributed by other factors that were not included in the model.

Interpretation of the result of the first sub-hypothesis

The statistical analysis outcomes indicate that the probability value (Prob) of the independent variable of the characteristics of the board of directors (board gender diversity) under the audit committee measured by the size of the audit committee is greater than (0.05) specifically (0.282) indicating rejection of the hypothesis i.e. there is no effect of the audit committee measured by the size of the audit committee on the relationship between board gender diversity and the stock price crash risk.

Interpretation of the result of the second sub-hypothesis

The results of the statistical analysis indicate that the probability value of the independent variable of the board of directors (board size) under the audit committee, expressed by the size of the audit committee, is below (0.05) specifically 0.012. This means that the hypothesis is accepted i.e. there is an effect of the audit committee measured by the size of the audit committee on the relationship between board size and the stock price crash risk.

Interpretation of the result of the third sub-hypothesis

As the results of the statistical analysis indicate, the probability value (Prob) of the independent variable of the characteristics of the board of directors (board independence) under the audit committee of the size of the audit committee is greater than (0.05) and is (0.310) meaning that the hypothesis is rejected, i.e. there is no effect of the audit committee measured by the size of the audit committee on the relationship between board independence and the stock price crash risk.

Verification of Hypothesis 3

The impact of the audit committee (audit committee meetings) on the relationship between board characteristics and the risk of stock price crashes. The multiple linear regression model was used to test between the characteristics of the board of directors (BGEN, BS, BIND) as independent variables and the dependent variable (risk of stock price crash) under the audit committee (audit committee meetings), as shown in the table 4.

Table 4. Verification of Hypothesis 3.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.355	0.060	-5.956	0.001
BGEN	0.005	0.001	4.068	0.007
BS	-0.002	0.002	-1.144	0.296
BIND	0.262	0.064	4.077	0.007
ACM	0.055	0.012	4.671	0.003
ACM* BGEN	-0.002	0.000	-5.738	0.001
ACM*BS	0.001	0.001	1.911	0.105
ACM* BIND	-0.072	0.018	-4.083	0.007
Size	0.003	0.002	1.134	0.300
LEV	0.005	0.010	0.560	0.596
ROA	-0.055	0.041	-1.341	0.228
Age	0.027	0.015	1.856	0.113
MB	0.004	0.002	2.132	0.077
R-squared	0.779	Adjusted R-squared		0.629
F-statistic	5.212	Prob (F-statistic)		0.000
Durbin-Watson stat			1.847	

The results of the statistical analysis obtained in the table above clearly indicate that the model is significant with the probability value (Prob) of the (F-statistic) test, smaller than (0.05); it was (0.000), which indicates that the model is relevant to the test and its outcomes are reliable. It is further known that the value of Durbin-Watson has reached (1.847), which is a perfect value that lies between (2.5-1.5), and this implies that the time series values of the study sample model is devoid of self-correlation and false regression. It was also found that the (R-squared) value was (0.779), which means that the explanatory power of the dependent variables is 78 percent and the adjusted R squared value was (0.629) which means that the independent variable influences the dependent variable by 63 percent and the rest of 37 percent is contributed by other factors, which is not included in the model.

Interpretation of the result of the first sub-hypothesis

The outcomes of the statistical analysis show that the probability value of the independent variable of the characteristics of the board of directors (board gender diversity) under the audit committee as measured by the audit committee meetings is less than (0.05) where it reached (0.001), which indicates the acceptance of the hypothesis, i.e.the audit committee (measured by the audit committee meetings) has an impact on the relationship between board gender diversity and the stock price crash risk.

Interpretation of the result of the second subhypothesis

The statistical outcomes indicate that the probability value of the independent variable which is the characteristics of the board of directors (board size) under the audit committee measured by the audit committee meetings is greater than (0.05) and achieved (0.105) which indicates a rejection of the hypothesis, i.e. there is no effect of the audit committee measured by the audit committee meetings on the relationship between the board size and stock price crash risk.

Interpretation of the result of the third sub-hypothesis

The results of the statistical analysis indicate that the probability value (Prob) of the independent variable of board characteristics (board independence) under the audit committee, as represented by audit committee meetings is less than 0.05. It attained (0.007), which means that the hypothesis is accepted, i.e. there is an impact of the audit committee, measured by the audit committee meetings on the relationship between the board independence and stock price crash risk.

5. CONCLUSION

Corporate governance plays a pivotal role in fostering alignment between management and shareholder interests, reducing opportunistic management behavior and hiding negative news, which can lead to a stock crash in a short period of time.

The characteristics of the board of directors (board gender diversity, board size) have a significant impact on the risk of stock price crashes. More female representation on the board of directors is linked to more conservative behaviors and stricter monitoring, which positively influences the transparency of reporting. Increasing the size of the board of directors (within a reasonable range) enhances monitoring and reduces the risk of severe negative stock price fluctuations.

Statistical results showed that board independence had no statistically significant effect on the risk of stock price crashes, which may indicate institutional or enforcement constraints.

The moderating factor between board size and stock price crash risk is the effectiveness of the audit committee, which is measured by its size.The statistical research indicates that the presence of a board of directors and audit committees of the right size would enhance supervision and mitigate the chances of a stock crash.

The effectiveness of the audit committee in terms of (number of meetings) is a mediating variable in the relationship between board gender and the risk of stock price crash. Statistical results indicate that increasing the frequency of audit committee meetings increases the positive effect of having female board members in reducing the risk of crash.

The number of audit committee meetings is also a mediating factor between the independence of the board of directors and the risk of stock price crash.This shows that the benefit of board independence in reducing opportunistic managerial behavior is most evident when the audit committee holds regular meetings.

Aspects of internal governance are interconnected. The efficiency of the board of directors in reducing the risk of stock price crashes is not absolute, but is significantly enhanced or achieved through effective subcommittees, especially the audit committee. This strengthens financial reporting, internal control, and reduces information asymmetry.

RECOMMENDATIONS

The investors and financial analysts, when evaluating banks, should consider the quality of governance in terms of the characteristics of the board of directors and effectiveness of the audit committee in the valuation and risk measurement models, which are significant indicators of stability or impending crash among banks.

Regulators and policymakers are advised to use guidelines or incentives to increase the proportion of women on boards, given the impact of gender diversity in reducing the risk of stock price crashes and improving the quality of governance.

Banks should have a board of directors of an appropriate size sufficient to ensure sufficient diversity of skills and experience. To enhance monitoring through balanced boards of directors and efficiency to reduce exposure to price crash risks.

Structure audit committees to suit the board size and the complexity of bank operations. The balance between the number of members and the workload of the committee can also contribute to improving the quality of control and reducing the risk of stock price crash.

Banks should not only focus on increasing the size of the audit committee, but rather on enhancing and frequently holding their meetings. Frequent and regular meetings are a more effective weapon for reducing risks related to the board structure.

It is proposed to conduct future studies to extend the analysis to include listed non-financial companies in Iraq to see if the findings can be generalized to other sectors and other institutional contexts, as well as to test other characteristics of the board of directors and the audit committee, in order to better understand the factors affecting stock price crash risk.

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