
The mediating role of firm risk: The case of the insurance sector in Saudi Arabia

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Abstract This study aims to examine the mediating effect of firm risk on the relationships between board structure and firm performance. The multivariate panel data regression technique is employed to analyse the mediating impact of firm risk on 27 listed insurance companies on the Saudi Stock Exchange (Tadawul) from 2016 to 2021. The findings of this study indicate that firm

risk partially mediates the relationship between audit independence and Tobin's Q. In contrast to the existing literature, the study reveals that boards composed of independent members may lack effectiveness in their monitoring role, leading to higher risk-taking behaviour. This paper contributes to the literature on corporate governance and firm performance by examining the association through the lens of firm risk.

Keywords: *firm risk, board structure, mediation, insurance sector, Saudi Arabia*

INTRODUCTION

The World Bank and IMF recognise the importance of corporate governance as a crucial safeguard within organisations. Corporate governance is a management approach aimed at reducing conflicts among various stakeholders, ultimately improving shareholder wealth, increasing investor confidence, enhancing the company's reputation and expanding investment opportunities.¹ Implementing appropriate corporate governance mechanisms helps mitigate risks for investors, attract capital investments and enhance overall company performance.²

Conversely, inadequate corporate governance has been identified as a primary cause of financial crises in both developed and developing countries. This includes the 2006 stock market crisis (known as Tadawul) that affected the entire financial sector in Saudi Arabia. This crisis highlighted the need for urgent action by the Saudi government, particularly in strengthening the structure and effectiveness of the country's financial system through improved corporate governance practices. In response, the Capital Market Authority (CMA) implemented universal corporate governance regulations (CGRs) guidelines for all publicly traded companies. These actions reflect the growing emphasis on better corporate governance systems to enhance the long-term performance and sustainability of companies.³

According to Akbar *et al.*⁴ among corporate governance mechanisms, the board of directors plays a crucial role in managing and regulating firm risk. Inadequate internal controls in the financial sector, including banks and insurance firms, have been associated with executives taking excessive risks, driven by substantial compensation and incentives. This behaviour is considered a significant contributor to the global financial and economic crisis of 2007–2009. Jiraporn and Lee⁵ emphasise the

importance of understanding and managing firm risks to prevent or mitigate the likelihood of future crises in developing countries like Saudi Arabia, where corporate governance oversight and enforcement may be weak.

However, prior studies present conflicting findings on the relationship between corporate governance and firm performance. Some studies suggest positive impacts of corporate governance factors such as board size, independence and audit committees on firm performance.⁶ Conversely, other studies suggest a negative association,⁷ while some find no association at all.⁸ Moreover, most of these studies focus on developed countries, and their findings may not universally apply due to cultural and corporate governance framework differences.⁹ This indicates uncertainty regarding the connection between corporate governance and firm performance, suggesting an indirect influence of corporate governance on company performance.¹⁰

This study aims to address the question of whether firm risk acts as a mediator in the relationship between corporate governance and firm performance. Examining the potential mediating role of firm risk is significant for several reasons. First, if the impact of corporate governance on firm performance is primarily indirect, understanding firm risk as a mediating factor can help reconcile the conflicting findings regarding the influence of corporate governance on firm performance. Secondly, considering firm risk as a mediator can provide a solid rationale for how changes in corporate governance can affect firm performance. Thus, this research aims to fill this gap by investigating how firm risk mediates the relationship between corporate governance and firm performance in the emerging Saudi insurance market. Specifically, the study examines three internal board structure mechanisms: board

independence, board size and audit committee independence.

The focus on the Saudi insurance industry is driven by several factors. First, the insurance industry in Saudi Arabia is still in its early growth stage.¹¹ Although the CMA issued the Insurance Corporate Governance Regulations (ICGRs) in 2015 to regulate the insurance sector,¹² the level of implementation has raised concerns regarding compliance among insurance companies.¹³ Secondly, Albassam¹⁴ argues that research findings on corporate governance issues in developed countries may not be directly applicable to developing countries due to distinct contextual conditions. In the case of Saudi Arabia, the business environment possesses unique characteristics such as culture, religion, ownership structure and capital structure, which are expected to exert a significant influence on the implementation of corporate governance practices in Saudi Arabian businesses.¹⁵

LITERATURE REVIEW

The separation between ownership and control in companies gives rise to agency costs and risks stemming from information asymmetry and moral hazard. According to agency theory, managers, as agents, may prioritise their own interests and engage in opportunistic behaviour when their interests conflict with those of shareholders.¹⁶ Corporate governance aims to establish a fair distribution of benefits among shareholders and other stakeholders by addressing these agency conflicts. This approach helps mitigate risks, build investor trust, enhance reputation, increase shareholder value and attract investment opportunities.¹⁷

Board composition remains a central focus in corporate governance initiatives, as it plays a crucial role in driving firm competitiveness.¹⁸ The Association of Chartered Certified Accountants (ACCA) emphasises the board's responsibility to oversee risk management.¹⁹ The board fulfils two pivotal functions: decision-making in risk-taking activities and serving as an internal control mechanism. As decision-makers boards need to understand the appropriate level of risk exposure and take action to achieve company objectives. Internal control mechanisms, including board size and the

presence of non-executive directors, are integral to effective risk management within corporate governance frameworks.²⁰ The board's strategic and monitoring roles are influenced by these internal control mechanisms.²¹

Previous empirical studies have examined the direct impact of board size on firm performance and firm risk, but the findings have been mixed. Some literature suggests a significant positive relationship between board size and firm risk in financial firms,²² while others indicate a negative relationship between board size and both firm risk²³ and firm performance.²⁴ The composition of the board, including the number of individuals serving, reflects the level of experience, knowledge and expertise available.²⁵ The association between board size and corporate performance variability may be attributed to communication coordination challenges and agency issues faced by larger boards.²⁶ Jensen²⁷ argues that larger board sizes can lead to agency problems, as CEO dominance tends to increase with board size. Conversely, smaller boards have been associated with increased volatility in some studies.²⁸

Sharing and synchronising information among board members can be challenging, especially in large corporations, which can hinder the board's effectiveness in mitigating risks.²⁹ However, a large board can also enhance risk management capabilities.³⁰ Independent directors, according to agency theory, have the potential to mitigate conflicts between managers and shareholders by providing impartial judgments and decisions.³¹ Increasing the presence of independent directors in the boardroom can improve decision-making and overall profitability.³² Some studies suggest that independent directors can reduce firm risk and support investments in less risky projects, thereby enhancing firm performance.³³ However, other scholars argue that independent directors may have limited understanding of the company and face challenges in decision-making.³⁴ The functions of audit committees are crucial in corporate governance as they enhance independence, provide guidance on operational and regulatory issues and bridge the information gap between investors and corporate directors.³⁵ Audit committees can also assist managers in mitigating firm risk by advising on risk and uncertainty matters.³⁶ The relationship

between audit committee independence and firm risk has yielded mixed results in prior research.³⁷

Agency costs and risks arise from opportunistic managerial activities and incomplete information about management quality.³⁸ Inadequate corporate governance can lead to a significant increase in firm risk, particularly systematic risk.³⁹ CEO power and weak or ineffective boards can contribute to higher levels of firm risk due to unmonitored and idiosyncratic decisions by dominant CEOs.⁴⁰ However, the link between governance and risk lacks clarity in theory.⁴¹ This raises the question of whether firm risk acts as a mediating variable between board structure and firm performance.

As far as the authors are aware, this question has not been addressed in the existing literature. In the insurance business, the association between a company's financial success and corporate governance is not adequately examined, particularly in developing countries.⁴² Furthermore, the literature reveals conflicting findings on the effect of corporate governance on firm performance, suggesting that this relationship remains unclear, and may imply an indirect impact of corporate governance on firm performance.⁴³ In addition, the existing literature primarily focuses on three areas: (1) the impact of board structure on firm performance,⁴⁴ (2) the impact of board structure on firm risk⁴⁵ and (3) the impact of firm risk on firm performance.⁴⁶ Therefore, firm risk can act as a mediating variable in the relationship between corporate governance and firm performance, since it can amplify or mitigate the impact of governance practices on financial outcomes.

DATA AND METHODOLOGY

Data

The study sample consists of all insurance firms listed on the Saudi Stock Exchange (Tadawul) over a period of six years, from 2016 to 2021. The study sample consists of 29 insurance firms. However, two companies were dropped due to insufficient data availability. Therefore, the final sample consists of 27 companies, which leaves us with 162 observations. This ensured that the data met the requirements for balanced panel data analysis. The data was extracted

from various sources, namely: (1) the annual reports of listed companies; (2) the DataStream database.

Control variables

This study identified three control variables, enumerated as follows:

1. Firm size: in contracts to smaller firms, larger firms have better corporate governance disclosure, making it easier for them to secure external financing.⁴⁷
2. Firm age: young firms are expected to perform better than their older counterparts, since they are in the growth stage and are highly profitable.⁴⁸
3. Firm growth: firms with higher investment opportunities grow faster than other firms, thus maximising their performance and value.⁴⁹

METHOD

This work investigates the link between corporate finance and firm performance of the insurance sector via firm risk. Thus, this study relies on Baron and Kenny's mediation model technique.⁵⁰ Baron and Kenny's model includes three equations, where the first equation examines the link between board structure and firm risk, while the second and third equations include firm performance as an explanatory variable.

The system of equations this study estimates can be generally defined as follows:

$$Risk_{it} = a + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 AI_{it} + \beta_4 FS_{it} + \beta_5 AGE_{it} + \beta_6 FG_{it} + \varepsilon_{it} \quad (1)$$

$$TQ_{it} = a + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 AI_{it} + \beta_4 FS_{it} + \beta_5 AGE_{it} + \beta_6 FG_{it} + \varepsilon_{it} \quad (2)$$

$$TQ_{it} = a + \beta_1 Risk_{it} + \beta_2 BS_{it} + \beta_3 BI_{it} + \beta_4 AI_{it} + \beta_5 FS_{it} + \beta_6 AGE_{it} + \beta_7 FG_{it} + \varepsilon_{it} \quad (3)$$

where *Risk* denotes firm risk, which is proxied by the standard deviation in Equation (4). *BS* is board size: total number of directors on the board, including both independent and dependent members,⁵¹ *BI* is board independency: ratio of independent directors to the total number of directors on the board⁵² and *AI* is audit independent

committee: ratio of independent audit committee members to the audit committee size.⁵³ *TQ* denotes firm performance, which determines the market value of equity plus the book value of liabilities divided by the book value of assets.⁵⁴

$$SD = \sqrt{\frac{\sum \bar{x} - x_i)^2}{n - 1}}$$

where, x_i is the daily log return of firm *I*; \bar{x} is the sample mean; and *n* is the total number of observations. Moreover, control variables are defined as follows. *FS* is firm size, which is calculated as the natural logarithm of total assets, *AGE* is firm age, calculated as the natural logarithm of the number of years since the company was listed on the stock market and *FG* is firm growth, calculated as the current year's sales after deducting the previous year's sales divided by previous year's sales.

According to Aguinis *et al.*⁵⁵ when conducting mediation analysis, panel data models are considered more suitable than cross-sectional data models, as the latter may produce biased results. Moreover, to address the potential issues arising from unobserved time-invariant firm characteristics and omitted time-variant effects that could impact both firms and samples, firm-fixed effects and time-fixed effects were employed as controls for these issues.

RESULTS

Descriptive statistics

The descriptive findings regarding the board's characteristics and financial performance are shown in Table 1. The results showed that the average Tobin's Q in the sample was 1.47 (Table 1, row 1), indicating that the companies' market value is, on average, 1.47 times higher than the cost of replacing their assets. A high Tobin's Q greater than 1 can

signal that the company is well-managed and has a competitive advantage in its industry. The average board size was 8.506 (Table 1, row 2), with a minimum of 5 and a maximum of 15 members. This shows that the firms have adhered to the Saudi Corporate Governance Regulations of 2009 guideline that states firms should have a minimum of five members. The average board independence was 3.691 (Table 1, row 3). This suggests that the companies had followed the governance code, which advised that one-third of the board should consist of independent members. Furthermore, the average audit committee independence was 3.117 (Table 1, row 4), with a minimum of 2 and a maximum of 5 members. The independence of audits improves the transparency and accountability of financial reporting, leading to increased trust from investors and shareholders.⁵⁶ The average firm risk (represented by total risk) was 0.116 (Table 1, row 5), with a minimum of 0.039 and a maximum of 0.552. The average level of firm risk in Saudi insurance firms is higher than that observed in previous studies in developed countries. For example, an average risk of 0.074 in the USA⁵⁷ and an average risk of 0.074 in the UK.⁵⁸ This is because firms operating in developing countries often face various challenges, including limited access to funding, weak regulatory frameworks and volatile political and economic environments, which can increase their risk exposure.⁵⁹

Multivariate regression results and discussion

The direct effects of corporate structure on firm performance

The rational explanation is that the collaboration between various segments can enable firms to decrease costs and mitigate risks. Factors such as

Table 1: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max	Observations
Tobin's Q	1.476891	0.636822	0.953916	8.019537	N = 162
BSZ	8.506173	1.759612	5	15	N = 162
BIND	3.691358	1.432905	2	10	N = 162
ACIND	3.117284	0.624408	2	5	N = 162
SD	0.116218	0.062292	0.039127	0.552712	N = 162

Table 2: Panel data estimates on the direct and mediating effects of corporate governance and firm risk on firm performance

Dependent	Tobin's Q	Firm risk
Independent variables	Model (1)	Model (2)
Section A		
Firm risk (SD)	1.664*** (0.531)	
Board size	0.0122 (0.0268)	0.000541 (0.00127)
Board independence	-0.0258 (0.0341)	0.00451** (0.00198)
Audit independence	-0.250** (0.102)	0.00971** (0.00486)
Firm size	-1.661*** (0.518)	-0.0122*** (0.00405)
Firm age	0.113 (0.0636)	-0.00550 (0.00293)
Firm growth	0.125 (0.0850)	-0.00863 (0.00902)
Constant	35.25*** (10.68)	0.416*** (0.0782)
Observations	162	162
R-squared	0.751	0.095
Pooled OLS	NO	YES
Firm FE	YES	NO
Time FE	YES	NO
Section B		
Mediating testing method	Baron and Kenny	
	Audit independence	Firm risk
Audit independency: firm risk (X->M)	-0.250**	1.664***
Firm risk: firm performance (M->Y)	0.00971**	
	Partial mediation	

Note: *** $p < 0.01$, ** $p < 0.05$.

economies of scale, shared resources, managerial expertise and access to information are essential elements that can empower businesses.⁶⁰ However, the results of the study contradict this rationality. First, in Section A, Model 1 of Table 2, the results show that firm risk positively and significantly

influences Tobin's Q (Table 2, Model 1). This implies that managers ought to select risk investments solely if they have the potential to maximise the wealth of stakeholders.⁶¹ Furthermore, Section A, Model 1 of Table 2 shows that audit independence has a negative and significant influence on Tobin's Q (Table 2, Model 1). This supports the results of Fariha *et al.*⁶² who noted a negative correlation between the independence of audit committees and the performance of firms listed in Bangladesh. Furthermore, Boshnak⁶³ reveals that the audit committee, board size and board independence of 210 non-financial firms significantly negatively impact firm performance in Saudi Arabia. This shows that an audit-independent board cannot mitigate total risk, as board independence is unable to reduce both external and internal risks. This will lead to an increase in asset return risk.⁶⁴ However, the impact of risk on the value or performance of a firm remains somewhat unclear. The existing literature presents mixed results of positive and negative outcomes.^{65,66}

The mediating effects of firm risk in the relationship between corporate structure and firm performance

The results of this study on the mediating influence of firm risk cannot be entirely compared to previous studies because firm risk was not employed as a mediator in the relationship between corporate structure and firm performance. Section A, Model 2 of Table 2 shows that audit and board independence have a significant positive effect on firm risk in the Saudi insurance market (Table 2, Model 2). This contradicts the generally accepted idea in the literature that sound corporate governance helps mitigate firm risk. Chaudhary⁶⁷ argues that the discrepancy between corporate governance and firm risk not only challenges the belief that independent boards always lead to effective monitoring and enhance management's ability to take prudent decisions that are reflected in mitigating firm risk but also raises suspicion about the genuine independence of independent directors, particularly in developing countries. Furthermore, the decisions taken by the independent directors depend on the quality and comprehensiveness of the information

available to them. Therefore, the lack of access to reliable information makes it difficult to make accurate decisions about risks, which leads to increased uncertainty.⁶⁸ This could explain the positive relationship between board independence and firm risk. This finding aligns with Zhang *et al.*⁶⁹ who similarly observed that outsider directors, who lack familiarity with internal company information, were unable to effectively restrict the risk-taking behaviours of executives. Moreover, the results indicate that from a business risk standpoint, the presence of independent directors does not necessarily decrease risk, as each director possesses varying levels of enthusiasm for risk taking.

Finally, Zhang *et al.*⁷⁰ analysed the effect of board independence on firm risk in Chinese firms and found a positive correlation. The unexpected finding challenges the notion that independent boards always lead to effective monitoring and informed decision making, thus reducing firm risk. This suggests that independent boards are not effective monitors for Chinese firms. Thus, the same can be said about the independent auditors in the Saudi insurance sector.

Furthermore, board size has an insignificant control on total risk. While board size is generally seen as a factor in evaluating effective corporate governance, in this study, board size does not have a significant impact because personal qualities are the key component in determining board success and supporting risk-taking decisions. These findings support the research conducted by Sambasivan *et al.*,⁷¹ which elucidated the connection between the risk-taking disposition of board members and their personal attributes. Moreover, the finding aligns with the results of Lee *et al.*⁷² who concluded that the board size has no significant impact on both total risk and idiosyncratic risk.

Finally, regarding the control variables, only firm size has a significant negative effect on firm risk and performance. This indicates that large firms are able to reduce risk due to economies of scale. However, insurance companies with larger sizes cannot improve performance because larger companies may incur inefficiencies that result in poor performance.⁷³ This provides a clear indication that insurance companies in Saudi Arabia are facing agency issues that prohibit their growth.

CONCLUSION

This study adds to the existing literature by revealing a positive correlation between independent directors and auditors and a company's risk level. This contradicts the belief that an independent board will effectively oversee the company and make better decisions, ultimately reducing the firm risk.

Firms should be mindful of the findings that demonstrate the negative impact of corporate governance on firm risk. Furthermore, the internal structure of corporate governance investigated in this research demonstrated inconsistencies with the agency theory and previous studies. The company needs to prioritise its focus on the efficiency of the board's composition, including the presence of independent board members. The emphasis lies not on the number of members but on the valuable contributions each member makes in managing the firm's risks. The focus should shift from the quantity of board members to each member's valuable contributions to managing firm risks. Instead of solely relying on independent directors, companies should ensure a diverse mix of directors with relevant expertise and experience in risk management. This can help create a more effective, well-rounded board that can make informed decisions to mitigate risk.

Therefore, the author observed that the researchers' proposal of using robust boards does not consistently decrease the volatility of stock returns or effectively oversee decision making. This indicates that independent board members do not significantly impact a company's decision making or governance. Also, it raises doubts about the true independence of independent directors, particularly in emerging economies. Based on the findings of the audit independence relationship with the risk, this study suggests that regulators should strengthen the process of selecting independent directors to guarantee their impartiality and independence. This can be achieved by implementing stricter criteria for independence, conducting thorough background checks and engaging in comprehensive training on corporate governance responsibilities. By ensuring the true independence of independent directors, companies can benefit from their valuable contributions to managing emerging risks.

Thus, in the case of the Saudi insurance sector, independent members do not serve as effective monitors. The decisions made by independent board members rely on the quality and comprehensiveness of the information available to them. When the independent board lacks access to reliable information, making accurate decisions regarding risk taking becomes difficult. As a result, uncertainty levels rise. From a business risk perspective, this indicates that the quantity of independent directors does not impact the risk factor, as each director possesses varying enthusiasm towards risk taking. Companies should thus establish effective information disclosure mechanisms and internal reporting systems to provide independent directors with the necessary insights for making accurate decisions on risk taking. Regulators can encourage companies to adopt robust information management practices through guidelines or standards.

Therefore, companies should establish regular monitoring and evaluation mechanisms to assess the effectiveness of their corporate governance practices. This can involve periodic assessments of the board's performance, independence and decision-making processes. Regulators can play a role in promoting such evaluations by providing guidelines or requirements for corporate governance assessments.

This study has certain constraints. The adjusted R² values for each research model analysed in this study are comparatively low, suggesting that additional factors beyond the independent variables observed in this study can influence both firm risk and performance. The primary objective of this research was to examine the utilisation of internal mechanisms as an explanatory factor for corporate governance. Specifically, the study concentrated on board size, board independence and audit independence. As business development continues to evolve, additional indicators may be employed in future research studies to elucidate the relationship between corporate governance, corporate risk management and various measures of firm risks. Aside from that, the findings of this research are constrained to insurance companies publicly traded on the Saudi Stock Exchange between 2016 and 2021. Future research endeavours can focus on examining how corporate governance influences the level of risk within various industries. Additionally,

it would be beneficial to update the time-frames of the studies conducted to obtain new evidence in this area.

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