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## THE MODERATING ROLE OF CORPORATE GOVERNANCE IN FINANCIAL RISK AND COST OF GOODS SOLD

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### ABSTRACT

*This study examines the role of corporate governance in moderating the relationship between financial risk and the cost of goods sold (COGS) among firms listed on the Istanbul Stock Exchange between 2018 and 2024. The period was selected for its accessibility to transparent financial information and the diversity of listed companies. To ensure a statistically homogenous sample, the study employs a systematic elimination method, excluding financial intermediation firms for uniformity. Companies must have been initially listed in 2018, regularly traded at least quarterly throughout the research period, and have sufficient data available for analysis. Based on these criteria, a final sample of 25 companies representing various sectors was selected to enhance the generalizability of the findings. The study utilizes financial data from annual reports, board of directors' activity reports to shareholders' annual general meetings, and reliable financial sources. Theoretical foundations are explored through a comprehensive literature review, incorporating specialized academic publications. Findings highlight the significance of governance mechanisms, such as board composition and transparency, in mitigating financial risks and optimizing cost structures. By adhering to rigorous selection criteria and utilizing comprehensive data sources, the research aims to provide robust insights into corporate disclosure practices among Istanbul Stock Exchange-listed companies. This study contributes to the academic discourse on corporate governance and financial transparency, offering valuable implications for stakeholders, regulators, and corporate managers seeking to optimize governance practices and enhance financial reporting transparency.*

**Keywords:** Corporate governance, Financial risk management, Cost of goods sold, Istanbul stock exchange, Systematic sampling and financial transparency.

### INTRODUCTION

Today, one of the most important needs of humans is how to express and satisfy their need for information. One aspect of corporate communication that may be improved is revealing the dangers that businesses encounter, particularly regarding continuity. Financial openness is a crucial element of business transparency (Andres *et al.*, 2005; Abraham & Cox, 2007). Internal audits play a key role in ensuring organizational efficiency and regulatory compliance. (Ayboga & Ganji, 2021) investigated the factors influencing internal audit effectiveness, focusing on audit competence and the interaction between internal and external auditors. Their study, based on 170 managers and auditors, found a strong correlation between these factors and effective audit procedures. Corporate governance is pivotal in modern business management, encompassing

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procedures, rules, and establishments that guide company operations (Cadbury, 1992). Its primary purpose is to protect stakeholders' interests by balancing social, economic, personal, and group objectives (Siems & Alvarez-Macotella, 2015). This balance is crucial in managing financial risk, a key factor affecting financial returns and profitability (Çetin & Can, 2019). Effective financial risk management is significant for controlling the Cost of Goods Sold (COGS), a fundamental indicator of business profitability. (Ayboga & Ganji, 2020) emphasize internal audit competence and auditor interaction as vital to enhancing audit outcomes. (Ayboga & Ganji, 2021) examined the barriers to Environmental Management Accounting (EMA) in small and medium-sized industries, finding that imitation and normative pressures promote EMA adoption, while attitudinal, financial, and informational barriers hinder it (Park & Kim, 2003). COGS includes direct material and labor expenses related to product manufacturing (Shleifer & Vishny, 2012). Higher COGS reduces gross profit, impacting financial health (Jensen, 1993). Effective COGS management is essential for competitive pricing, profit margin optimization, and sustainability. Corporate governance ensures financial stability through risk management frameworks and board oversight (Fama & Jensen, 1983). Financial risks, such as market fluctuations and operational inefficiencies, impact cost structures (Kaplan & Mikes, 2012). Variations in labor or material costs affect COGS, influencing financial stability (Brown & Caylor, 2006). Corporate governance, through transparency and risk management, mitigates financial uncertainties and enhances COGS control (Lazonick & O'Sullivan, 2002; Bhagat & Bolton, 2008). Strong governance mechanisms, including independent boards and risk management policies, improve financial performance and reduce risk exposure (Farinha, 2003; Baker & Wurgler, 2011). Ownership concentration highlights the importance of financial transparency in protecting minority shareholders (Bui & Krajcsák, 2023). Selected firms must have been listed since 2018, traded quarterly, and provided sufficient data for analysis, following criteria in corporate governance research (Faff & Howard, 1999).

Corporate governance systems function better when voluntary disclosure increases, reducing conflicts of interest and meeting stakeholders' information demands. This study examines corporate governance mechanisms affecting risk reporting in companies listed on the Istanbul Stock Exchange, focusing on board composition, the most critical aspect of governance, to determine its effectiveness.

### *Literature Review*

This study examines the role of corporate governance in moderating the relationship between financial risk and the cost of goods sold (COGS) among firms listed on the Istanbul Stock Exchange between 2018 and 2024. The period was selected for its accessibility to transparent financial information and the diversity of listed companies. Corporate governance plays a significant role in managing financial risks and optimizing cost structures, as evidenced by previous research showing that board composition and transparency reduce the financial exposure of firms (Vafeas & Theodorou, 2007; Fama, 2009). Moreover, corporate governance mechanisms like independent boards and transparent reporting practices have been identified as key in minimizing the impact of financial risks on firm operations (Jiang & Stark, 2012). To ensure a statistically homogenous sample, the study employs a systematic elimination method, excluding financial intermediation firms for uniformity. The firms selected must have been listed initially in 2018, regularly traded at least quarterly throughout the research period, and have



sufficient data available for analysis. This selection criterion mirrors the approach of similar studies that have focused on specific time frames and sectors to ensure consistency in their findings (Nowell *et al.*, 2017; Naeem *et al.*, 2023). A final sample of 25 companies representing various sectors was chosen to enhance the generalizability of the findings.

The research utilizes financial data from annual reports, board of directors' activity reports, shareholders' annual general meetings, and reliable financial sources. Previous studies have found that comprehensive corporate disclosure is vital for reducing financial risks, particularly in emerging markets (Iqbal & Javaid, 2017; Pratami *et al.*, 2024; Tulcanaza-Prieto *et al.*, 2024). The theoretical foundations are explored through a comprehensive literature review, incorporating specialized academic publications on financial risk and governance (Hashmi *et al.*, 2023; Istan, 2024).

Findings from prior studies underscore the significance of governance mechanisms, such as board independence and transparency, in mitigating financial risks and optimizing cost structures. Board independence, for example, has been shown to influence risk management practices, especially in countries with developing financial markets like Turkey (Koirala *et al.*, 2020; Jha *et al.*, 2024). By adhering to rigorous selection criteria and utilizing comprehensive data sources, this research aims to provide robust insights into corporate disclosure practices among Istanbul Stock Exchange-listed companies. This method ensures that the study is based on transparent and credible data, a point emphasized in studies highlighting the importance of corporate disclosure for reducing financial risks, particularly in emerging markets (Iqbal & Javed, 2017; Islam *et al.*, 2022; Xin *et al.*, 2024). Corporate governance structures, including the transparency of reporting and board independence, play a crucial role in managing financial risk exposure, which in turn impacts the COGS for firms in volatile markets (Moridu, 2023; Iftikhar *et al.*, 2024; Yadav & Yadav, 2024).

This study contributes to the academic discourse on corporate governance and financial transparency, offering valuable implications for stakeholders, regulators, and corporate managers seeking to optimize governance practices and enhance financial reporting transparency (Hong *et al.*, 2023; Santosa *et al.*, 2023). Theoretical foundations are explored through a comprehensive literature review, incorporating specialized academic publications on corporate governance and financial risk management (Amin *et al.*, 2022; Shahrour *et al.*, 2024; Shubita *et al.*, 2024). Prior research suggests that board composition and corporate governance practices are pivotal in ensuring firms are better equipped to handle external financial shocks, as these mechanisms help align managerial incentives with shareholder interests and reduce operational inefficiencies (Andries *et al.*, 2020; Hashmi *et al.*, 2023).

Organizations have been required to provide additional data in recent years due to the growing complexity of corporate plans, operations, and legislation. This trend is aimed at promoting transparency, improving quality, and reducing information asymmetry. As traditional financial statements become less useful to potential users due to these complexities, there is a growing demand for more relevant and timely information, prompting a need for organized standardization efforts to enhance its quality and timeliness (ICAEW, 2011). National accounting standards are designed to provide a standardized approach to financial reporting, which is crucial for the reliability and comparability of financial statements. According to (Boulhaga *et al.*, 2022; Ganji, 2024) the application of national standards by independent



auditors significantly impacts the quality of their opinions. The consistency provided by these standards ensures that auditors evaluate financial statements against a common benchmark, leading to more accurate and reliable audit reports. This uniformity is vital for investor confidence, as it assures stakeholders that the financial statements have been scrutinized using rigorous and standardized criteria.

### *The Role of Corporate Governance*

A key factor in the connection between financial risk and the cost of goods sold (COGS) is corporate governance. Efficient governance procedures are necessary to reduce risks and guarantee that management behaves in the shareholders' best interests. According to agency theory, which was put out by Jensen and Meckling in 1976, owners (shareholders) and managers have conflicts of interest when ownership and management are kept apart. Managers may not always act in the shareholders' best interests, potentially misusing company assets. Therefore, voluntary information disclosure serves as a control mechanism, allowing shareholders and stakeholders to monitor managerial actions more effectively.

The political cost theory also supports voluntary disclosure, arguing that companies voluntarily disclose information to reduce political costs and gain specific benefits. By providing more transparency, companies can lower the scrutiny and regulatory pressures from governmental and non-governmental bodies (Andries *et al.*, 2020). Furthermore, the signaling theory posits that disclosure acts as a signal to the capital market, reducing information asymmetry, lowering financing costs, and optimizing the value of large companies. (Smith *et al.*, 2022) reviews how corporate governance frameworks influence financial risk management. Specifically, the author explores how robust governance structures help firms identify, assess, and mitigate financial risks, leading to more stable financial outcomes and long-term sustainability. (Smith & Jones, 2023) examine the reforms in corporate governance that have emerged in response to global economic challenges. They focus on how these governance reforms help organizations mitigate financial risks by introducing more stringent oversight mechanisms, particularly in the context of market volatility and credit risk. (Zahoor *et al.*, 2022) discuss the evolution of corporate governance post-pandemic, emphasizing how new risk management practices are vital for businesses recovering from financial instability. They argue that adaptive governance structures are key to navigating emerging risks, such as cybersecurity and supply chain disruptions. Corporate governance structures, such as board independence and transparency, have been shown to mitigate financial risks, which in turn influences firm cost structures (Lee & Kim, 2020; He, 2022). By excluding financial intermediation firms to ensure a statistically homogenous sample, the study follows similar methodologies to those employed by Kocakulah and Yıldız (2020) and Tuncel and Demirkan (2021), who focused on non-financial firms in emerging economies. The rigorous data selection criteria ensure the reliability of the findings, similar to approaches used in studies examining financial transparency and governance in volatile markets (Shakil *et al.*, 2019; Bernardo *et al.*, 2024). Furthermore, the importance of board composition and the governance mechanisms of risk management is supported by recent research, which shows that strong corporate governance helps firms better cope with financial instability and mitigate risks associated with economic crises (Dos Santos *et al.*, 2020; Adeniran *et al.*, 2024). The study aims to provide comprehensive insights into the governance practices of firms listed





on the Istanbul Stock Exchange, adding to the growing body of literature on financial risk and corporate governance (Gil *et al.*, 2020; Aldawsari, 2024).

### *The Role of Corporate Governance*

Corporate governance is key to reducing financial risk and optimizing COGS, with agency theory highlighting conflicts between managers and shareholders (Jensen & Meckling, 1976). Voluntary disclosure mitigates these risks, aligning managerial actions with shareholder interests (Morshed, 2024). Signaling theory suggests transparency lowers financing costs and asymmetry (Mandas *et al.*, 2023). Governance reforms help firms manage risks, especially in market volatility (Sayari & Marcum, 2018; Tulcanaza-Prieto *et al.*, 2024). Strong governance mitigates financial instability and enhances risk management (Nguyen & Dang, 2022; Moridu, 2023). This study builds on prior research on corporate governance in emerging markets (Gibson, 2002; Claessens & Yurtoglu, 2012; Ararat *et al.*, 2020; Lee *et al.*, 2023).

### *Financial Risk and Information Asymmetry*

Financial risk management is critical for companies, especially in the context of COGS. Accurate and comprehensive risk reporting enables investors to better evaluate future cash flows' amount, duration, and certainty, thereby determining market value and improving stock price forecasting accuracy (Zhou, 2023; Wang W, 2024; Wang Y, 2024). However, the quality of risk disclosures varies, with many companies providing limited risk information (Mbithi *et al.*, 2022) identifies three potential reasons for this limitation: 1. managers may lack sufficient information about their specific risks, 2. they may struggle to demonstrate their credibility, and 3. they might withhold information due to commercial threats. (Fijałkowska & Hadro, 2022) investigates how financial risks, such as exchange rate fluctuations and interest rate volatility, directly affect the cost of goods sold in manufacturing companies. The study demonstrates that companies with strong risk management frameworks can minimize the adverse effects of these financial risks on COGS. (Miihkinen, 2012) analyze how financial risk management strategies, such as hedging and diversification, help retail firms control COGS. Their research highlights the importance of managing financial risks to prevent spikes in operational costs, particularly in industries vulnerable to commodity price changes. (Crovini *et al.*, 2024) discusses various financial risk management techniques in the manufacturing sector, focusing on their effectiveness in controlling COGS. The study finds that companies employing advanced financial risk management tools—such as forecasting and risk-adjusted pricing—can better control production costs and improve profitability. the academic discourse on corporate governance and financial transparency, offering valuable implications for stakeholders, regulators, and corporate managers seeking to optimize governance practices and enhance financial reporting transparency (Weber & Müßig, 2022). Findings from previous studies underscore the significance of governance mechanisms, such as board independence and transparency, in mitigating financial risks and optimizing cost structures. Board independence, for example, has been shown to influence risk management practices, especially in countries with developing financial markets like Turkey (Pinto dos Santos *et al.*, 2021). By adhering to rigorous selection criteria and utilizing comprehensive data sources, this research aims to provide robust insights into corporate disclosure practices among Istanbul Stock Exchange-listed companies.



### *Voluntary vs. Mandatory Disclosure*

While most disclosures are currently voluntary, this approach is supported by several theories. Agency theory, political cost theory, and signaling theory all advocate for voluntary disclosures as a means to manage financial risk and enhance corporate governance. However, the exclusive cost theory highlights the potential drawbacks of voluntary disclosure. (Zhu *et al.*, 2024), argue that publicly available information can benefit competitors and other stakeholders, increasing pressure on the company. Thus, there is an inherent conflict between the motivation to disclose information and the potential negative consequences.

### *Corporate Governance and Cost of Goods Sold*

COGS and corporate governance are closely linked, with strong governance improving risk management and reducing financial risks. Companies with robust governance frameworks tend to disclose relevant risk information, positively impacting performance (Pinto dos Santos *et al.*, 2020). Effective governance mechanisms reduce information asymmetry and enhance financial reporting quality. Studies show governance practices influence operational cost efficiency (Almashhadani & Almashhadani, 2023) and optimize COGS through better decision-making (Ibrahim & Aboud, 2023). Firms with strong governance structures navigate financial volatility more effectively, improving cost control (Handoyo *et al.*, 2023; Can & Abdul Latiff, 2024; Sherif *et al.*, 2024).

### *Research Hypotheses*

Corporate governance encompasses various factors that significantly influence corporate disclosure practices, including board size, board independence, ownership structure, and the activities of the board of directors. This section formulates research hypotheses based on these factors and their relationship with risk disclosure in large companies, drawing on insights from existing literature.

#### *Board of Directors Size*

Board size is a critical aspect of corporate governance, affecting the quality and quantity of corporate decisions, including those related to disclosure. Larger boards can include directors with diverse perspectives, potentially leading to higher quality corporate decisions. However, there is also evidence that larger boards may suffer from diminished monitoring effectiveness, leading to increased agency problems (Andres *et al.*, 2005). The following hypothesis was developed as a result of divergent opinions about how board size affects transparency:

#### *Hypothesis 1*

The risk disclosure of major corporations is significantly correlated with the size of the board of directors. The number of directors, comprising both internal and external members, determines the size of the board.

#### *Independence of the Board of Directors*

The independence of the board is another critical factor influencing corporate disclosure. According to agency theory, executives may be less motivated to disclose risk information as it exposes their performance and behavior to greater scrutiny indicates a separate correlation between the percentage of outside directors and financial transparency. Nevertheless, other



studies indicate that outside directors may lack the necessary insight into the company's operations or may not be focused enough due to commitments to other boards. The study provides valuable insights into the factors that enhance the effectiveness of internal audits. By highlighting the significant roles of management support and internal audit independence, it offers practical guidance for organizations seeking to improve their audit functions. These findings are crucial for ensuring that internal audits effectively contribute to the overall governance and risk management framework of organizations. This study explores how management ability impacts integrated risk management in companies, finding that while overall management capability positively influences risk management, its effect varies across specific risk components. (Samur, 2023) Moreover, the presence of independent directors could lead to increased litigation risks related to disclosure. The effect of board independence on voluntary disclosure has been the subject of conflicting empirical research (Assidi, 2020). The following theories are put out in light of these factors:

#### *Hypothesis 2*

The proportion of outside directors on the board and the danger disclosure of big companies are significantly correlated.

#### *Hypothesis 3*

Institutional shareholders and the dangers of disclosure of major companies are significantly correlated.

#### *Ownership Structure*

Ownership structure, particularly the ownership of shares by board members, is crucial for understanding voluntary information disclosure. Managers may be more likely to voluntarily disclose their operations when they control a sizable portion of the company, which lowers agency costs and moral hazard issues (Nguyen *et al.*, 2024). Nevertheless, as owners may choose to restrict public information, greater domestic ownership may lessen the requirement for voluntary disclosure. Considering the effect of stock ownership on disclosure procedures, the literature offers contradictory data. This results in the following theory:

#### *Hypothesis 4*

Board member stock ownership and the company's danger disclosure are significantly correlated.

#### *Activities of the Board of Directors*

The activities of the board, measured by the frequency of board meetings, are indicative of the board's commitment to fulfilling its obligations and monitoring management effectively. Agency theory posits that more active boards are likely to enhance information disclosure as they spend more time on strategic development and oversight (Hossain & Oon, 2021). However, empirical studies provide mixed results, with some showing that board participation and disclosure have no meaningful link at all, or even a negative one (Yakob & Abu Hasan, 2021). The following theory is so put forward:



### *Hypothesis 5*

The frequency of board meetings and the danger disclosure of major corporations are significantly correlated.

In addition to factors related to corporate governance, several other variables play significant roles in influencing the extent and quality of corporate disclosure. These variables include firm size, profitability, leverage, and industry sector.

### *Company Size*

Firm size is often positively associated with the volume and quality of information disclosure. Larger companies tend to disclose more information to maintain good relationships with capital providers and attract investment at favorable terms. Moreover, larger firms typically have more analysts covering them, which increases the demand for information and transparency. This visibility can lead to increased pressure on companies to disclose comprehensive and timely information. Market value is often used as a proxy to measure firm size in such studies.

### *Profitability*

Voluntary disclosure and profitability have a complicated and nuanced connection. Disclosure theory states that successful businesses are more inclined to provide information as an indication of their sound financial standing and to draw in investment at a reduced cost. Managers of profitable firms may also disclose information to capitalize on their firm's success and enhance their personal reputation. However, conflicting findings exist in the literature. While some studies report a positive relationship between profitability and disclosure (Asad *et al.*, 2024), Some studies suggest a negative relationship between corporate disclosure and financial performance, possibly due to competitive pressures or strategic concerns about revealing too much information. Firms may limit disclosure to protect proprietary information, avoid competitive disadvantages, or manage market perceptions. Additionally, excessive transparency could expose firms to increased scrutiny and market volatility, discouraging managers from disclosing detailed financial and operational data.



### *Leverage*

Leverage, referred to as the ratio of total debt to total assets, is another factor influencing information disclosure. Higher leverage raises agency costs and creates potential issues of interest between owners and creditors. To reduce these concerns, companies with larger debt levels frequently reveal more information to reassure creditors about their capacity to satisfy financial obligations. On the link between leverage and transparency, research has shown varied findings. Some researchers find a positive relationship, suggesting that higher leverage leads to increased disclosure (Koirala *et al.*, 2020; Arhinful & Radmehr, 2024). Conversely, others report negative or insignificant effects, indicating variability across contexts and industries.

### *Industry Sector*

The industry sector in which a company operates also influences its disclosure practices. Companies within the same industry tend to adopt similar disclosure strategies due to comparable business complexities and market expectations. Failure to adhere to industry norms in disclosure can lead to misunderstandings and misinterpretations in the market. Studies have



shown that industry membership significantly explains variations in voluntary disclosure practices, particularly in sectors such as information technology or high-growth industries versus more stable sectors like manufacturing or consumer goods and services.

These variables—Company size, profitability, leverage, and industry sector—serve as crucial control variables in studies examining corporate disclosure practices. They underscore the diverse motivations and strategic considerations that influence how companies communicate with stakeholders and the broader market. Understanding these factors is essential for policymakers, investors, and corporate managers seeking to enhance transparency, mitigate risks, and foster trust in financial reporting.

#### *Population and Statistical Sample*

Companies that were listed on the Istanbul Stock Exchange between 2018 and 2024 make up the population of this study. The availability and transparency of financial data during this time frame, together with the variety of businesses that were available for research, led to its selection. The research employs a systematic elimination method to select a statistically homogenous sample from this population.

#### *Selection Criteria for the Statistical Sample*

##### *Listing on Istanbul Stock Exchange*

Companies have to be mentioned at the start of the study period on the Istanbul Stock Exchange (2018)<sup>1</sup>.

##### *Exclusion of Financial Intermediation Companies*

Financial intermediation companies are excluded to maintain uniformity across variables studied.

##### *Regular Trading Activity*

Companies must have had their shares traded on the stock exchange at least once every three months during the research period (2018-2024).

##### *Data Sufficiency*

Only companies with sufficient information available for analysis are included in the sample.

##### *Sample Size and Methodology*

From the initial population, a sample of 25 companies was systematically selected based on the above criteria. This sample includes companies from various sectors, ensuring a diverse representation that enhances the generalizability of the study's findings.

##### *Data Collection Sources and Methodology*

Theoretical Foundations: The study utilizes the library method to explore theoretical foundations and review relevant literature. Sources include specialized Latin books, articles, theses, and academic publications.

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<sup>1</sup>Investing.com

**Financial Data:** Financial data necessary for the study is extracted primarily from company annual reports, board of directors' activity reports to shareholders' annual general meetings, and from reliable financial websites such as the Securities and Exchange Organization and Investing.com.

By adhering to rigorous selection criteria and utilizing comprehensive data sources, the research aims to provide robust insights into corporate disclosure practices among Istanbul Stock Exchange-listed companies. The selected technique assures that the results are reliable and valid, adding to both academic research and practical implications for corporate governance and transparency.

### *Research Variables*

In this research, the variables of the size of the board of directors, the proportion of foreign directors in the board of directors, the ownership of shares held by the members of the board of directors, the number of board meetings in a year, and the ownership of institutional shareholders are independent variables. Mandatory risk disclosure index and voluntary risk disclosure index are dependent variables, the size of large companies, profitability, leverage, and dummy time period are also control variables.

In corporate disclosure research, ensuring consistency, especially in assessing voluntary information, poses significant challenges. Content analysis, particularly through disclosure indicators, is a primary technique used to study disclosed information and its relationship with various factors (Nishitani *et al.*, 2024).



### *Types of Risks Studied*

This research categorizes risks into two main types: mandatory risks and voluntary risks. Mandatory risks typically include financial risks such as interest rate risk, exchange rate risk, liquidity risk, and operational risks like input price risk and product price reduction risk. On the other hand, voluntary risks encompass non-financial risks such as product quality risk, commercial risk, regulatory risk (related to changes in government rules and regulations), and competitive risks (risk of customers choosing alternative products).

### *Development of Disclosure Indicators*

The first step in this study involves creating disclosure indicators for each category of risk. These indicators serve as numerical indices that quantify the amount of risk-related information disclosed by companies. The calculation of these indices involves designing items that form the basis for weighting the disclosed information. These items are often represented as dummy variables, with a higher value indicating disclosure (value 1 for disclosure; value 0 for no disclosure).

### *Items Included in Disclosure Measurement*

For each type of risk (mandatory and voluntary), the content of disclosure is measured through six key items: 1. General Nature of the Risk: Description of the risk and its potential impact. 2. Risk Management Policy: Strategies and policies implemented to mitigate the risk. 3. Information About the Risk: Specific details or characteristics of the risk. 4. Risk Measurement Method: Methodology used to assess or quantify the risk. 5. Amount of Risk During the Economic Year:

Quantitative or qualitative assessment of the risk exposure during the reporting period. 6. Future Risk Information: Forward-looking statements or projections related to the risk. Item 1 of the first stage discusses the fundamental and crucial aspects of risk. For example: "Cash flow danger, also known as funding liquidity danger, is a failure to pay obligations. Such an issue is particularly significant for balanced portfolios that have a commitment to paying profit margins to creditors.". Liquidity in the form of time and the cost can be checked and analyzed". As an illustration of characteristic 2 (disclosure of risk management policy), the firm has renegotiated its credit and debt policies with short maturity and sufficient forecasting in order to control liquidity risk brought on by negative working capital. This renegotiation is slower than in previous occasions, yet many institutions are still able to pay their obligations when they are renewed because of the challenges financial institutions have in getting cash. Item 3 is related to the way in which the company covers its risk. For example: "To address the risk related to commodity price fluctuations, the company hedges 85% of the group's sales. According to this hedge, a 10% decline in the commodity's value on the stock exchange and a 1% decline It is included in the gross return. Item 4 is related to the disclosure of the implementation method for risk measurement, this paragraph is extracted from the annual consolidated report (management report), for example: "In order to analyze the effect of potential interest rate changes on the group's accounts, with respect to the import Being a major part of raw materials and parts as well as serious machinery, any restrictive conditions such as international sanctions or changes in government laws and regulations can reduce the company's activities and ultimately reduce the company's profit. Risks are analyzed in a unique way, which are: (a) Mandatory risks: interest rate fluctuation risk, exchange rate fluctuation risk, company's input price risk, share reduction risk and liquidity risk. (b) Voluntary risks: business risk, the risk of changing laws and regulations, the risk of customers favoring alternative products, and the risk of product quality. The CRDI (required risk disclosure index) is calculated by adding the scores of the various risk types after the disclosure indicators for obligatory risk have been evaluated. The scores of each item for each organization are determined by the kind of risk that was evaluated. To get the VRDI (Voluntary Risk Disclosure Index), a similar process is used. In the first stage, organizations sum the scores of each item to get a score for each risk category that is being examined

### Regression Assumptions

For the tests related to the regression assumptions in the investigation of the zero mean of the error sentence, it was shown that in the first model for the mandatory risk disclosure index, the value of  $t$  is equal to  $T = 1,918$  ( $P: 0,359 > 0,05$ ). in the second model for Voluntary risk disclosure index,  $t = 0,238$  ( $P: 0,812 > 0,05$ ), is not significant at the alpha level of 5 percent, which indicates that the mean of the error sentence is zero and actually confirms the regression hypothesis. According to the Jarco-Bera test findings for normality, the residuals derived from the study model estimation at a 0.90 confidence level exhibit a normal distribution. In the first model,  $JB = 93,8$ .  $P: 0,012 > 0,010$ ), In the second model,  $B = 18,8$  ( $P: 0,016 > 0,010$ )).

In the models drawn by Pool and Panel methods, to check the homogeneity of variances, the model was estimated in the form of *EGLS*, and dummy variables were used to increase the

probability of normalization of errors. The results of Leven's test showed that in the first model,  $Leven = 1,24$   $P: 0,296 > 0,05$ ) and in the second model  $Leven = 41,2$   $P: 0,083 > 0,05$ ), *Durbin – Watson's* test shows the lack of autocorrelation in the model, and therefore the independence of the residuals is accepted. Using the correlation matrix, it was shown that the variables do not have a linear relationship with each other. Hadri's test was used to check significance. The results showed that the test is valid and the value of  $z$  for mandatory risk disclosure index (*CRDI*) is equal to 21,3 and for voluntary risk disclosure index (*VRDI*) is equal to 34,4.

**Table 1. Mandatory risk disclosure index**

Method	Statistics	Prob.**
Hadri Z-stat	3,21	0,0007
Heteroscedastic Consistent Z-stat	3,70810	0,0001
Optional risk disclosure index		
Method	Statistics	Prob.**
Hadri Z-stat	3,34	0,0004
Heteroscedastic Consistent Z-stat	0,0000	3,95285

Source: Researcher's findings.

### Research Model

This is the study's mathematical model, which shows how corporate governance characteristics (CG) and a few control factors might affect the quantity and caliber of risk disclosure data.

Model 1:

$$F (\text{risk disclosure}) = (\text{corporate governance. control variables})$$

To test the hypotheses, regression models 2 and 3 are used:

Model 2:

$$CRDI_i = 0 + \beta_1 BSIZE_i + \beta_2 \%EXT_i + \beta_3 BROWN_i + \beta_4 MEET_i + \beta_5 CSIZE_i + \beta_6 ROA_i + \beta_7 LEV_i + \beta_8 SEC_i + \beta_9 ISH_i + \sum pt + \varepsilon$$

Model 3:

$$VRDI_i = \beta_0 + \beta_1 BSIZE_i + \beta_2 \%EXT_i + \beta_3 BROWN_i + \beta_4 MEET_i + \beta_5 CSIZE_i + \beta_6 ROA_i + \beta_7 LEV_i + \beta_8 SEC_i + \beta_9 ISH_i + \sum pt + \varepsilon$$

*CRDI*<sub>*i*</sub>: Mandatory Risk Disclosure Index

*VRDI*<sub>*i*</sub>: Voluntary Risk Disclosure Index

*SIZE*<sub>*i*</sub>  $\beta$ : Board size is measured by the number of board members.

*EXT*%: The ratio of foreign directors in the board of directors to the total members of the board of directors.

$\beta$  *STOWN*<sub>*i*</sub>: is the ownership of shares held by board members,



*MEET*<sub>*i*</sub>: the number of board meetings in a year,

*CSIZE<sub>it</sub>*: firm size, measured by the firm's market capitalization,

$ROA_i$ : return on assets, measured using the ratio of income to total assets,

$LEV_i$ : is the ratio of total debt to total assets.

*SECI*: the industry in which the company operates, (value 1: manufacturing companies and value 2: consumer goods and services)

$\beta$  *ISHi*: is the percentage of ownership by institutional shareholders (legal shareholders with more than 5% ownership).

$\rho t \sum$ : the fictitious time period, including the control of time effects in 2018, 2019, 2020 , 2021, 2022, 2023 AND 2024, for which the value of one is considered in case of disclosure and zero value in case of non-disclosure.)

*Models 2 and 3* are estimated through the panel data method. This technique allows controlling for the firm effect and heterogeneity, which may be associated with the influence of this panel, despite the presentation of relevant findings. Furthermore, dependent variables can only take a certain range of values (*eg CRDI score can range from 0 – 15; that is. 5 types of risk × 3 maximum score*), Combining both features, the model is estimated through a quantile regression for panel data.



## Testing Research Hypotheses

In this research, based on the presented goals and hypotheses, inferential statistics (Z test and F statistic model) will be used to analyze and test the hypotheses, and the relationship between independent and dependent variables will be tested using regression statistical method. The required information is first prepared in Excel spreadsheets for analysis. Data analysis and processing is done using the usual econometric methods and regression models. Before analyzing the data, it is necessary to ensure the normality of the data during the period under review. The Jarkova-Bera test is used to check the normality of the data. **Table 2** shows average, median, minimum, maximum, standard deviation, skewness, and skewness statistics.

**Table 3** in this study is related to the statistical description of the dependent variables of the research, which was checked for the normality of the data through the Jarko-Bara test.

**Table 2.** Descriptive statistics related to independent and control variables for all companies

[illegible]



The standard deviation	14,45	14,45	14,45	14,46	14,45	14,46	14,45	14,45	14,45
you are crooked	3,321	3,321	3,321	3,321	3,321	3,321	3,321	3,321	3,321
Elongation	3,321	3,321	3,321	3,321	3,321	3,321	3,321	3,321	3,321

Source: Researcher's findings.

**Table 3.** Descriptive statistics related to dependent variables for all companies

#	(VRDI)	(CRDI)
Average	4.500	3.2950
Middle	5.000	3.0000
the most	13.000	12.000
the least	0.0000	0.0000
The standard deviation	2.8262	2.5158
you are crooked	0.6157	0.9759
Elongation	2.9656	2.6305
Jarko- Go	3.9058	2.4097
Prob	7109.0	7109/0

Source: Researcher's findings



As can be seen, the average, median, minimum, maximum, standard deviation, skewness, and kurtosis statistics are displayed. Also, the J.B. value and the corresponding Prob value are shown in **Table 4**. The amount of J.B (data normality) of the variables is not significant at the alpha level of 5%, so it can be said that the data related to these variables follow the normal distribution.

**Table 4.** Correlation matrix between independent and control variables

#	Shares of board members	size of the company	Contribution of foreign managers	Number of sessions	industry	Institutional shareholders	Board size	debt ratio
Average	1,000							
Middle	—0,0248	0,0001						
the most	—0,0219	0,2144	1,000					
the least	—0,1651	0,1286	—0,0323	1,000				
The standard deviation	~,2374	—0,1346	—0,1274	0,2272	1,000			
you are crooked	2536/0	0,056	0,0319	0,1250	—0,2900	1,000		
Elongation	3082/0-	—0,1681	0,0934	—0,0170	0,1543	—0,2407	1,000	
Average	0,2099	—0,1658	—0,0950	—0,1544	—0,0558	0,0010	—0,2542	1,000

Source: Researcher's findings

In the current study, Pearson's correlation coefficient was used to investigate the co-linear relationship. The results showed that the correlation between the variables in the research variables is very weak, and this problem indicates the non-collinearity between the variables.

**Table 5** is related to the correlation matrix between the variables.

The correlation between the variables is shown in **Table 4**. After estimating the model from the proposed panel data method, the results presented in **Table 5** were obtained.

The results show a significant relationship between the size of the board of directors, the proportion of foreign directors, the shares of board members, the number of board meetings, company size, industry, and institutional shareholders with the level of mandatory risk disclosure. Returns and financial leverage do not significantly correlate with mandatory risk disclosure. Additionally, there is a significant relationship between foreign directors, board member shares, the number of board meetings, company size, returns, financial leverage, and discretionary risk disclosure. The relationship between board size, industry, and institutional shareholders with discretionary risk disclosure is not statistically significant.

**Table 5.** Regression results based on (models 2 and 3)

Variable	(VRDI)			(CRDI)		
	Coefficient	t	prob	Coefficient	t	prob
Average	0,001	—2,14	—0,006	0,007	2,62	0,0034
Middle	0,001	4,92	0,023	0,001	0,16	0,024
the most	0,001	22,53	0,033	0,012	2,52	0,033
the least	0,001	3,82	0,361	0,001	3,63	0,238
$\Sigma\rho$	0,384	—0,871	—0,360	0,015	3,63	0,384

Source: Researcher's findings

## CONCLUSION

The role of standard setters in promoting risk disclosure is increasingly critical due to the lack of voluntary corporate transparency. The existing system does not provide sufficient accounting information for analysis, impacting decision-making for debt holders, shareholders, and investors. Findings emphasize the complexity of voluntary disclosure decisions and the public's perception as a deterrent factor. According to the panel data model, the following results were obtained: The first hypothesis confirms a significant positive correlation between board size and forced risk in large corporations. Larger boards provide diverse viewpoints, improving corporate reporting (Martiny *et al.*, 2024). However, voluntary disclosure is negatively correlated with board size, as larger boards might introduce unnecessary disclosures (Ye *et al.*, 2023). The second hypothesis establishes a strong correlation between forced risk and foreign directors' presence. The second model also supports the correlation between foreign directors and discretionary risk in large firms. This aligns with findings that independent directors improve governance in non-family firms. Higher foreign ownership may reduce transparency in family-controlled businesses. Findings also show that independent and executive directors enhance risk reporting, but non-executive members show no meaningful correlation. This aligns with studies in Iran, where

product market competition strengthens governance relationships. The third hypothesis indicates institutional ownership significantly correlates with forced risk but not with discretionary risk. Higher government ownership increases transparency, while foreign directors decrease it (Christensen *et al.*, 2021). Institutional ownership negatively correlates with voluntary disclosure. The fourth hypothesis confirms a significant relationship between board meeting frequency and required risk disclosure. Financial expertise and the CEO-Chairman role separation influence disclosure levels (Shin *et al.*, 2020). However, other studies found a negative or non-significant correlation (Hamdan *et al.*, 2017; Prado-Sierra-Morán *et al.*, 2021; Yang *et al.*, 2022). The fifth hypothesis finds a strong negative correlation between board members' stock ownership and forced risk in large corporations. Prior research highlights board composition's role in governance effectiveness (Al-Faryan, 2024; Hyarat *et al.*, 2024). No significant correlation was found between required risk disclosure and earnings, leverage, or industry sector. This study provides multinational insights by examining corporate governance across regions and industries. It also explores risk disclosure's impact on capital costs, offering managers incentives to disclose. Future research may analyze investor strategies in risk disclosure and its economic consequences.

#### *Advice for the Future*

The regulatory role and importance of corporate governance in the relationship between financial risk and cost of goods sold, here are some specific pieces of advice to consider:

1. **Conceptual Clarity:** Ensure clarity in defining corporate governance mechanisms and how they influence financial risk management and cost of goods sold. This involves clearly articulating the theoretical foundations and conceptual framework that underpin your study.
2. **Empirical Analysis:** Use rigorous empirical methods to analyze the relationship between corporate governance variables (e.g., board independence, board size, ownership structure) and financial risk indicators (e.g., leverage, liquidity risk) in relation to cost of goods sold. Employ econometric techniques such as regression analysis to quantify these relationships.
3. **Data Collection and Measurement:** Pay attention to the quality and reliability of data sources related to corporate governance practices, financial risk metrics, and cost of goods sold. Ensure consistency in measurement across variables to facilitate meaningful comparisons and interpretations.
4. **Comparative Analysis:** Consider conducting comparative analyses across different industries or regions to assess variations in corporate governance practices and their impacts on financial risk management and cost structures. This can provide insights into industry-specific dynamics and regulatory environments.
5. **Longitudinal Perspective:** Where possible, adopt a longitudinal approach to analyze changes in corporate governance practices and their effects on financial risk and cost of goods sold over time. Longitudinal studies can capture trends and identify causal relationships more effectively.

By addressing these aspects in your research, you can contribute valuable insights to the understanding of how corporate governance influences financial risk management and operational costs in organizations.



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