The impact of corporate governance mechanisms on integrated reports disclosure: an empirical analysis

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Abstract:

Purpose – This study's purpose is to examine the effect of ownership structure, characteristics of the board, and CEO characteristics on integrated reports (IR) disclosure.

Design/methodology/approach – The study relied on the content analysis approach in examining the annual reports of a sample of 60 non-financial companies listed on the Egyptian Stock Exchange from 2016 to 2023, with a total of 480 observations.

Findings – The study findings indicate that there is a significant positive effect of institutional ownership, board size, board independence, board gender diversity, CEO duality, and CEO

expertise on IR disclosure. Moreover, the results also concluded that there is a significant negative effect of foreign ownership, board meetings, and the tenure of the CEO on IR disclosure.

Implications – This paper contributes to activating the supervisory role of the Egyptian stock exchange to verify companies' commitment to disclosing ownership structure information and the extent of compliance with governance mechanisms, which leads to improving the level and quality of IR disclosure and reducing information asymmetry.

Originality/value – The study helps corroborate the literature and the theoretical explanation of the relationship between corporate governance and IR disclosure in the Egyptian context.

Keywords: Integrated Reports Disclosure, Corporate Governance Mechanisms, Ownership Structure, Board Characteristics, CEO Characteristics.

1. Introduction

Integrated reporting (IR) is an approach that aims to integrate financial and non-financial information into a single report, providing a comprehensive view of a company's performance and its impact on the environment and society (Adams et al., 2016; De Villiers et al., 2014). This type of report aims to provide a comprehensive picture of the company's overall performance and how to achieve sustainable value in the long term (Baboukardos & Rimmel, 2016). By integrating financial and non-financial information, stakeholders can gain a better understanding

of how a company impacts the environment and society alongside financial performance (Velte & Stawinoga, 2017).

Corporate governance (CG) has received the attention of the economies of all countries due to its importance in ensuring the proper functioning of work and avoiding crises that may befall the company (Al-Faryan, 2019; Elmashtawy et al., 2024). The ownership structure is one of the influential governance mechanisms that play a vital role in reducing the agency problem and resolving the conflict of interests between shareholders and managers (Raimo et al., 2020). According to Abdulfatah et al. (2022), the presence of a special category of shareholders can have a positive effect on reducing agency costs and thus have an effective supervisory effect on managers' behavioral patterns. On the other hand, the Board of Directors and the CEO can be considered one of the most important mechanisms for managers in companies, according to the shareholders' point of view, which may contribute to the effective implementation of CG (Onyabe et al., 2016; Qaderi et al., 2022). The Governance Regulations also singled out Chapter Four for the Board of Directors, as the Regulations stipulated certain controls that must be complied with when forming the Board (Al-Faryan, 2019; Al-Janadi et al., 2013).

By extrapolating the annual reports of some Egyptian companies, it becomes clear that there is a large discrepancy concerning the disparity in the composition of the ownership

structure and the characteristics of the board and the CEO in those companies. This diversity and difference in the characteristics of the board and the CEO affect its decisions and recommendations (Chouaibi et al., 2022; Onyabe et al., 2016), and the high percentage of the ownership structure of one of the ownership groups gives it influence in decision-making within the Board of Directors and not others (Raimo et al., 2020), which may have an impact on the IR disclosure. The ownership structure, board characteristics, and CEO characteristics are some of the governance mechanisms that influence IR disclosure (Mehdi et al., 2017; Qaderi et al., 2022; Radin et al., 2023). In Egypt, IR disclosure is still voluntary, so this study contributes to the enhancement of commitment to IR disclosure.

It is expected that the institutional, regulatory, and cultural contexts in developing countries differ from those found in developed countries (Albertini, 2019; Elmashtawy et al., 2023; Omran et al., 2021; Zouari & Dhifi, 2022). Therefore, the current research is unique and different from previous literature. The study's purpose is to analyze the impacts of CG mechanisms on IR disclosure in the Egyptian context. The study is based on a content analysis of 480 observations from 2016 to 2023. The study's findings revealed that institutional ownership, board size, board independence, board gender diversity, CEO duality, and CEO expertise all have a significant positive impact on IR disclosure in the Egyptian context. Furthermore, the findings

revealed that foreign ownership, board meetings, and the CEO's tenure all have a significant negative impact on IR disclosure in the Egyptian context. This study seeks to contribute to the existing literature by supporting the foundations of agency theory, stakeholder theory, and stewardship theory. The study adds to the current studies on CG mechanisms and IR disclosure while also giving empirical evidence from the Egyptian context. The empirical literature is inconclusive on the effects of CG mechanisms on IR disclosure; they differ across sectors and countries (Sriani & Agustia, 2020; Zouari & Dhifi, 2022). Furthermore, the study is critical because the vital role that the level and quality of IR disclosure play in meeting stakeholders' interests deserves an analysis of the effect of CG mechanisms on IR disclosure. Finally, the study provides practical contributions to regulators, shareholders, investors, and other stakeholders.

2. Literature review and hypotheses development

2.1. Theoretical background

Agency theory is one of the most popular theories in disclosure and CG literature, which explains the nature of the relationships between some different factors and information disclosure (Eisenhardt, 1989; Jensen & Meckling, 1976). Agency conflict may arise due to different goals and perceptions between owners and managers regarding the goals, vision, or information necessary to make decisions, and this can lead to what is known as information asymmetry (Albertini, 2019). CG mechanisms

help reduce agency costs and reduce information asymmetry (Makri et al., 2023). Vitolla et al. (2020) point out that the demand for disclosure of financial and non-financial reports has arisen due to conflicts between managers and shareholders and information asymmetry. The IR is a response to the information gap between managers and owners, and this can enhance trust and reduce confusion or uncertainty caused by differing goals and information between parties (Nagata & Nguyen, 2017; Qaderi et al., 2022). IR provides more comprehensive and transparent information to managers and owners, which enhances common understanding and helps reduce information asymmetry (Abdulfatah et al., 2022; Cheng et al., 2014). Therefore, agency theory provides better explanations of the relationships between the study variables, especially the relationships between CG mechanisms and IR disclosure.

Furthermore, regarding stakeholder theory, companies today take into account the interests of stakeholders in their strategies and decisions because this helps them build good relationships with these parties and achieve a balance between achieving business objectives and meeting the requirements and expectations of different stakeholders (Freeman, 2023). CG mechanisms play an important role in preserving the interests of various stakeholders (Elmashtawy et al., 2024; Makri et al., 2023). The company's IR disclosure practices and policies must take into account the expectations and needs of stakeholders,

which contribute to identifying information that is of high value to them (Freeman, 2015). If IR disclosure practices do not focus on the points of primary concern to stakeholders, disclosure may be ineffective or insufficiently effective (Abogazia et al., 2022). It is also important to emphasize that a company's perception of stakeholder power can influence IR disclosure practices (Freeman, 2015; Jiang et al., 2011). Therefore, when a company provides IR, it provides comprehensive information about various aspects of its environmental, social, and economic performance and responsibilities. This can meet some of the diverse requirements of different stakeholders (Qaderi et al., 2022). The interaction between IR and stakeholders can help achieve a balance between different stakeholder requirements and company goals and can enhance trust and transparency between the company and stakeholders. Moreover, the relationship between CG and IR under the stakeholder theory is based on enhancing transparency, sustainability, and concern for the interests of all stakeholders, which enhances the company's long-term success and provides a more comprehensive framework for evaluating its performance.

Concerning stewardship theory, effective CG mechanisms enhance the stewardship behavior of managers by creating a framework that encourages responsible and ethical decision-making, accountability, and transparency (Davis et al., 2018). According to Qaderi et al. (2022), stewardship theory promotes a

long-term perspective, where stewards are expected to prioritize sustainable growth. Stewardship theory and IR are related in the context of corporate disclosure practices and organizational transparency (Nagata & Nguyen, 2017). IR aligns with stewardship theory's focus on the long-term perspective by encouraging companies to disclose information about their long-term strategy, risks, opportunities, and value creation processes (Chouaibi et al., 2022). Furthermore, IR also reflects stewardship principles by recognizing the importance of engaging with diverse stakeholders beyond just shareholders (Davis et al., 2018).

According to Radin et al. (2023), ownership structure, board characteristics, and CEO characteristics can influence management in the practice of IR disclosure. There is a discrepancy in the results of previous studies regarding the nature of the relationship between the type of ownership structure, the board characteristics, the CEO characteristics, and the IR disclosure (Mehdi et al., 2017). This difference is considered a result of the differences in the countries, periods, and environments in which these studies were conducted in terms of social, cultural, and legal factors. Moreover, this is reflected in the members of the Board of Directors, the CEO, the type of ownership structure, and their effective role in making decisions in the joint-stock company in general and selecting the level and quality of IR disclosure in particular (Sriani & Agustia, 2020). Some studies found positive effects (Omran et al., 2021; Raimo

et al., 2020; Vitolla et al., 2020); others found negative effects (Abdulfatah et al., 2022; Nagata & Nguyen, 2017); and some did not find any effects (Abdulfatah et al., 2023; Onyabe et al., 2016). Therefore, the current study attempts to provide practical evidence from the Egyptian environment about the nature of the relationship between these variables, which may contribute to reducing the controversy surrounding the relationships between these variables.

In the Egyptian context, IR disclosure refers to the provision of IR that reflects the financial performance of companies transparently and comprehensively, in line with international accounting standards and best practices in governance and transparency. The IR disclosure is of great importance in enhancing confidence among investors and shareholders and enhancing the transparency of the financial market. Moreover, these reports are of particular significance in enhancing the credibility of companies and reducing the financial risks associated with investment, which contributes to the stability of the Egyptian financial markets and raises the efficiency of corporate management. According to the requirements of IR disclosure in the Egyptian context, companies are required to submit periodic reports that include profit and loss statements, financial position, cash flows, and changes in equity. IR includes disclosure of environmental and social activities, which contributes to enhancing the company’s image in terms of

sustainability. Furthermore, IR should address the company's financial and non-financial risks and how they are managed. The IR also highlights future strategic plans and their impact on expected financial performance.

2.2. The effect of ownership structure on integrated reports disclosure

The ownership structure is an important element of CG and a complex system of legal, institutional, and market forces to which companies are subject (Abdulfatah et al., 2023). The ownership structure is one of the factors affecting the performance of companies, the choice of accounting policies by management, and ensuring the protection of the rights of minority shareholders (He & Kyaw, 2018). According to Zouari and Dhifi (2022), the role of owners in CG and achieving effective oversight to control management behavior depends on two basic factors: the extent of dispersion or concentration of ownership and the extent of the owner's knowledge of the company's conditions and the ability to access and interpret information. In emerging markets, concentrated ownership is common, and agency problems are noticeable between controlling shareholders and small investors (Fijałkowska et al., 2022). Abdulfatah et al. (2023) concluded that there is an effect of concentrated ownership in large investors on IR disclosure, and it agreed with the results of Radin et al. (2023) that there is a positive effect of concentrated ownership on IR disclosure. In

contrast, Zouari and Dhifi (2022) found an inverse association between concentrated ownership and IR disclosure.

Moreover, Raimo et al. (2020) pointed out that institutional investors have the experience and competence that enable them to analyze the information and draw conclusions. This leads to reducing management's exploitation of the information to achieve its benefit at the expense of the rest of the stakeholders, thus increasing the IR disclosure. Radin et al. (2023) concluded that institutional ownership has an important role in reducing the agency problem, activating governance mechanisms, and reducing the state of information asymmetry between management and investors. Numerous studies have concluded that there is an association between institutional ownership and IR disclosure (Ali et al., 2023; Raimo et al., 2020; Zouari & Dhifi, 2022). On the other hand, dispersed ownership is defined as the percentage of shares that are freely traded in the stock market (Mehdi et al., 2017). The spread and distribution of share ownership among a large number of shareholders in the company lead to an increase in agency costs (He & Kyaw, 2018), as a result of the costs incurred by shareholders due to the difficulty of supervising and monitoring management's actions. The importance of IR disclosure increases in light of dispersed ownership due to the increased agency problem and information asymmetry (Radin et al., 2023). Jiang et al. (2011) concluded that there is a positive impact of dispersed ownership on IR

disclosure as management seeks to preserve its shareholders. Conversely, Zouari and Dhifi (2022) did not find any effect of dispersed ownership on the IR disclosure.

According to agency theory, ownership of shares by managers contributes to the convergence of interests between management and external shareholders, which affects the transparency of disclosure (Jiang et al., 2011). On the contrary, Pergola and Joseph (2011) indicated that increasing managerial ownership reduces the credibility of the accounting information disclosed in financial reports. The findings of prior literature on the impact of managerial ownership on IR disclosure varied between a positive effect, a negative effect, or no effect (Abdulfatah et al., 2022; Raimo et al., 2020; Zouari & Dhifi, 2022). In addition, some foreign may control companies either through ownership, management, or both, and may engage in some practices that achieve the foreign's benefits at the expense of minority rights (Radin et al., 2023). Nagata and Nguyen (2017) believe that foreign ownership may be a better way to increase IR disclosure within the company by motivating its members to maximize the profits of all shareholders. Radin et al. (2023) concluded that there is a negative effect of foreign ownership on IR disclosure due to their keenness to reduce costs. Therefore, the following hypotheses have been formulated:

$H_0$1: Ownership structure has a significant effect on integrated report disclosure.

$H_0$1a: Concentrated ownership has a significant effect on integrated report disclosure.
$H_0$1b: Institutional ownership has a significant effect on integrated report disclosure.
$H_0$1c: Dispersed ownership has a significant effect on integrated report disclosure.
$H_0$1d: Administrative ownership has a significant effect on integrated report disclosure.
$H_0$1e: Foreign ownership has a significant effect on integrated report disclosure.

2.3. The effect of board characteristics on integrated reports disclosure

The Board of Directors is one of the most important CG mechanisms that affect IR disclosure, especially in light of the Egypt transition to implementing international accounting standards (Al-Faryan, 2019). The efficiency and effectiveness of the Board of Directors is one of the determinants of the financial failure of companies, as the lack of performance of the Board of Directors leads to weak CG, which increases the conflict of interests between management and owners (Elmashtawy et al., 2023). Numerous studies have addressed the association between board characteristics and IR disclosure (Ofoegbu et al., 2018; Tiron-Tudor et al., 2020; Vitolla et al., 2020). Selecting the appropriate number of members of the board in proportion to the

company's size and circumstances is considered a vital matter in identifying the level and quality of IR disclosure (Makri et al., 2023). Increasing the board size may hinder the board from carrying out its tasks due to the resulting problems in coordination and communication among board members (Girella et al., 2021), and a decrease in the board size below the appropriate number may have the same effect as increasing it. Experimental studies on the size of the board and IR disclosure differed in whether there was a positive or negative relationship or no relationship (Chouaibi et al., 2022; Makri et al., 2023; Vitolla et al., 2020).

Furthermore, the presence of independent and non-executive members on the Board of Directors is a sign of the independence of the Board of Directors (Elmashtawy et al., 2023). The CG Regulations in Egypt stipulate that the majority of board members must be non-executive members (Al-Faryan, 2019). Vitolla et al. (2020) concluded that board independence has a positive effect on improving the board's decisions and making them more objective and independent, especially concerning IR disclosure. Increasing the percentage of independent members within the board also plays a role in the direction of companies towards adopting IR disclosure (Makri et al., 2023; Ofoegbu et al., 2018). In addition, board meetings are considered evidence of the board's diligence and activity toward carrying out its functions (Elmashtawy et al., 2023; Radin et al.,

2023). According to Vitolla et al. (2020), the increase in board meetings is associated with IR disclosure due to the availability of expertise and the exchange of experiences and ideas within the board. Makri et al. (2023) did not find any relationship between board meetings and IR disclosure. Moreover, board gender diversity indicates the presence of female members within the board. According to Qaderi et al. (2022), the presence of females on the board is associated with a lack of risk and increased disclosure and transparency. Female members are more likely to favor IR disclosure initiatives and reach out to their managers and employees for innovative ideas that are worth research, development, and investment (Vitolla et al., 2020). Many studies that examined the relationship between board gender diversity and IR disclosure have found a positive association between them (Chouaibi et al., 2022; Makri et al., 2023; Tiron-Tudor et al., 2020). Based on the foregoing arguments, the following hypotheses have been proposed:

H02: Board characteristics have a significant effect on integrated report disclosure.

$H_0$2a: Board independence has a significant effect on integrated report disclosure.

$H_0$2b: Board size has a significant effect on integrated report disclosure.

$H_0$2c: Board meetings have a significant effect on integrated report disclosure.

$H_0$2d: Board gender diversity has a significant effect on integrated report disclosure.

2.4. The effect of CEO characteristics on integrated reports disclosure

According to most previous studies, IR disclosure is affected by the CEO's characteristics (Onyabe et al., 2016). The chairman of the board of directors not holding executive positions allows the board to effectively supervise and control the work of management on behalf of the shareholders (Elmashtawy et al., 2023). Previous studies differed regarding the effect of CEO duality on IR disclosure, as some studies found a positive effect (Muttakin & Khan, 2023; Onyabe et al., 2016), while other studies did not find any effect of this relationship (Garcia-Sanchez et al., 2021).

Prior literature has identified the association between CEO expertise and IR disclosure and revealed conflicting results between positive and negative or no relationship (Garcia-Sanchez et al., 2021; Muttakin & Khan, 2023; Onyabe et al., 2016). Furthermore, the relationship between the tenure of the CEO and IR disclosure is the subject of numerous studies (Muttakin & Khan, 2023; Onyabe et al., 2016). Onyabe et al. (2016) concluded that there is a positive impact of the tenure of the CEO on IR disclosure. In contrast, Muttakin and Khan (2023) found a negative effect of the tenure of the CEO on IR disclosure. Thus, the following hypotheses have been proposed:

$H_0$3: CEO characteristics have a significant effect on integrated report disclosure.
$H_0$3a: CEO duality has a significant effect on integrated report disclosure.
$H_0$3b: CEO expertise has a significant effect on integrated report disclosure.
$H_0$3c: The tenure of the CEO has a significant effect on integrated report disclosure.

3. Methodology

3.1. Sample Selection

The study population consists of all Egyptian companies registered in the stock exchange from 2016 to 2023. The sample was selected according to the following conditions: First, the banking sector, the financial services sector, and insurance companies were excluded because of their nature specific to financial reporting. Secondly, companies whose financial statements were prepared in a foreign currency were excluded, so all sample companies' financial statements were prepared in Egyptian pound. Third, companies' financial reports must be available regularly and contain sufficient data to measure the study variables and the board of directors reports. Finally, the company must not have been subject to delisting, merger, or discontinuation during the study period. After applying the previous conditions, the final sample for the study consists of 60 non-financial companies listed on the Egyptian Stock Exchange

and 480 observations, distributed to 11 sectors over the 2016–2023 period. The following table shows a summary of the number of sample companies distributed by sector:

Table 1: Sample Selection

No.	Sectors	Companies	Observations	
			No.	%
1	Basic resources	6	48	10%
2	Real estate	12	96	20%
3	Health care and phamaceuticals	8	64	13.3%
4	Trade and distributors	2	16	3.3%
5	Textile and durables	3	24	5%
6	Construction and materials	5	40	8.3%
7	Telecommunication services, media and information technology	4	32	6.7%
8	Contracting and construction engineering	7	56	11.7%
9	Travel and leisure	4	32	6.7%
10	Industrial goods, services and automobiles	3	24	5%
11	Food, beverages and tobacco	6	48	10%
Total		60	480	100%

3.2. Research Design

The study relied on secondary data, especially the financial statements, board of directors' reports, and supplementary clarifications of the sample companies. In addition, the study collected data from the companies' financial reports, which are published on the websites of the Egyptian stock Exchange and the Mubasher website (http://www.Mubasher.info). This study uses data panel regression by ordinary least squares with fixed effects. Content analysis of the IR was performed for the dependent variable. Furthermore, the following statistical direct effect model was formulated to examine the study hypotheses:

$$IRDISi,t = \beta0 + \beta1\ COWi,t-1 + \beta2\ IOWi,t-1 + \beta3\ DOWi,t-1 + \beta4\ AOWi,t-1 + \beta5\ FOWi,t-1 + \beta6\ BINDi,t-1 + \beta7\ BSIZi,t-1 + \beta8\ BMEETi,t-1 + \beta9\ BGDIVi,t-1 + \beta10\ CEODUALi,t-1 + \beta11\ CEOEXPi,t-1 + \beta12\ CEOTENi,t-1 + \beta13\ LSIZEi,t-1 + \beta14\ ROEi,t-1 + \beta15\ LEVi,t-1 + i,t-1$$

The function of the model is to analyze the effect of ownership structure (concentrated ownership, institutional ownership, dispersed ownership, administrative ownership, and foreign ownership), board characteristics (board size, board independence, board meetings, and board gender diversity), and CEO characteristics (CEO duality, CEO expertise, and tenure of CEO) on IR disclosure on the Egyptian Stock Exchange. Figure 1 illustrates the framework of the study.

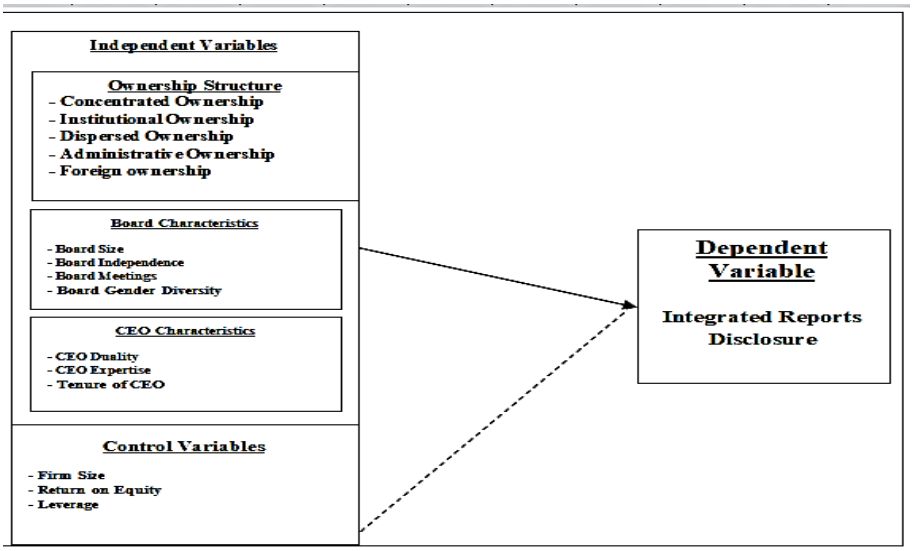

figure 1: Study framework

3.3. Measurement of Variables

3.3.1. Measurement of the dependent variable

The dependent variable is integrated report disclosure (IRDIS). This study measures the IRDIS index based on content analysis of eight elements (IIRC, 2013). Regarding the content analysis approach, numerous studies (Ahmed et al., 2021; Hoque, 2017; Lipunga, 2015; Maama & Mkhize, 2020) find that content analysis is the most appropriate method to analyze disclosure practices. In content analysis, the disclosure level can be measured by counting the number of sentences, items, pages, or the amount of information that the firm disclosed (Abeysekera, 2013; Camilleri, 2018). This study uses content analysis that depends on an index expressed with an IRDIS score by assessing the importance and weights of each element of the eight elements in the IRDIS framework. The study determines the score by comparing the information disclosed by each company with the IRDIS-constructed index to get the disclosure score for each observation. The IRDIS score equals the weighted average of the disclosed points concerning (1) organizational overview; (2) governance; (3) risks and opportunities; (4) strategy and resource allocation; (5) business model; (6) future outlook; (7) performance; and (8) external environment (IIRC, 2011, 2013). Accordingly, IRDIS has eight dimensions, which may be stated using the equation below:

$$\mathbf{IRDIS_{it}} = \sum_{\mathbf{j=1}}^{\mathbf{8}} \mathbf{X_{it}} + \boldsymbol{\varepsilon}_{\mathbf{it}}$$

Where X_t reflect the dimensions of IRDIS, i, t, and ε_{it} measure the individual influence, the temporal influence, and the stochastic error, respectively, where:

$$\sum_{j=1}^{8} X_{it} = \alpha + \beta_1 Organizational\ overview_{it} + \beta_2 Governance_{it} + \beta_3 Risk\ and\ opportunities_{it} + \beta_4 Strategy\ and\ resource\ allocation_{it} + \beta_5 Business\ model_{it} + \beta_6 Future\ outlook_{it} + \beta_7 Performance_{it} + \beta_8 External\ environment_{it}$$

Following that, the study created a disclosure index based on the IIRC, which had 235 elements. Based on the method followed to measure the IRDIS score, the minimum IRDIS score is 0, and the maximum IRDIS score is 235 (8 main content dimensions have 47 sub-components, multiplied by 5 points per element). The higher IRDIS score pertains to a high level of IRDIS consistent with the guidelines of the IR framework.

3.3.2. Measurement of the independent variables

The independent variables are ownership structure (concentrated ownership, institutional ownership, dispersed

ownership, administrative ownership, and foreign ownership), board characteristics (board size, board independence, board meetings, and board gender diversity), and CEO characteristics (CEO duality, CEO expertise, and tenure of CEO). To begin with, the concentration of ownership (COW) is measured as the total percentage of shares owned by major investors who own a share in the capital of more than 5% (Ali et al., 2023; Raimo et al., 2020; Zouari & Dhifi, 2022). Next, institutional ownership (IOW) is defined as the ratio of company shares owned by institutions to the total number of company shares (Ali et al., 2023; Radin et al., 2023; Zouari & Dhifi, 2022). Then, dispersed ownership (DOW) is measured by dividing the number of shares that are freely traded on the stock exchange by the total number of company shares (He & Kyaw, 2018; Jiang et al., 2011; Radin et al., 2023). Next, administrative ownership (AOW) is measured by the ratio of the number of shares owned by members of the Board of Directors to the total number of company shares (Abdulfatah et al., 2022; Raimo et al., 2020; Zouari & Dhifi, 2022). Meanwhile, foreign ownership (FOW) is measured by the ratio of the number of shares owned by the foreign companies to the total number of company shares (He & Kyaw, 2018; Jiang et al., 2011; Radin et al., 2023).

Following that, board size (BSIZ) is measured by the total number of board members (Chouaibi et al., 2022; Qaderi et al., 2022; Tiron-Tudor et al., 2020). Then, board independence

(BIND) is measured using the proportion of the number of independent board members to the total number of board members (Elmashtawy et al., 2023; Makri et al., 2023; Vitolla et al., 2020). Next, board meetings (BMEET) are measured by the frequency of board meetings during a year (Elmashtawy et al., 2023; Makri et al., 2023; Vitolla et al., 2020). Meanwhile, board gender diversity (BGDIV) is measured as the ratio of female members on the board (Chouaibi et al., 2022; Qaderi et al., 2022; Tiron-Tudor et al., 2020). Moreover, CEO duality (CEODUAL) is measured by a dummy variable that takes the value 1 if the Chairman of the Board of Directors is the CEO of the company and 0 otherwise (Elmashtawy et al., 2023; Qaderi et al., 2022; Radin et al., 2023). Next, CEO expertise (CEOEXP) is measured by a dummy variable that equals 1 if the CEO has an accounting background and/or experience in the same industry as the company and 0 otherwise (Garcia-Sanchez et al., 2021; Onyabe et al., 2016). Meanwhile, the tenure of the CEO (CEOTEN) is defined as the number of years a CEO has held the position (Muttakin & Khan, 2023; Onyabe et al., 2016).

3.3.3. Measurement of the control variables

Concerning the control variables, the study used three control variables, which are firm size, return on assets, and leverage. To begin, firm size (LSIZE) is defined as the natural logarithm of the company's total assets (Abdulfatah et al., 2023; Abogazia et al., 2022; Elmashtawy et al., 2024). Next, return on

equity (ROE) is calculated as the ratio of net income to total equity (Ahmed et al., 2021; Qaderi et al., 2022; Vitolla et al., 2020). Meanwhile, leverage (LEV) is measured as the proportion of total liabilities to total assets (Jiang et al., 2011; Onyabe et al., 2016; Radin et al., 2023).

4. Results Estimation

4.1. Reliability and Validity of the IRD Index

Reliability refers to the extent to which the same experiment results are consistent if repeated more than once with the same test or measurement procedures (Carmines & Zeller, 1979; Elmashtawy & Salaheldeen, 2023). Regarding the disclosure index related to this study, to be a reliable index, if a group of companies has the highest level of disclosure scores once, they have to have the highest disclosure scores if the same experiment is repeated. Validity is "the extent to which any measuring instrument measures what it is intended to measure (Carmines & Zeller, 1979). The construct validity focuses on how well a measure performs under theoretical expectations. If the scale's performance is in line with theoretically derived expectations, then this scale can be said to be a valid construct (Carmines & Zeller, 1979; Elmashtawy & Salaheldeen, 2023). Therefore, testing the construct validity of the disclosure index requires a pattern of results consistent with previous studies. In this study, the construct index's validity was examined using its results, which were consistent with earlier research findings.

4.2. Descriptive statistics

Table 2 summarizes the descriptive statistics of the mean, minimum, maximum, and standard deviation of all the variables (dependent, independent, and control). With regard to the dependent variable, descriptive statistics show that the average IRDIS index is 144.5 out of 235 points. It was indicated that there is a significant degree of variability in the IRDIS index. The mean of COW was 0.59, which indicates that the sample companies have a good level of major shareholders whose ownership percentage exceeds 5%. The mean of IOW was 0.42, and by comparing this percentage with the highest value of institutional ownership, which amounted to 0.93, it becomes clear that the sample companies possess an average level of institutional ownership, and the standard deviation reached 0.24, which indicates that there is a difference between the sample companies. While the mean of DOW reached 13% ownership of free shares, which indicates that the sample companies do not have a high percentage of free investments, the standard deviation reached 0.18, which indicates that there is a difference between the companies under study with regard to dispersed ownership. The average of AOW also reached 0.47, which indicates that the board of directors plays an important role and has a clear impact on the companies under study, in addition to the companies' application of governance standards related to board ownership. The mean FOW of the sample companies was

0.22, and from this value, it can be inferred that a good number of the sample companies are foreign owned. The standard deviation reached 0.25, which indicates that there is a difference between foreign ownership in the sample companies.

On the other hand, the mean of the BSIZ was 7.82, with a standard deviation of 2.32, which indicates the presence of homogeneity among the number of board members in the sample companies. The lowest value was 4 members, and the highest value was 13 members, which indicates the compliance of some of the sample companies with applying the principles of Egyptian CG related to determining the number of members of the board of directors (a minimum of three members and a maximum of thirteen members). The mean of BIND reached 62%, which indicates that there is independence among the members of the board of directors. The standard deviation reached 23%, which indicates the existence of a difference in the study sample. The mean of BMEET is 8.31, and the minimum and maximum levels are 3 and 21, respectively. The mean of BGDIV was around 12%, with a standard deviation of 0.23. Furthermore, the results indicated that the percentage of CEODUAL reached 31%; this percentage is a good indicator of companies' compliance with applying Egypt governance rules. In addition, the percentage of CEOEXP was around 59%. The mean of CEOTEN is 1.39, and the minimum and maximum levels are 1 and 5, respectively.

Table 2: Descriptive Statistics

Descriptive Statistics for Continuous Variable					
Variables	**Obs.**	**Min**	**Max**	**Mean**	**S.D**
IRDIS	**480**	**87**	**187**	**144.5**	**24.12**
COW	**480**	**0**	**0.97**	**0.59**	**0.25**
IOW	**480**	**0.04**	**0.93**	**0.42**	**0.24**
DOW	**480**	**0**	**0.99**	**0.13**	**0.18**
AOW	**480**	**0**	**0.98**	**0.47**	**0.28**
FOW	**480**	**0**	**0.97**	**0.22**	**0.25**
BSIZ	**480**	**4**	**13**	**7.82**	**2.32**
BIND	**480**	**0**	**1**	**0.62**	**0.23**
BMEET	**480**	**3**	**21**	**8.31**	**4.25**
BGDIV	**480**	**0**	**0.38**	**0.12**	**0.23**
CEOTEN	**480**	**1**	**5**	**1.39**	**0.73**
LSIZE	**480**	**5.62**	**6.05**	**7.85**	**8.14**
ROE	**480**	**-0.45**	**0.39**	**0.03**	**0.12**
LEV	**480**	**0.004**	**0.91**	**0.32**	**0.20**
Descriptive Statistics of Dummy Variables					
Variables	**Obs.**	**Frequency (0)**	**Frequency (1)**	**Percentage (0)**	**Percentage (1)**
CEODUAL	**480**	**232**	**103**	**0.69**	**0.31**
CEOEXP	**480**	**197**	**138**	**0.59**	**0.41**

With regard to control variables, the average of LSIZE was 7.85, which indicates that the sample under study possesses a value of assets that qualifies it to continue. This was inferred by comparing the mean value with the highest value for this variable, which was 6.05. The average ROE reached 3%, which indicates a fluctuation in the profitability ratio of the companies under study during the research period. The average LEV reached 32%, which indicates that the companies under study bear an average percentage of debts to others. This was inferred by comparing this ratio with the highest value of 0.91, while the lowest value was 0.004.

4.3. Correlation analysis

It is clear from the correlation coefficient matrix shown in Table 3 that there are no high correlations between the study variables, suggesting that there is no multicollinearity problem in the study (Gujarati & Porter, 2003; O'brien, 2007). The highest correlation rate reached 0.48, which is the correlation rate between both COW and AOW, which indicates that the higher the percentage of administrative ownership, the higher the percentage of major shareholders, whose percentage increases by about 5%, and vice versa.

Table 3: Pearson Correlations Results

Variables	IRDIS	COW	IOW	DOW	AOW	FOW	BSIZ	BIND	BMEET	BGDIV	CEODUAL	CEOEXP	CEOTEN	LSIZE	ROE	LEV
IRDIS	1.00															
COW	-0.07	1.00														
IOW	0.39**	0.24**	1.00													
DOW	0.19*	0.12	0.06	1.00												
AOW	-0.01	0.48**	0.24***	0.32*	1.00											
FOW	0.28*	0.21**	0.15**	-0.25**	0.21***	1.00										
BSIZ	-0.16*	-0.19*	0.05	-0.18	0.12	-0.14*	1.00									

		*				*										
BIND	**-0.32****	**-0.35****	**-0.21***	**-0.09**	**-0.32*****	**-0.26***	**0.38***	**1.00**								
BMEET	**0.10**	**0.06**	**-0.14****	**0.26*****	**0.03**	**-0.04**	**0.20****	**0.04**	**1.00**							
BGDIV	**0.06***	**-0.17****	**0.06**	**0.02**	**0.15***	**0.11**	**-0.02**	**0.02**	**-0.02**	**1.00**						
CEODUAL	**0.04**	**-0.14****	**-0.14****	**-0.15***	**-0.33****	**-0.02**	**-0.18**	**-0.18**	**0.26****	**-0.01**	**1.00**					
CEOEXP	**0.06**	**0.11***	**-0.03**	**-0.19****	**0.06**	**0.15****	**0.01**	**0.08**	**0.04**	**-0.09**	**0.04***	**1.00**				
CEOTEN	**-0.18***	**0.04****	**-0.12**	**0.14***	**0.03****	**0.34**	**-0.05**	**0.27***	**0.21**	**-0.05**	**0.11**	**0.12***	**1.00**			
LSIZE	**0.35****	**-0.02**	**-0.15***	**-0.01**	**-0.11**	**-0.11**	**-0.18**	**0.17**	**0.03**	**-0.23****	**-0.00**	**0.01**	**0.06**	**1.00**		
ROE	**-0.12****	**0.03**	**-0.01**	**0.06**	**0.07**	**-0.04**	**0.03**	**0.01**	**-0.04**	**0.09**	**0.15****	**-0.02**	**0.01**	**-0.24***	**1.000**	
LEV	**0.16*****	**0.08**	**0.13**	**0.28***	**0.28****	**-0.28****	**0.40****	**-0.17**	**0.31****	**0.27****	**-0.03**	**-0.000**	**-0.04**	**0.05**	**0.35***	**1.000**

Note: *, **, and * are the significance levels at 0.10, 0.05, and 0.01, respectively.**

Table 4 aims to reveal the extent of the existence of reciprocal relationships between the variables of the study model.

The variance inflation factor (VIF) and the tolerance were used for each of the study variables to determine whether there is a high correlation between the variables, which makes it difficult to determine the contribution of each of the independent variables in explaining the changes that occur in the dependent variable. The VIF must be < 1.30, and the tolerance value must be > 0.05 (O'brien, 2007; Pallant, 2020).

Table 4: Variance Inflation Factor Results

Variables	VIF	Tolerance
IRDIS	**1.02**	**0.14**
COW	**1.06**	**0.08**
IOW	**1.18**	**0.07**
DOW	**1.14**	**0.12**
AOW	**1.13**	**0.04**
FOW	**1.07**	**0.05**
BSIZ	**1.20**	**0.06**
BIND	**1.25**	**0.08**
BMEET	**1.17**	**0.11**
BGDIV	**1.25**	**0.08**
CEODUAL	**1.23**	**0.08**
CEOEXP	**1.02**	**0.11**
CEOTEN	**1.03**	**0.10**
LSIZE	**1.06**	**0.05**
ROE	**1.12**	**0.09**
LEV	**1.18**	**0.08**

The variance inflation factor (VIF) test findings in Table 4 reveal a very low VIF for each variable (less than 1.30) and a large tolerance (at least 0.05), which indicates that the analysis does not suffer from multicollinearity problems within variables.

5. Discussion and Implications

5.1. Multivariate Regression Results Analysis

The findings in Table 5 present the multivariate regression using OLS regression results. Regarding the effect of ownership structure on IRDIS, the results concluded that COW does not affect IRDIS (P-value = 0.12). This is consistent with the results of the studies (Jiang et al., 2011; Raimo et al., 2020). This result indicates that the control of the main owners makes them seek to maximize their self-interests at the expense of the interests and rights of minority shareholders, which is reflected in the IRDIS. Moreover, there is a significant positive impact of IOW on IRIS (P-value = 0.00). This agrees with the findings of the studies (Ali et al., 2023; Raimo et al., 2020; Zouari & Dhifi, 2022). This may be because the institutions that own shares in the company influence making decisions, whether within the Board of Directors or the General Assembly of Shareholders, which has a positive impact on IRDIS. In addition, the results showed that there is no effect of DOW or AOW on the IRDIS (P-value = 0.35 and 0.26, respectively), which is consistent with the studies (Abdulfatah et al., 2022; Nagata & Nguyen, 2017; Radin et al., 2023). This result indicates that the majority of companies under study comply with the Egyptian CG Regulations, which avoids conflicts of interest. Therefore, there is no significant influence on the IRDIS to serve the interests of a specific category of shareholders. In contrast to previous findings, the results revealed

a significant negative effect of FOW on IRDIS (P-value = 0.02). This result is consistent with the studies (Nagata & Nguyen, 2017; Radin et al., 2023), which indicate that increasing foreign ownership leads to management using conservative accounting policies, which increases the motives for not disclosing all information about the company and thus affects IRDIS negatively.

Regarding the effect of board characteristics on IRDIS, the results revealed a significant positive effect of BSIZ, BIND, and BGDIV on IRIS (P-value = 0.03, 0.00, and 0.00, respectively). The results are supported by the studies (Chouaibi et al., 2022; Makri et al., 2023; Ofoegbu et al., 2018; Qaderi et al., 2022; Tiron-Tudor et al., 2020; Vitolla et al., 2020). This result indicates that the large board size, the increase in the percentage of independent and non-executive members, and the presence of females on the board enhance IRDIS in Egyptian companies. This result may be because a larger board of directors includes greater expertise, competencies, and multiple viewpoints, which positively affects IRDIS. Moreover, increasing the percentage of independence of board members leads to working to serve shareholders and various stakeholders, which positively affects IRDIS. In addition, the presence of women on the board of directors makes the board's decisions more monitored and more conservative, even if their participation rate is small, and thus

may serve the needs of stakeholders for financial and non-financial reports, which positively affects IRDIS.

Table 5: Panel Regression Analysis Results

Variables	IRDIS			
	Coef.	Std.Err.	t-value	P-value
Constant	5.31	2.15	0.02	(0.12)
COW	1.45	0.08	1.16	(0.12)
IOW	0.04***	0.03	0.24	(0.00)
DOW	-0.00	0.25	.0.56	(0.35)
AOW	0.73	0.62	0.44	(0.26)
FOW	-2.03**	1.16	-1.02	(0.02)
BSIZ	0.07**	0.11	0.04	(0.03)
BIND	0.06***	0.05	0.31	(0.00)
BMEET	-2.24**	0.02	-0.57	(0.02)
BGDIV	0.38***	0.04	0.81	(0.00)
CEODUAL	1.10***	0.06	-0.05	(0.00)
CEOEXP	1.52**	0.05	0.24	(0.03)
CEOTEN	-0.14**	0.06	-0.49	(0.04)
LSIZE	-0.71***	0.03	1.66	(0.00)
ROE	2.23	0.42	0.52	(0.27)
LEV	1.42	0.32	-2.24	(0.11)
N	480			
F-test	16.43			
Prob > F	0.00			
R-squared	0.36			
Adj. R^2	0.32			
Durbin-Watson stat	1.88			

Note: *, **, and * are the significance levels at 0.10, 0.05, and 0.01, respectively.**

On the contrary, the results concluded that there is a significant negative effect of BMEET on IRDIS (P-value = 0.02). This contradicts studies by Vitolla et al. (2020), which emphasized the importance of the board's activity in increasing the quantity and quality of IRDIS. This result may reflect that the increase in board meetings leads to the board not performing its duties to the fullest extent and the absence of coordination and distribution of responsibilities. Regarding the effect of CEO characteristics on IRDIS, the results concluded that there is a

significant positive effect of CEODUAL and CEOEXP on IRDIS (P-value = 0.00 and 0.03, respectively). This result agrees with several studies (Garcia-Sanchez et al., 2021; Onyabe et al., 2016). This result indicates that the CEO's expertise and the combination of the functions of the Chairman of the Board of Directors and the CEO are associated with an increased level of IRDIS, and this is due to the speed of decision-making of the CEO, who has financial or industrial expertise as a result of the combination of the two functions. Moreover, the results showed a significant negative effect of the CEOTEN on IRDIS (P-value = 0.04). This is in line with the results of Muttakin and Khan (2023). This result indicates that the longer the CEO's tenure within the company, the lower the level of IRDIS. This is due to the length of the tenure being associated with achieving his interests at the expense of shareholders' interests.

Concerning control variables, the results revealed that LSIZE has a significant negative effect on IRDIS (P-value = 0.00). This indicates that increasing LSIZE negatively affects the level of IRDIS. On the other hand, ROE and LEV do not affect IRDIS (P-value = 0.27 and 0.11, respectively). The findings indicate that the significance reached 0.00, which indicates that the independent variables combined are statistically significant in interpreting the dependent variable in the sample companies. Regarding the explanatory power of the model, the value of adjusted R^2 reached

0.32, which indicates that the change in these variables together explains at least 32% of the dependent variable.

5.2. Additional and Robustness Analysis

The study conducted additional analyses to assess the robustness and reliability of the main findings. The study used alternative measures of independent variables and divided the main model into three separate models. Model 1 investigates the effect of ownership structure on IRDIS; Model 2 examines the effect of board characteristics on IRDIS; and Model 3 assesses the effect of CEO characteristics on IRDIS. Table 6 presents the results of OLS regression with robust standard errors to examine the robustness and reliability of the main model results. The additional analysis concluded that previous findings are robust with alternative measurements of the independent variables and confirmed a significant effect of ownership structure, board characteristics, and CEO characteristics on IRDIS.

The study's findings have empirical implications for management’s disclosure of the type of ownership structure in companies and the decisions of the general assembly of shareholders regarding the selection of members of the board of directors and the CEO. The study results are also suitable input for users of financial statements and various stakeholders in evaluating the level of IRDIS in the Egyptian companies. The study findings may also provide important information that will

help the Egyptian regulatory and supervisory authorities develop accounting systems that contribute to improving the level and quality of IRDIS.

Table 6: Panel Regression Analysis Using Alternative Measurements

Variables	IRDIS		
	Ownership Structure (Model 1)	Board Characteristecs (Model 2)	CEO Characteristecs (Model 3)
Constant	-9.25** (0.03)	-7.71* (0.04)	-3.45* (0.06)
COW	1.06 (0.21)		
IOW	0.41*** (0.00)		
DOW	-0.27** (0.03)		
AOW	0.85 (1.32)		
FOW	-0.52* (0.08)		
BSIZ		0.81 (0.14)	
BIND		2.16*** (0.00)	
BMEET		-0.69 (1.02)	
BGDIV		0.55** (0.04)	
CEODUAL			-0.57 (0.71)
CEOEXP			0.13** (0.02)
CEOTEN			-0.36*** (0.00)
LSIZE	-2.62 (0.11)	3.51 (1.27)	2.88 (4.32)
ROE	0.05 (1.25)	0.16 (1.48)	0.04 (1.05)
LEV	0.04* (0.08)	0.03** (0.04)	0.04** (0.02)
N	480	480	480
F-test	14.02	11.56	13.47
Prob > F	0.00	0.00	0.00
R-squared	0.41	0.39	0.38
Adj. R^2	0.35	0.34	0.33
Durbin-Watson stat	2.04	1.91	2.12

Note: *, **, and * are the significance levels at 0.10, 0.05, and 0.01, respectively.**

6. Conclusion

The study analyzed the effect of ownership structure, board characteristics, and CEO characteristics on IR disclosure of 480 observations of non-financial companies listed on the Egyptian Stock Exchange from 2016 to 2023. Regarding the ownership structure, the results revealed a significant positive impact of institutional ownership on the IR disclosure index; on the contrary, there is a significant negative impact of foreign ownership on the IR disclosure index. On the other hand, there is no effect of concentrated ownership, dispersed ownership, or administrative ownership on the IR disclosure index. Considering the board characteristics, the results concluded that there is a significant effect of board size, board independence, and board gender diversity on the IR disclosure index, while there is a significant negative effect of board meetings on the IR disclosure index. Regarding the CEO characteristics, the results showed that there is a significant positive effect of CEO duality and CEO expertise on the IR disclosure index, while there is a significant negative impact of the tenure of the CEO on the IR disclosure index. Furthermore, robustness analyses were conducted and concluded that previous variables are robust with different measurements.

This study provides several contributions: First, this study adds to the current studies of CG and IR, especially in the Egyptian context. Second, the study findings are supported by

agency theory, stakeholder theory, and stewardship theory. In addition, the majority of studies that dealt with the type of ownership structure, the board characteristics, and the CEO characteristics and their impact on IR disclosure were conducted in developed countries (Albertini, 2019; Fijałkowska et al., 2022; Girella et al., 2021; Muttakin & Khan, 2023; Omran et al., 2021; Zouari & Dhifi, 2022), while this study focuses on the Egyptian context. Numerous studies were limited to focusing on analyzing the relationship between one variable and IR disclosure (Abdulfatah et al., 2022; Ali et al., 2023; Atkins & Maroun, 2015; Bananuka et al., 2019; Chouaibi et al., 2022; Onyabe et al., 2016), while the current study focuses on the influence of ownership structure, board characteristics, and CEO characteristics on IR disclosure. Finally, the study findings suggest that CG mechanisms can enhance IR disclosure in non-financial firms listed on the Egyptian Stock Exchange. Thus, the study has several practical implications for regulators, companies, and stakeholders. Companies need to pay attention to institutional ownership, board independence, board size, board gender diversity, CEO duality, and CEO expertise so that the company's IR disclosure can be increased. Moreover, the General Assembly of shareholders of the Egyptian joint stock companies must carefully select the independent and non-executive members of the Board of Directors, given their effective role in making decisions and recommendations within the board.

The study has significant limitations. First, the IRD index is measured solely by content analysis utilizing a disclosure quantity technique. Further research can expand the measurement using the quality of disclosure. Second, the study is limited to some CG mechanisms, which are the ownership structure, board characteristics, and CEO characteristics, as they influence IR disclosure most in previous studies. Therefore, other mechanisms of CG are beyond the scope of the research. Future research may focus on investigating the impact of other CG mechanisms on IR disclosure. Finally, the empirical study is also limited to Egyptian non-financial companies whose shares are traded on the Egyptian stock exchange, except banks and insurance companies due to their special nature. Future studies can be conducted to compare IR disclosures in financial and non-financial companies. Future research may also examine the study variables in various countries and compare them over a longer period of time for a broader interpretation.

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