Firm characteristics and forward-looking disclosure: the moderating role of gender diversity

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Abstract

Purpose – The purpose of this study is to examine the impact of firm financial and operational characteristics on the level of forward-looking information disclosure (FLID) by Egyptian-listed non-financial companies. The present research also aims to investigate the moderating role of gender diversity on the board of directors.

Design/methodology/approach – The sample incorporates the non-financial companies included in the EGX 100 of the Egyptian Stock Exchange (ESE), whose reports were available during the study period from 2013 to 2018. The final sample comprises 49 companies with 294 observations. Statistical analysis is performed using multiple regression analysis.

Findings – This study found a significant positive impact of return on assets, leverage, company size and age on the level FLID, while external audit firm type and industry were found to impact the level of FLID negatively. Further, the board gender diversity (BGD) is found to have a moderating impact as it strengthens the effect of financial and operational characteristics on the level of FLID.

Practical implications – The present study has some implications for Egyptian companies, investors in the Egyptian market and regulators in emerging economies, which include paying more attention to BGD when selecting the board members by companies as well as following up the female representation in all the listed companies by regulators.

Originality/value – To the best of the authors' knowledge, this is the first study to investigate the moderating role of BGD and its impact on the level of FLID in emerging markets. This extends the disclosure literature as the present study brings new evidence from an emerging market regarding BGD moderating role as early research concentrated on the direct impact of BGD on the level of FLID.

Keywords Gender diversity, Female representation, Forward-looking information disclosure, Narrative disclosure, Emerging economy

Paper type Research paper

1. Introduction

In the past two decades, corporate disclosure has changed drastically to satisfy the needs of information users. That is, companies must make additional disclosures (i.e. non-financial narrative disclosures) in addition to the traditional financial statements to support investors in their decision-making. These non-financial narrative disclosures include management forecasts, interim reports, company websites, press releases, environmental or social reports and forward-looking information disclosure (FLID) (Metwally *et al.*, 2021; Mohamed *et al.*,

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2019). Many studies in the literature concentrated on the role of FLID in enhancing annual reports' quality and providing additional non-financial information regarding risks, opportunities and strategic plans, as well as additional future financial information (Aljifri and Hussainey, 2007; Kılıç and Kuzey, 2018; Lokman *et al.*, 2018).

Other studies in the literature concentrated on the determinants of FLID and confirmed that the level of future information disclosure is based on a set of determinants, including firm financial and operational characteristics (Alkhatib, 2014; Bravo and Alcaide-Ruiz, 2019; Buertey and Pae, 2021; Dey *et al.*, 2020; Firmansyah and Irwanto, 2020; Hassanein and Hussainey, 2015; Hassanein *et al.*, 2019; Kılıç and Kuzey, 2018; Lokman *et al.*, 2018; Qu *et al.*, 2015; Waweru *et al.*, 2016). These characteristics determine the degree of freedom of management to choose between the accounting alternatives allowed by the standards. In addition, companies differ among themselves concerning their operational characteristics, which affect the uncertainty associated with their operations and the cost of financing, growth opportunities and risks that may be exposed to them. Recently, many studies concentrated on board gender diversity (BGD) and its impact on the level of disclosure (e.g. Dey *et al.*, 2020; Kılıç and Kuzey, 2018; Liao *et al.*, 2015; Sarhan and Ntim, 2019). These studies concluded that BGD impacts the level of disclosure positively. This entails that high BGD increase the level of disclosure, including FLID. However, little evidence exists on the relationship between voluntary disclosures and female representation on the board of directors (Adams and Ferreira, 2009; Aribi *et al.*, 2018; Arun *et al.*, 2015; Elgammal *et al.*, 2018; Frias-Aceituno *et al.*, 2013; Kılıç and Kuzey, 2018; Nadeem, 2020, 2021).

Although BGD was extensively studied, the main concentration of those studies is on mandatory reporting practices, and little concentration is given to voluntary disclosure like FLID (Aribi *et al.*, 2018; Bravo and Alcaide-Ruiz, 2019; Elgammal *et al.*, 2018). Previous studies revealed conflicting findings regarding the direct effect of BGD on the level of FLID, as some studies concluded that there is a positive relationship (Aribi *et al.*, 2018; Bravo and Alcaide-Ruiz, 2019; Frias-Aceituno *et al.*, 2013; Kılıç and Kuzey, 2018). On the contrary, Dey *et al.* (2020) reported a negative relationship between BGD and the level of FLID. While no studies were found, as it comes to our knowledge that concentrated on the moderating role of BGD on the relationship between firm characteristics and FLID. Hence, the moderating impact of BGD on the level of disclosure represents a research gap in the literature.

The current study examines the impact of firm financial and operational characteristics on the level of FLID by Egyptian-listed non-financial companies. Moreover, the current research also aims to investigate the moderating role of BGD in the relationship between financial and operational characteristics and the level of FLID by Egyptian-listed non-financial companies. Concentrating on the Egyptian context is one of the main contributions of this paper as most of the conducted studies were in developed countries, whose contextual ramifications are different from developing countries like Egypt. The Middle East and North African (MENA) region, especially Arab countries, including the Egyptian context, represent a unique setting that requires further attention as this region has several socio-political and economic changes due to liberation movements and the recent Arab spring uprising (Ramadan and Hassan, 2022). Since the late 1990s, Egypt has started its economic reforms and market liberation movements. These movements included privatisation, reducing public expenditures, improving governance and empowering women (Desoky and Mousa, 2013; Hassan and Power, 2009; Mohamed *et al.*, 2019; Ramadan and Hassan, 2022). These changes were made as advised by the Egyptian government's western partners like the International Monetary Fund (IMF) and the World Bank (WB) to strengthen the Egyptian economy and its business sector. However, amidst the regulatory rules and economic reform program transformations, Egypt underwent two revolutions on 25 January 2011 and 30 June 2013. These revolutionary events significantly impacted Egypt's political, economic and regulatory reforms (Diab and Metwally, 2020). The revolutionary movements backed up by revolutionary mentality resulted in political unrest and economic instability. The continuation of this revolutionary

mentality in the streets produced a culture of fear in the Egyptian market. This fear was the main driver for companies, investors, shareholders and even the government (Metwally and Diab, 2021; Mohamed Metwally, 2017).

The above-mentioned instability and fears pushed the Egyptian government to make several reforms to reduce fears and tensions in the market and the country. These reforms included adding new rules to protect workers and empower women. The scarcity of studies that concentrate on BGD in such an unstable and exceptional context guided us to examine the moderating role of BGD in the relationship between financial and operational characteristics and the level of FLID. The current research provides one of the first studies to investigate the moderating role of BGD and its impact on the level of FLID in an emerging market. Having said this, the current study sought to answer three related questions to understand the moderating impact of BGD in the Egyptian context: (1) What is the impact of firm financial characteristics on the level of FLID? (2) What is the impact of firm operational characteristics on the level of FLID? (3) Do BGD has a moderating impact on the relation between the firm financial and operational characteristics and FLID? Our results reveal that there is a significant positive impact of return on assets (ROA), leverage, company size and age on the level FLID. At the same time, external audit firm type and industry were found to impact the level of FLID negatively. Further, BGD is found to have a moderating impact as it strengthens the effect of financial and operational characteristics on the level of FLID. Hence, this study provides evidence that the presence of female members on the board of directors is one of the crucial aspects that affect the level of FLID.

Based on the above discussion, the current paper seeks to make the following contributions to the existing literature. Firstly, it investigates the moderating impact of gender diversity on disclosure practices in a developing context with several political, economic and regulatory reforms that empower women in all aspects, including managing companies. Secondly, compared to previous disclosure studies in the Egyptian context, our study pioneers by relying on three theories, namely, agency theory, signalling theory and resource dependency theory as a solid theoretical framework to develop testable hypotheses and explain the study's findings. Thirdly, it investigates the impact of BGD directly after two revolutions since the study data cover the years 2013–2018. Finally, findings and implications of this study will be of interest to Egyptian companies, investors in the Egyptian market and regulators in emerging economies, especially Arab countries that shared the same political and economic instability recently in the Arab Spring revolutions.

The paper is organised as follows. Section 2 presents a background of the Egyptian stock market and the surrounding context. Section 3 presents our theoretical framework. Section 4 outlines the literature review, theoretical underpinnings and hypotheses development. Section 5 explains the methodology and methods deployed. Section 6 presents the empirical results and discussions. Section 7 outlines robustness analysis. Finally, Section 8 presents the concluding remarks and research implications.

2. Contextual ramifications

The Capital Market in Egypt is one of the oldest established markets in the MENA region and Africa. However, like most emerging markets, this capital market is still inefficient and requires many enhancements (Allini *et al.*, 2018). In addition, emerging markets like Egypt represent unique settings with economic and political volatility (Metwally *et al.*, 2021). This uniqueness requires proper attention and increased research to understand the factors affecting those markets and the consequences of those changes.

Since the early 2000s, Egyptian authorities have been making regulatory reforms and changes towards good governance. In 2014, new rules regarding the necessity of including management reports (MRs) were issued by regulators. In addition, the new listing rules

required more disclosures in issuing MR (Mohamed *et al.*, 2019). These changes were needed because the EGX regulations for listing companies include many legislations and laws which are sometimes complementary and sometimes contradictory. In the case of MR, 2014 regulations are not the first mundane that requires MR inclusion in the company's annual report as the EGX contained two old regulations for this regard. Firstly, the Companies Act (159/1981) relates to the civil law system of licensing corporations, and secondly, EGX new listing rules were issued in 2002. These new regulations represent amendments to enhance the old listing rules in the Capital Market Act that was issued in 1992 (Hassan and Power, 2009). Therefore, it was surprising that both acts are mandatory roles for listed companies. Egyptian companies were to make trade-offs in picking and selecting from the requirements of both acts and preparing their MRs. If caught violating any of the two regulations, there were many sanctions for violations.

Moreover, the Egyptian authorities stressed the importance of disclosing future information in their latest amendments to the 2016 Corporate Governance Code. The third chapter on disclosure and transparency stressed the need to disclose financial and non-financial information, including internal information that includes the company's goals, vision, nature of its activity and plans and strategy. The code also stressed the importance of providing disclosure and transparency necessary to consolidate the relationship with all stakeholders, which positively affects the stakeholders' vision and expectations for firms' future performance (Metwally, 2022).

BGD is one of the essential and desirable characteristics of the board's structure, as the diversity of board members provides innovative opportunities. These opportunities result from the diversity of experiences, ideas, knowledge and behaviour, which will enable dealing with the needs of stakeholders effectively, and thus improve the effectiveness of the board of directors and its oversight role, which is reflected positively in the development of the company's performance (Ibrahim *et al.*, 2019). Furthermore, many studies stressed the necessity of diversifying the board of directors as BGD increases the shareholder value and achieves social equality through improving company risk management, connecting the company to core resources and improving company's financial performance and value, which in turn enhances shareholder value (Aggarwal *et al.*, 2019; Qureshi *et al.*, 2020; Seierstad, 2016).

The Egyptian Corporate Governance code also stressed the BGD as a part of equality and diversity rules, where it emphasised that the mix of board members must be taken into account without prejudice to gender or creed, following international best practices. Recently, the Egyptian Financial Supervisory Authority issued the Authority's Board of Directors Decision No. (123) for the year 2019, which is amending the Authority's Board of Directors Decision No. (11) of 2014. Concerning the rules for listing and delisting securities on the Egyptian Stock Exchange (ESE), included in its first article adding item (*f*) to Article (6) of the rules for listing and delisting securities on the ESE. Item (*f*) states, "The formation of the companies' board of directors must include at least a female component". Furthermore, the second article of the resolution stipulated that "companies must include at least a female component in the formation of their board of directors, and reconcile their positions accordingly, no later than 31 December 2020, whenever possible, or in the first elections of the company's board of directors".

Finally, the Egyptian Financial Supervisory Authority amended female representation on the board of directors in their Board of Directors Decision No. (109) for the year 2021, amending the Authority's Board of Directors Decision No. (11) of 2014. The amended article (6) of the rules for listing and delisting securities on the ESE states: "The representation of women in the company's board of directors shall not be less than 25% or two members of the board of directors". These changes must be made by companies whose securities are listed on the ESE no later than 12/31/2022.

3. Theoretical framework

The impact of firm characteristics on FLID has been connected to both agency theory (Jensen and Meckling, 1976) and signalling theory (Spence, 1973) in the accounting literature (Kılıç and Kuzey, 2018). The two theories complement each other to understand the determinants of FLID (Elzahar and Hussainey, 2012). Agency theory claims that the relationship between the agent (management) and the principals (shareholders) produces agency cost through the emergence of information asymmetry. The agent (management) has the actual management of the company and all the company information while the owners are not having access to such sensitive information, in that sense the agent has superiority in possessing the information (Kılıç and Kuzey, 2018). According to agency theory, voluntary disclosures by the management are supposed to reduce such asymmetry in information which in return reduces agency costs (Hassanein and Hussainey, 2015; Kılıç and Kuzey, 2018).

The other theory used to understand and explain the determinants of FLID is the signalling theory. Signalling theory explains and understands the uncertainty in the workforce markets (Spence, 1973). In that sense, voluntary disclosure, like FLID, represents signals to the capital market and information users (stakeholders). These signals reduce information asymmetry, reduce financing costs and directly impact the firm value (Gallego-Álvarez *et al.*, 2011; Kılıç and Kuzey, 2018). Accordingly, managers tend to disclose more information in annual reports and add extra voluntary information as signals. These signals send specific meanings to the users of the information. More specifically, FLID gives the sense that the management is planning, expanding and taking good care of the surrounding risks. Such signals reduce the information asymmetry and impact the firm value in the capital market (Elzahar and Hussainey, 2012; Kılıç and Kuzey, 2018).

Gender diversity is theoretically more complex when compared to FLID and firm characteristics as it is multidisciplinary. This complexity emanates from its connection to many theories and diverse topics in the accounting literature (Aribi *et al.*, 2018; Bravo and Alcaide-Ruiz, 2019; Issa and Zaid, 2021; Ramadan and Hassan, 2022). For example, recent environmental performance, financial performance, governance and disclosure research has deployed upper echelons theory, institutional theory, stakeholders theory, agency theory and resource dependence theory to explain the direct and moderating impact of gender diversity on disclosure practices and both company financial and environmental performance (Ammer and Ahmad-Zaluki, 2017; Anifowose *et al.*, 2017; Aribi *et al.*, 2018; Bravo and Alcaide-Ruiz, 2019; Elmagrhi *et al.*, 2019; García-Sánchez *et al.*, 2017; Haque and Ntim, 2018; Ibrahim *et al.*, 2019; Nadeem, 2021; Nguyen *et al.*, 2020, 2021; Ramadan and Hassan, 2022).

Having said this, we argue that one theoretical framework will not be sufficient to accurately delineate the moderating impact of BGD on the relationship between firm characteristics and FLID (Pugliese *et al.*, 2009). Accordingly, the current study will rely on agency and resource dependency theories to understand and explain the moderating role of BGD (Bravo and Alcaide-Ruiz, 2019; Ramadan and Hassan, 2022). In doing so, the current study responds to recent calls in the literature to scrutinise more than one theory together in order to understand and explain the phenomenon wholly and to generate fruitful insights (Bravo and Alcaide-Ruiz, 2019; Elmagrhi *et al.*, 2019; Haque and Ntim, 2018; Issa and Zaid, 2021; Nguyen *et al.*, 2021; Ramadan and Hassan, 2022).

According to the agency theory, agents (managers) tend to behave in a way that maximises their benefits at the expense of the principals (owners); this conflict of interest creates the agency problem (Jensen and Meckling, 1976). In that sense, the agency problem is connected to moral hazard, and the agency cost and information asymmetry mentioned earlier affect the firm performance (Ramadan and Hassan, 2022; Wijethilake *et al.*, 2015). Furthermore, agency problems exist between managers and owners and owners themselves (majority shareholders and minority shareholders), as owners with the most major shareholding power may control the firm and take over the wealth of the minority shareholders (Desoky and Mousa, 2013).

To reduce such opportunistic and expropriation behaviour, corporate governance has emerged as a controlling mechanism to control agents' activities (Desoky and Mousa, 2013; Elghuweel *et al.*, 2017; Wijethilake *et al.*, 2015). One of the corporate governance mechanisms is the board composition. Gender diversity in the board composition was found to enhance board monitoring (Adams and Ferreira, 2009; Carter *et al.*, 2003), board independence (Hillman *et al.*, 2007) and board effectiveness (Elmagrhi *et al.*, 2019). This impact of gender diversity is because, psychologically, women lean towards independence in their personality (Adams and Ferreira, 2009) and tend to be more participative in their duties (Bravo and Alcaide-Ruiz, 2019). This entails that hiring females as directors may improve monitoring, enhance reporting and reduce agency problems (Bravo and Alcaide-Ruiz, 2019; Issa and Zaid, 2021).

Resource dependency theory recognises corporations as an open system dependent on external environment contingencies (Pfeffer and Salancik, 1978). Moreover, to understand any company's behaviour, you must understand the context surrounding the action. As the context and surrounding contingencies represent constraints on behaviour, managers try to reduce the power of others on them by increasing their power over others (Hillman *et al.*, 2009). In that sense, as explained by Davis and Adam Cobb (2010) that resource dependency theory has "three core ideas of the theory: (1) social context matters; (2) organisations have strategies to enhance their autonomy and pursue interests, and (3) power (not just rationality or efficiency) is important for understanding internal and external actions of organisations".

Board composition and size are regarded as a response to the company's environmental conditions and pressures (Pfeffer, 1972, 1973; Ramadan and Hassan, 2022; Wijethilake *et al.*, 2015). Environmental conditions, in some instances, impose having female directors (Hillman *et al.*, 2007). The presence of female members on the board was found to add strategic resources to companies and increase voluntary disclosures (Bravo and Alcaide-Ruiz, 2019). In addition, it provided a new dimension to the management style by having different features and skills (Issa and Zaid, 2021), representing a resource used in company growth and hence better performance (Ramadan and Hassan, 2022).

To sum up, the current study will rely on three theories to be able to explain the interconnectedness between the study variables, namely, BGD, firm financial and operational characteristics and the level of FLID. Two of the deployed theories are heavily used in the disclosure literature as they connect the increased disclosure with reducing agency cost and information asymmetry (i.e. agency theory and signalling theory). While the third theory (i.e. resource dependency theory) recognises the fact that companies are open to the market and that each market is having its contextual ramifications. Adding resource dependency theory to our theoretical framework enabled us to connect and explain the socio-political changes in the market and how they impacted female representation and FLID in the Egyptian context.

4. Literature review and hypotheses development

4.1 Firm financial characteristics and the level of FLID

Several studies indicated that future information disclosure levels vary according to two prominent firm financial characteristics: leverage and profitability. The higher the leverage level, the higher the cost of capital. Increasing the leverage level represents increased risks for shareholders, primarily when an agency relationship exists (Dey *et al.*, 2020). According to agency theory, this increased cost represents agency cost that can be reduced by disclosing more information to reduce information asymmetry. Many studies in the literature concluded that highly leveraged companies are expected to disclose more information to their creditors. Such additional disclosure will reduce information asymmetry, agency cost and risk premium (Aljifri and Hussainey, 2007; Dey *et al.*, 2020; Kılıç and Kuzey, 2018; Uyar and Kilic, 2012; Wang and Hussainey, 2013).

Previous research in the literature revealed conflicting findings regarding the leverage impact on the level of FLID. However, some studies found a positive, significant relationship between financial leverage and FLID (Abad and Bravo, 2019; Dey *et al.*, 2020; Elgammal *et al.*, 2018; Wang and Hussainey, 2013). This positive relationship was explained by clarifying that companies with a high level of leverage bear more costs of control activities, as lenders impose restrictions on companies through their demand for the presence of supervisory mechanisms to protect their money. Thus, companies to reduce this cost by making additional future information disclosure to meet creditors' and lenders' needs.

On the contrary, studies that found a negative impact of leverage on FLID are conducted in developing markets like Bahrain (Mousa and Elamir, 2018) and Thailand (Pratoomsuwa and Vu, 2016), as those studies found that in these developing markets, low-leverage companies disclose future information more than companies with a level of leverage high financial. Moreover, some studies in the literature in different contexts, including Egypt, did not find a significant relationship between leverage and FLID (Agyei-Mensah, 2017; Alkhatib, 2014; Bravo and Alcaide-Ruiz, 2019; Buertey and Pae, 2021; Kamel and Awadallah, 2017; Kılıç and Kuzey, 2018; Krause *et al.*, 2017; Liu, 2015; Mahboub, 2019; Menicucci, 2013; Mohammadi and Jamali, 2017; Uyar and Kilic, 2012).

The researchers conclude from the above that the level of leverage reflects the companies' use of others' funds, and the higher the level of leverage, the higher the risks. Therefore, companies incline to disclose future information to gain the confidence of lenders and creditors and inform them that the company can fulfil its financial obligations. This is also theoretically supported by the agency theory, as firms involved in heavy leverage tend to make more voluntary disclosures. This increased amount of disclosed information reduces agency costs and the cost of capital (Diab *et al.*, 2021; Mousa and Elamir, 2018).

Theoretically, the relationship between profitability and FLID has been mostly hypothesised to be positive. According to signalling theory, it is expected that companies are motivated to disclose more information when their profitability is high to tell their success stories and give positive signals to the capital market (Kılıç and Kuzey, 2018). Moreover, managers with terrible news are also expected under the signalling theory to disclose more voluntary information to signal their capabilities and strengths and eliminate future losses (Hassanein and Hussainey, 2015). The agency theory perspective supports the positive relationship between profitability and FLID as managers with an increased level of profitability are expected and more motivated than others to disclose more information as this will directly affect their reputation, position and financial benefits (Kamel and Awadallah, 2017; Kılıç and Kuzey, 2018; Mousa and Elamir, 2018).

Profitability in many previous studies was found to positively impact the level FLID (Abad and Bravo, 2019; Dey *et al.*, 2020; Hassanein and Hussainey, 2015; Krause *et al.*, 2017; Mohammadi and Jamali, 2017; Pratoomsuwa and Vu, 2016). In contrast, other studies in different contexts, including Egypt, found no significant impact of profitability on the level of FLID (Kamel and Awadallah, 2017; Kılıç and Kuzey, 2018; Menicucci, 2013; Mousa and Elamir, 2018; Uyar and Kilic, 2012). The researchers conclude from the above that the company's profitability impacts future information disclosure. Companies with high profitability have more incentives to inform stakeholders of their excellent performance by disclosing more information about their future performance. Hence, the researchers expect that a firm financial characteristics (leverage and profitability) will collectively affect the level of FLID. Based on this, the current study suggests the following hypothesis:

H1. A positive association exists between financial characteristics and the level of FLID.

4.2 Firm operational characteristics and FLID

Many studies indicated that the level and quality of FLID varies according to different firm operational characteristics, including company size; company age; audit firm type; industry type; and other characteristics that affect the management's behaviour towards the level of FLID (Bravo and Alcaide-Ruiz, 2019; Buertey and Pae, 2021; Dey *et al.*, 2020; Firmansyah and Irwanto, 2020; Kılıç and Kuzey, 2018; Qu *et al.*, 2015).

Firstly, early studies agreed that company size is one of the essential operational characteristics used to explain the content and nature of FLID. According to the agency theory (Jensen and Meckling, 1976), it is expected that larger companies will disclose more than smaller companies as shareholders are expected to be more widespread than smaller companies. Moreover, larger companies have more chances to be international, which entails higher information asymmetry and higher agency costs. This agency cost and information asymmetry are reduced by disclosing more voluntary information like FLID (Aljifri and Hussainey, 2007; Kamel and Awadallah, 2017).

Empirically, many studies found a significant positive relationship between company size and FLID. As larger companies are inclined to release more FLID to meet the demands of multiple and diverse stakeholders, larger companies have the resources that enable them to bear the cost of disclosing this information. In addition, as a way of reducing information asymmetry and agency cost, larger companies tend to disclose more future information (Abad and Bravo, 2019; Bravo and Alcaide-Ruiz, 2019; Buertey and Pae, 2021; Elgammal *et al.*, 2018; Hassanein and Hussainey, 2015; Kılıç and Kuzey, 2018; Liu, 2015; Mousa and Elamir, 2018).

In contrast, a negative relationship between company size and FLID was found by Dey *et al.* (2020), as small-sized companies were found to disclose FLID more than large-sized companies to attract more investments. On the contrary, some studies found no significant relationship between company size and FLID in many contexts, including Egypt (Agyei-Mensah, 2017; Aljifri and Hussainey, 2007; Kamel and Awadallah, 2017; Mahboub, 2019; Menicucci, 2013). The researchers conclude from the above that company size is one of the operational characteristics that affect the level of FLID as large companies have high agency costs and are exposed to political costs. Further, more prominent companies have more resources and expertise to produce more information.

Secondly, company age is another operational characteristic that can explain the level of FLID, as older companies have incentives, resources, expertise and administrative cadres that enable them to increase their disclosing of future information compared to younger firms (Dey *et al.*, 2020; Mohammadi and Jamali, 2017). We argue that older companies are expected to disclose more FLID when compared to new companies, as this is consistent with the signalling theory, as older companies are expected to send signals to the capital market that we are adapting to the changing environment. Moreover, we are distinguished by our resources and expertise from new companies. Regarding empirical results, Hossain and Hammami (2009) found a significant positive association between company age and FLID, while Dey *et al.* (2020) concluded a negative impact of company age on the level of FLID as younger companies disclose more future information when compared to older companies, as younger companies need to acquire capital with the lowest possible cost. However, other studies found no significant impact of company age on the level of FLID (Mahboub, 2019; Uyar and Kilic, 2012). Hence, the researchers conclude that company age has not been given sufficient attention by accounting research. However, it is one of the crucial variables in explaining the level of FLID, as older companies have motives, incentives, resources and expertise that enable them to disclose more FLID to improve their reputation in the market.

Thirdly, according to agency theory, external auditors represent an independent third party that gives a fair, unbiased opinion about the company's financial statements and disclosure in general, the provided assurance about the fairness of the financial statements

will reduce the agency conflicts between owners and managers. Having independent assurance regarding the reliability of accounting information reduces agency conflicts and costs (Hassanein *et al.*, 2019; Kamel and Awadallah, 2017). In that sense, audit firm type is a widely used measure of audit quality, as external audit quality was found to improve voluntary disclosure and corporate reporting practices (Uyar and Kilic, 2012). Although the disclosure process is the responsibility of the management, the management is ready to increase the amount of the disclosed information when it is linked to one of the internationally affiliated audit firms. This is because, in emerging markets like Egypt, the internationally affiliated audit firms are more concerned with their reputation and, therefore, seek to link companies that disclose more information to protect themselves from lawsuits that may be exposed and affect their reputation in the market (Dey *et al.*, 2020; Kamel and Awadallah, 2017; Pratoomsuwa and Vu, 2016). Some studies found a positive relationship between audit firm type and FLID (Alkhatib, 2014; Dey *et al.*, 2020; Kamel and Awadallah, 2017; Mohammadi and Jamali, 2017; Uyar and Kilic, 2012), where they found that the companies that the Big 4 audit firm reviews disclose more FLID. In contrast, some studies found no significant relationship between the audit firm type and FLID (Agyei-Mensah, 2017; Aljifri and Hussainey, 2007; Buertey and Pae, 2021; Hassanein and Hussainey, 2015; Krause *et al.*, 2017; Liu, 2015; Pratoomsuwa and Vu, 2016). Accordingly, building on the agency theory and empirical studies, the researchers conclude from the above that there is a positive relationship between audit firm type and FLID.

Finally, Kılıç and Kuzey (2018) see that the industry type to which the company belongs refers to the group of companies with the same characteristics (competition, growth rate, risks related to the activity and the extent of profit continuity). Celik *et al.* (2006) also emphasise that leading companies operating in a particular industry are more disclosing about their operations. These leading companies distinguished in disclosure become role models for other companies operating in the same sector. Furthermore, the industry type that the company operates affects the level of disclosure in general. This is because companies operating in the same industry are interested in providing the same level of disclosure to avoid negative judgment in the market (competitive pressures). Concerning the relationship between the nature of the industry and FLID, Celik *et al.* (2006) found that the industry type variable affects the level and type of FLID of Turkish companies. They found that companies in the financial and service sectors disclose more FLID than those in the industrial sector. Qu *et al.* (2015) also found an effect of industry-type variables on the quality of FLIDs in Chinese companies. They found that companies operating in the industrial sector disclose more future information related to sales expectations, profits and future performance than companies operating in the service sector. Finally, Kamel and Awadallah (2017) found a significant impact of industry type on the FLID in the Egyptian context, as Healthcare, Pharmaceuticals and Chemicals were disclosing FLID more than other sectors in the Egyptian market.

While some studies found no significant effect of the nature of the industry on the level of FLID (Aljifri and Hussainey, 2007; Alkhatib, 2014; Mousa and Elamir, 2018; Pratoomsuwa and Vu, 2016), hence, they conclude that the industry to which the company belongs distinguishes it from other companies. In addition, they classified the reason for this in terms of many aspects, including business rules, competition risks it faces and growth rate and thus affecting the level of disclosed future information to reduce uncertainty about the firm future performance. Accordingly, the researchers expect that the operational characteristics (company size, company age, audit firm type and industry type) will collectively affect the level of FLID. Based on this, the current study suggests the following hypothesis:

H2. A positive association exists between operational characteristics and the level of FLID.

4.3 The impact of gender diversity: BGD moderating role

Female representation on the board of directors has been a research theme recently in different organisational settings. This increased importance is due to changes in regulations worldwide, stakeholders calling for more females on boards, media attention and involvement in corporate governance embarrassment (Ben-Amar *et al.*, 2017; Wahid, 2019). Theoretically, the impact of gender diversity on FLID can be understood and explained in the current study by deploying agency and resource dependency theories. According to agency theory, gender diversity has an impact on reducing agency problems as, psychologically, women lean towards independence in their personality (Adams and Ferreira, 2009) and tend to be more participative in their duties (Bravo and Alcaide-Ruiz, 2019). This entails that hiring females as directors may improve monitoring, enhance reporting and reduce agency problems (Bravo and Alcaide-Ruiz, 2019; Issa and Zaid, 2021). While, from a resource dependency perspective, the presence of female members on the board was found to add strategic resources to companies and increase voluntary disclosures (Bravo and Alcaide-Ruiz, 2019) and was found to provide a new dimension to the management style through having different features and skills (Issa and Zaid, 2021), which in return represent a resource that is used in company growth and hence better performance (Ramadan and Hassan, 2022).

Empirically, several studies in the literature concentrated on the differences between males and females in both decision-making, personality, risk-taking and aversion, communication and transparency (e.g. Aribi *et al.*, 2018; Bilimoria, 2000; Dowling and Aribi, 2013; Johnson and Powell, 1994; Peterson and Philpot, 2007), which entails that female board members bring an alternative perspective which requires greater attention. Prior studies concluded that female directors tend to be averse to risks more significant than male directors (Adams and Ferreira, 2009; Croson and Gneezy, 2009) and are more conservative. Researchers explained that this behaviour is less confident (Barber and Odean, 2001). Due to this, when hired as CEOs or CFOs, their decisions regarding financing or acquisitions are more rational and conservative and lead to growth at a steady rate favourable to many stakeholders (Huang and Kisgen, 2013). Moreover, Mittelstaedt and Wiepcke (2014) clarified that men are more familiar with and interested in financial matters than women. This is due to their increased anxiety when dealing with complex mathematical calculations (Hill *et al.*, 2016; Malaquias and Zambra, 2019).

Recently, many studies concentrated on BGD and its impact on the level of disclosure (e.g. Dey *et al.*, 2020; Kılıç and Kuzey, 2018; Liao *et al.*, 2015; Sarhan and Ntim, 2019). These studies provided evidence that BGD positively impacts the level of disclosure. This entails that high BGD increase the level of disclosure, including FLID. However, little evidence exists on the relationship between voluntary disclosures and female representation on the board of directors (Adams and Ferreira, 2009; Aribi *et al.*, 2018; Arun *et al.*, 2015; Elgammal *et al.*, 2018; Frias-Aceituno *et al.*, 2013; Kılıç and Kuzey, 2018; Nadeem, 2020, 2021).

Although BGD was extensively studied, few studies have examined the relationship between the female proportion on the board of directors and the impact of this proportion on the reporting process. The main concentration of those studies is on mandatory reporting practices, and little concentration is given to voluntary disclosure like FLID (Aribi *et al.*, 2018; Bravo and Alcaide-Ruiz, 2019; Elgammal *et al.*, 2018). Finally, some studies concentrated on the direct effect of BGD on the level of FLID and concluded that there is a positive relationship (Aribi *et al.*, 2018; Bravo and Alcaide-Ruiz, 2019; Frias-Aceituno *et al.*, 2013; Kılıç and Kuzey, 2018). On the contrary, Dey *et al.* (2020) reported a negative relationship between BGD and the level of FLID. No studies were found as it comes to our knowledge that concentrated on the moderating role of BGD on the relationship between firm characteristics and FLID. Hence, the moderating impact of BGD on the level of disclosure represents a research gap in the literature. The current study suggests the following hypotheses:

H3. BGD moderates the relationship between financial characteristics and the level of FLID.

H4. BGD moderates the relationship between operational characteristics and the level of FLID.

5. Research design

5.1 Data: sample selection, sources and description

The study's initial sample incorporates the companies included in the EGX 100 of the ESE for the study period (2013–2018). Moreover, we excluded insurance and financial companies (19 companies) from the sample due to different accounting and reporting practices. Moreover, all companies that included any missing data were excluded from our sample totaling 25 companies. In addition, we excluded more than seven companies as their fiscal year-end was other than 30 June or 31 December; this procedure is to reduce any disturbances that fiscal year differences may cause by maintaining a relatively homogenous sample. Consequently, the final sample for this study comprises 49 companies with 294 observations. The details about these companies are presented in Table 1. In addition, the current study deployed several tests for data analysis (i.e. collinearity, Pearson correlation and the multiple regression model). Finally, we deployed multiple regression analysis regarding the BGD impact on the relationship between firm characteristics and FLID.

Our study collected data for the period 2013–2018 from the annual reports [1] and firms' websites. The data on directors' gender were collected through different sources annual reports, board of directors' reports and company web pages.

5.2 The study models

We performed multiple regression analyses to examine the proposed associations in the study hypotheses. The following models were formulated:

Initial sample	100
Less: financial companies	(19)
Non-financial companies	81
Less: companies with missing data	(25)
Less: companies with another year-end than 31 December or 30 June	(7)
Final sample	49

Industry sector	No. of firms	No. of observations	%
Food, Beverages and Tobacco	11	66	22.6
Contracting and Construction Engineering	5	30	10.3
Industrial Goods, Services and Automobiles	1	6	2
Travel and Leisure	5	30	10.3
Real Estate	10	60	20.6
Chemicals	4	24	8.1
Basic Resources	3	18	6
Textile and Durables	4	24	8.1
Media	1	6	2
IT and Communication Services	3	18	6
Trade and Distributors	1	6	2
Healthcare	1	6	2
Total	*49*	*294*	*100%*

Table 1. The sample classification according to industry type

Model 1: FLID

$$= \beta 0 + \beta 1\,\mathrm{ROA}_{it} + \beta 2\,\mathrm{LEV}_{it} + \text{fixed year effect}_{it} + \varepsilon_{it}.$$

Model 2: FLID

$$= \beta 0 + \beta 1\,\mathrm{SIZE}_{it} + \beta 2\,\mathrm{AGE}_{it} + \beta 3\,\mathrm{AUDIT}_{it} + \beta 4\,\mathrm{IND}_{it} + \text{fixed year effect}_{it} + \varepsilon_{it}.$$

Model 3: FLID

$$= \beta 0 + \beta 1\,\mathrm{ROA}_{it} + \beta 2\,\mathrm{LEV}_{it} + \beta 3\,\mathrm{BGD}_{it} + \beta 4\,\mathrm{ROA} * \mathrm{BGD}_{it} + \beta 5\,\mathrm{LEV} * \mathrm{BGD}_{it} + \text{fixed year effect}_{it} + \varepsilon_{it.}$$

Model 4: FLID

$$= \beta 0 + \beta 1\,\mathrm{SIZE}_{it} + \beta 2\,\mathrm{AGE}_{it} + \beta 3\,\mathrm{AUDIT}_{it} + \beta 4\,\mathrm{IND}_{it} + \beta 5\,\mathrm{BGD}_{it} + \beta 6\,\mathrm{SIZE} * \mathrm{BGD}_{it} + \beta 7\,\mathrm{AGE} * \mathrm{BGD}_{it} + \beta 8\,\mathrm{AUDIT} * \mathrm{BGD}_{it} + \beta 9\,\mathrm{IND} * \mathrm{BGD}_{it} + \text{fixed year effect}_{it} + \varepsilon_{it}.$$

where FLID, the score of the disclosure of forward-looking information reported in the index; ROA, return on assets; LEV, leverage; SIZE, firm size; AGE, firm age; AUDIT, auditor type; IND, industry; BGD, board gender diversity; VARIABLE*BGD, the interaction variable which is the product of independent variables (ROA; leverage; firm size; firm age; auditor type; and industry) and BGD.

5.3 Variables measurement and moderating variable

5.3.1 Dependent variable: forward-looking information disclosure index. The proposed index for FLID was adapted from original indexes designed by professional bodies and organisations (AICPA, 1994; CPACanada, 2014; FASB, 2001) and the previous literature (Abad and Bravo, 2019; Agyei-Mensah, 2017; Bravo and Alcaide-Ruiz, 2019; Kılıç and Kuzey, 2018). In addition, a content analysis approach was deployed to investigate companies' total, financial and non-financial FLID by using the adapted index.

The adapted index includes 7 financial information disclosures and 14 discussions on non-financial information disclosure with 21 disclosure items. The complete index is presented in Appendix. The proposed index was calculated by calculating the ratio of the number of items disclosed to the total number of items (21 items).

To maintain a reliable and valid content analysis, several steps were followed. Firstly, to reduce the amount of discrepancies and assure the objectivity of the measure between different coders, we constructed a set of specified and explicit coding instruments. Secondly, we selected 10 annual reports that were coded by different coders to assure that the same procedures were deployed by all coders in the coding process. Thirdly, any differences found between coders were resolved as all the coding-related rules and procedures are re-confirmed by six different independent professional accountants (e.g. classification of categories and checklist items), finally, all the reached results were compared to identify and resolve any possible disagreements. Our approach to scoring FLID items is dichotomous in which a FLID item scores a value of 1 if disclosed otherwise 0, and the approach to scoring is a detective and equally weighed.

5.3.2 Independent variables. 5.3.2.1 Financial characteristics. ROA was calculated by dividing net income by the total assets. The leverage was calculated by dividing the total liabilities by the total assets

5.3.2.2 Operational characteristics. The firm size variable was defined as the natural logarithm of total assets. The variable of firm age was measured as the natural logarithm of

total years since listing on the ESE. The variable of auditor type was measured as one for external auditors affiliated with international Big 4 audit firms and 0 otherwise. Finally, the industry variable in this study was measured by dividing all firms into two categories, namely, industry and service sectors.

5.3.3 Moderating variable. The BGD was measured by calculating the firm's ratio of female directors to all directors. Table 2 shows all the variables and their operational definitions (i.e. dependent, independent and moderating variables).

6. Empirical results and discussions

6.1 Descriptive statistics

Table 3 demonstrates descriptive statistics for the examined variables. We noted that there is a great variation among companies in the sample. As reported, FLID ranged from

Variables	Definition
Dependent variable	
Forward-looking information disclosure (FLID)	The ratio of disclosed items to the total (21 items) in the above-mentioned index
Independent variables	
Return on assets (ROA)	Percentage of net income to total assets
Leverage (LEV)	Percentage of total liabilities to total assets
Firm size (SIZE)	The natural logarithm of total assets
Firm age (AGE)	The natural logarithm of total years since listing on the ESE
Auditor type (AUDIT)	It is a nominal variable as (1) refers to external auditors affiliated with international Big 4 audit firms and (0) otherwise
Industry (IND)	It is a nominal variable as (1) refers to manufacturing firms and (0) for service firms
Moderating variable	
Board gender diversity (BGD)	The ratio of female representation on the board of directors to the total number on the board

Table 2.
Definition of variables

Variables	Range	Minimum	Maximum	Mean	Median	Std. deviation
FLID	0.67	0.04	0.71	0.268	0.250	0.1179
ROA	0.91	−0.39	0.52	0.056	0.036	0.1099
LEV	1.79	0.017	1.81	0.437	0.430	0.2627
SIZE	6.54	17.25	23.80	20.70	20.85	1.479
AGE	2.89	0.69	3.58	2.91	2.94	0.4952
BGD	0.50	0.00	0.50	0.086	0.076	0.099
			n	(%)		
AUDIT						
Big 4 (1)			138	46.9		
Non-Big 4 (0)			156	53.1		
IND						
Manufacturing (1)			154	52.4		
Service (0)			140	47.6		

Note(s): FLID, the score of the disclosure of forward-looking information reported in the index; ROA, return on assets; LEV, leverage; SIZE, firm size; AGE, firm age; AUDIT, auditor type; IND, industry; BGD, board gender diversity

Table 3.
Descriptive statistics

0.04 Min to 0.71 Max, with a mean of 0.26 and a standard deviation of 0.117. Regarding ROA, we noted a significant variation among companies in the sample. As reported, ROA ranged from −0.39 Min to 0.52 Max, with a mean of 0.056 and a standard deviation of 0.109. As for the leverage, we noted a significant variation among companies in the sample. As reported, leverage ranged from 0.017 Min to 1.81 Max, with a mean of 0.43 and a standard deviation of 0.262.

We noted a significant variation among companies in the sample regarding company size as reported size ranged from 17.25 Min to 23.80 Max, with a mean of 20.70 and a standard deviation of 1.479. Further, for the company age, we noted a significant variation among companies in the sample as the reported age ranged from 0.69 Min to 3.58 Max, with a mean of 2.91 and a standard deviation of 0.495. Furthermore, regarding female representation on the board of directors (BGD), we noted a significant variation among companies in the sample. As reported, BGD ranged from 0.00 Min to 0.50 Max, with a mean of 0.08 and a standard deviation of 0.099. Finally, the table shows that about 46.9% of external auditors were internationally affiliated. Furthermore, the service sector represents 47.6% of the sample, while the industrial sector is 52.4% of the sample.

Table 4 shows Pearson correlation among all variables, and the coefficients are relatively medium in value and significant for some relationships and non-significant for others. Table 4 also shows no multicollinearity as multiple collinearities do not exist between any of the independent variables. The results also reveal a positive and significant association between FLID and ROA, SIZE and R equal (0.182, 0.158), respectively, at $p < 0.01$. Moreover, the results show a significant positive relationship between FLID and LEV, AGE, $R = (0.127, 0.145)$, respectively, at $p < 0.05$. The findings also indicate a significant and negative association between AUDIT, IND and FLID, $R = -0.118$ and -0.167, respectively, at $p < 0.05$. In addition, the findings indicate no significant relationship between FLID and BGD.

6.2 Regression results

Table 5 summarises the regression result of corporate financial characteristics, including profitability and leverage on the level of FLID under Model (1). Next, we summarise the operational corporate characteristics regression result, including firm size, age, auditor type and industry on the level of FLID under Model (2).

Table 5, *Model (1)* indicates that there are significant and positive impacts of the independent variables, namely, ROA and LEV, on the level of FLID, as the regression coefficients were 0.247 and 0.084, respectively, at the level of significant $p < 0.01$. Further, it demonstrates an F-value equal to 10.250; at $p < 0.01$, this result reveals that the model is significant. Moreover, the adj. R^2 was 0.059, which means that ROA and LEV could interpret the variances in the FLID with a ratio of 0.059. Accordingly, this result support accepting the first study hypothesis (H1), and the null hypothesis is rejected.

Variables	FLID	ROA	LEV	SIZE	AGE	AUDIT	IND	BGD
FLID	1.000							
ROA	0.182***	1.000						
LEV	0.127**	−0.259***	1.000					
SIZE	0.158***	0.207***	−0.050	1.000				
AGE	0.145**	0.061	0.018	−0.192***	1.000			
AUDIT	−0.118**	0.102	−0.100	0.383***	−0.070	1.000		
IND	−0.167**	0.034	−0.134**	−0.179***	0.087	−0.011	1.000	
BGD	0.021	0.65	−0.050	−0.098	0.099	−0.0026	−0.030	1.000

Note(s): ***, ** and * denote correlation is significant at the 1%, 5% and 10% levels

Table 4.
Correlation

Variables	Dependent variable: FLID Model 1 Coeff	*t*-value	*p*-value	Dependent variable: FLID Model 2 Coeff	*t*-value	*p*-value
Constant	0.268	40.189	0.000***	0.268	41.116	0.013**
ROA	0.247	3.929	0.000***			
LEV	0.084	3.189	0.002***			
SIZE				0.020	3.972	0.000***
AGE				0.045	3.364	0.001***
AUDIT				−0.047	−3.343	0.001***
IND				−0.033	−2.499	0.000***
Year effects		Yes			Yes	
R^2		0.066			0.114	
Adjusted R^2		0.059			0.101	
F-value	10.250		0.000	9.261		0.000
df-model		2			4	
df-model		291			289	

Note(s): ***, ** and * denote correlation is significant at the 1%, 5% and 10% levels

Table 5.
Findings of regression analysis–Model 1 and Model 2

From the previous results, we can argue that a company's profitability positively impacts FLID. Companies with high profitability have more incentives to inform their excellent performance by disclosing more information about their future performance. This result supports the signalling theory that claims that companies are motivated to disclose more information when their profitability is high to tell their success stories and give positive signals to the capital market (Kılıç and Kuzey, 2018). Moreover, it supports agency theory that claims that managers of a profitable company are expected and more motivated than others to disclose more information as this will directly affect their reputation, position and financial benefits (Kamel and Awadallah, 2017; Kılıç and Kuzey, 2018; Mousa and Elamir, 2018). This result is consistent with some early studies (Abad and Bravo, 2019; Dey *et al.*, 2020; Krause *et al.*, 2017; Mohammadi and Jamali, 2017; Pratoomsuwa and Vu, 2016), who concluded a similar positive impact on FLID. In contrast, it disagrees with other studies that reported no significant impact of profitability on the level of FLID (Kamel and Awadallah, 2017; Kılıç and Kuzey, 2018; Menicucci, 2013; Mousa and Elamir, 2018; Uyar and Kilic, 2012).

Moreover, the previous results suggest that a company's leverage positively impacts the level of FLID. This result supports agency theory claims that companies engaged in intensive leverage activities are dealing with a high cost of capital as heavy depending on leverage represents increased risks for creditors and shareholders (Dey *et al.*, 2020). Moreover, companies with a high level of leverage bear more costs of control activities, as lenders impose restrictions on companies through their demand for the presence of supervisory mechanisms to protect their money. Accordingly, disclosing more FLID will reduce information asymmetry, agency cost and risk premium by informing creditors and shareholders that the company can meet its financial obligations (Aljifri and Hussainey, 2007; Dey *et al.*, 2020; Kılıç and Kuzey, 2018; Uyar and Kilic, 2012; Wang and Hussainey, 2013). These results are consistent with the results of some studies in this regard, as they agree with the results reached by Abad and Bravo (2019), Dey *et al.* (2020), Elgammal *et al.* (2018) and Wang and Hussainey (2013). In contrast, these results disagree with studies that reported a negative association (Mousa and Elamir, 2018; Pratoomsuwa and Vu, 2016) or no significant impact of leverage on FLID (e.g. Alkhatib, 2014; Bravo and Alcaide-Ruiz, 2019; Hassanein and Hussainey, 2015; Kılıç and Kuzey, 2018; Liu, 2015; Mahboub, 2019; Menicucci, 2013; Mohammadi and Jamali, 2017; Uyar and Kilic, 2012).

Model (2) in the above table indicates that all four independent variables significantly impact the FLID. The first two variables, SIZE and AGE, have significant and positive impacts on FLID, as the regression coefficients were 0.020 and 0.045, respectively, at the level of significant $p < 0.01$. However, surprisingly there are significant and negative impacts of the other two independent variables, namely, AUDIT (non-Big (4) = 0; Big (4) = 1) and IND (service = 0; Manufacturing = 1), on FLID, as the regression coefficients were −0.047 and −0.033, respectively, at the level of significant $p < 0.01$. Further, it demonstrates an *F*-value equal to 9.261 and at $p < 0.01$. This result reveals that the model as a whole is significant. Moreover, the adj. R^2 was 0.101, which means that the variances in the FLID could be interpreted by SIZE, AGE, AUDIT and IND with a ratio of 0.101. Accordingly, this result supports partial acceptance of the second study hypothesis (H2), and the null hypothesis is rejected.

From the previous results, we can argue that firm size positively impacts FLID. This result supports the agency theory claims that larger companies disclose more than smaller companies as shareholders are expected to be more widespread than smaller companies. Moreover, larger companies have more chances to be international, which entails higher information asymmetry and higher agency costs. This agency cost and information asymmetry are reduced by disclosing more voluntary information like FLID (Aljifri and Hussainey, 2007; Kamel and Awadallah, 2017). These results are consistent with the results of many studies in this regard (Abad and Bravo, 2019; Bravo and Alcaide-Ruiz, 2019; Buertey and Pae, 2021; Elgammal *et al.*, 2018; Hassanein and Hussainey, 2015; Kılıç and Kuzey, 2018; Liu, 2015; Mousa and Elamir, 2018) who concluded similar positive impact on FLID. On the contrary, it disagrees with other studies that reported no significant impact of size on the level of FLID (Agyei-Mensah, 2017; Aljifri and Hussainey, 2007; Dey *et al.*, 2020; Kamel and Awadallah, 2017; Mahboub, 2019; Menicucci, 2013).

Moreover, the previous results suggest that company age positively impacts FLID as older companies have incentives, resources, expertise and administrative cadres that enable them to increase their reputation in the market by disclosing more future information compared to younger firms. This result supports the signalling theory, which claims that older companies tend to send signals to the capital market that we are adapting to the changing environment. Moreover, we are distinguished by our resources and expertise from new companies. This finding support Hossain and Hammami (2009) study that reported a significant positive association between company age and FLID. While this finding is inconsistent with other studies that reported a negative (Dey *et al.*, 2020) or no significant relationship between company age and FLID (Mahboub, 2019; Uyar and Kilic, 2012).

Further, regarding the audit firm type, the above results support agency theory, which claims that the presence of external auditors as an independent third party that assures the fairness of the financial statements will reduce agency conflicts between managers and investors. Accordingly, external auditors' assurance regarding the reliability of financial statements and the disclosures reduce agency conflicts and agency costs (Hassanein *et al.*, 2019; Kamel and Awadallah, 2017). Our results showed a negative impact of audit firm type on FLID. In that sense, unlike many studies in the literature, our findings revealed that companies that were audited by local Egyptian auditors (non-Big 4 audit firm) disclosed more FLID than companies that are linked to one of the internationally affiliated audit firms (e.g. Agyei-Mensah, 2017; Buertey and Pae, 2021; Dey *et al.*, 2020; Kamel and Awadallah, 2017; Krause *et al.*, 2017; Mohammadi and Jamali, 2017; Pratoomsuwa and Vu, 2016).

Finally, the industry results show a negative impact on FLID, which explains that firms operating in the service industry have a greater level of FLID when compared to manufacturing ones. These results support early studies that stressed the importance of the sector and its impact on FLID (e.g. Celik *et al.*, 2006; Kamel and Awadallah, 2017; Qu *et al.*, 2015), while they disagree with some studies that did not find any significant impact (Aljifri

and Hussainey, 2007; Alkhatib, 2014; Kılıç and Kuzey, 2018; Mousa and Elamir, 2018; Pratoomsuwa and Vu, 2016). Moreover, unlike the recent study in the Egyptian market, which found a significant impact of industry type on the FLID in the Egyptian context, as Chemicals, and Healthcare and Pharmaceuticals were disclosing FLID more than other sectors in the Egyptian market, our study found that Egyptian companies in the service sector disclose more FLID than industrial companies (Kamel and Awadallah, 2017). These differences may be due to the differences in the data coverage as the previous study covered only the year 2010, while our study covered years from 2013 to 2018. Moreover, the previous study was done in stabilised political and economic conditions, while our study data represent the post-revolutionary period which may have resulted in these differences.

Models (1) and (2) result are not surprising when they are contextually interpreted. After the Egyptian revolutions in 2011 and 2013, the instability in the economy and political unrest produced a culture of fear in the Egyptian market. This fear was the main driver for companies, investors, shareholders and even the government (Metwally and Diab, 2021; Mohamed Metwally, 2017). This can interpret the significant positive impact of profitability, leverage, company size and age on FLID, as they highlight that all the market participants in Egypt need to trust the companies and their financial information after this political and economic instability (Ramadan and Hassan, 2022). Moreover, the same fear spread to companies unrelated to Big 4 audit firms. As a result, Egyptian companies linked to the Big 4 audit firms in such developing markets feel they do not need to disclose more FLID. The audit firm's reputation gives its annual reports and disclosure more credibility. In comparison, Egyptian companies linked to smaller audit firms seek more credibility in their reports, processes and disclosures by disclosing more FLID.

Table 6 summarises the corporate financial characteristics regression result with the moderating role of BGD on the level of FLID in Model (3). Next, we summarise the operational corporate characteristics regression result with the moderating role of BGD on the level of

	Dependent variable: FLID Model 3			Dependent variable: FLID Model 4		
Variables	Coeff	*t*-value	*p*-value	Coeff	*t*-value	*p*-value
Constant	0.268	40.768	0.000***	0.271	43.919	0.000***
ROA	0.245	3.955	0.000***			
LEV	0.098	3.731	0.000***			
BGD	0.008	0.118	0.906	0.048	0.761	0.447
ROA*BGD	1.504	2.270	0.024**			
LEV*BGD	0.829	3.171	0.002***			
SIZE				0.016	3.219	0.001***
AGE				0.036	2.787	0.006***
AUDIT				−0.049	−3.673	0.000***
IND				−0.042	−3.348	0.001***
SIZE*BGD				0.233	4.011	0.000***
AGE*BGD				0.285	1.994	0.047**
AUDIT*BGD				−0.274	−1.891	0.060*
IND*BGD				0.688	5.362	0.000***
Year effects		Yes			Yes	
R^2		0.107			0.243	
Adjusted R^2		0.092			0.219	
F-value	6.930		0.000	10.114		0.000
df-model		5			9	
df-model		288			284	

Note(s): ***, ** and * denote correlation is significant at the 1%, 5% and 10% levels

Table 6. Findings of regression analysis–Model 3 and Model 4

FLID in Model (4). *In Model (3)*, clarified in Table 6, ROA and LEV (independent variables) have a significant positive impact on the level of FLID. The result does not support the effect of BGD as an independent variable. According to the first interaction ROA*BGD, the results reveal that this interaction has a positive and significant effect on FLID. Further, in the second interaction LEV*BGD, the results reveal that this interaction has a positive and significant effect on FLID at a level of sig $p < 0.05$ and 0.01, respectively. F-value was 6.930 with a sig level $p < 0.01$. This means that the model as a whole is significant. Finally, the results indicate that adj. R^2 of 0.092, indicating that the mentioned predictors can interpret variance in the level of FLID.

Model (4) in the above table clarified that there is a significant positive impact of the five predictors SIZE, AGE, SIZE*BGD, AGE*BGD and IND*BGD on the dependent variable FLID. While there are significant negative impacts of the three predictors AUDIT, IND and AUDIT*BGD on the dependent variable FLID. The regression coefficients as mentioned in Table 6. The result does not support the effect of BGD as an independent variable. The results below show an F-value of 10.114 with a sig $p < 0.01$. Finally, Table 6 shows an adj. R^2 of 0.219, indicating that all predictors can interpret variance in the dependent variable (FLID).

Tables 7 and 8 demonstrate the impact of predictors and their interactions with gender diversity before and after introducing the moderator.

In Table 7, a variable has been added that reflects the interaction of gender with the financial characteristics of the companies in order to show the effect of the BGD as a moderating variable for the relationship. We find a significant positive effect of the moderating variable on profitability and leverage on their relationship with FLID. This means that the impact of companies' financial characteristics on FLID differs in companies with a larger proportion of women on the board of directors as companies with high profitability, high level of indebtedness and a larger proportion of women on their board reveal more future information. Consequently, these results support the study's third research hypothesis (H3); we can accept the third hypothesis (H3), which states that the *BGD moderates the relationship between Financial Characteristics and the level of FLID.*

In Table 8, a variable was added that reflects the interaction of gender with the operational characteristics of the companies in order to show the effect of the BGD as a moderating variable for the relationship. We find a significant positive impact of the moderating variable on company size, age and sector on their relationship with FLID. This means that the impact of the operating characteristics of companies on future disclosure was more decisive, more visible and influential in companies with a larger proportion of

Table 7.
Gender diversity as a moderator in the relationship between financial characteristics and FLID before and after introducing the moderator

Dependent variable	Independent variables	Stage 1 Before moderator			Stage 2 After moderator		
		B	*t*-value	Sig.t	*B*	*t*-value	Sig.t
FLID	ROA	0.247	3.929	0.000***	0.245	3.955	0.000***
	LEV	0.084	3.189	0.002***	0.098	3.731	0.000***
	BGD				0.008	0.118	0.906 NS
	The Interaction (ROA*BGD)				1.504	2.270	0.024**
	The Interaction (LEV*BGD)				0.829	3.171	0.002***
	R^2		0.066			0.107	
	Adj. R^2		0.059			0.092	
	F		10.250			6.930	
	(Sig. F)		0.000***			0.000**	

Note(s): ***, ** and * denote correlation is significant at the 1%, 5% and 10% levels. NS: not significant

Dependent variable	Independent variables	Stage 1 Before moderator *B*	*t*-value	Sig.t	Stage 2 After moderator *B*	*t*-value	Sig.t
FLID	SIZE	0.020	3.972	0.000***	0.016	3.219	0.001***
	AGE	0.045	3.364	0.001***	0.036	2.787	0.006***
	AUDIT	−0.047	−3.343	0.001***	−0.049	−3.673	0.000***
	IND	−0.033	−2.499	0.000***	−0.042	−3.348	0.001***
	BGD				0.048	0.761	0.447 NS
	The Interaction (SIZE*BGD)				0.233	4.011	0.000***
	The Interaction (AGE*BGD)				0.285	1.994	0.047**
	The Interaction (AUDIT*BGD)				−0.274	−1.891	0.060*
	The Interaction (IND*BGD)				0.688	5.362	0.000***
	R^2		0.114			0.243	
	Adj. R^2		0.101			0.219	
	F		9.261			10.114	
	(Sig. *F*)		0.000***			0.000***	

Note(s): ***, ** and * denote correlation is significant at the 1%, 5% and 10% levels. NS: not significant

Table 8. Gender diversity as a moderator in the relationship between operational characteristics and FLID before and after introducing the moderator

women on their boards. For example, Egyptian companies operating in the industrial sector are characterised by their large size and age, have a larger proportion of women on their boards and are revealing more future information. In contrast, we find a significant negative impact of the moderating variable on audit firm type and its relationship with FLID. This means that companies that are audited by non-Big 4 audit firms and have a larger proportion of women on their boards disclose more future information. Consequently, these results support the study's fourth research hypothesis (H4). Therefore, we can accept the fourth hypothesis (H4), suggesting a *BGD moderate the relationship between Operational Characteristics and the level of FLID.*

The above results support the claims of agency theory, as moderating gender diversity impacted and strengthened the relationship between firm characteristics and the level of FLID. Having said this, the presence of female representation on board improved the reporting of Egyptian companies, which reduced the agency problem (Adams and Ferreira, 2009; Bravo and Alcaide-Ruiz, 2019). Moreover, the above results support the resource dependency theory that claims that the presence of female members on the board was found to add strategic resources to the Egyptian companies and increase voluntary disclosures (Bravo and Alcaide-Ruiz, 2019), which in return represent a resource that is used in company growth and hence better performance (Ramadan and Hassan, 2022). Finally, the above results represent new insight into the BGD literature in emerging economies regarding the moderating impact of gender diversity on the relationship between firm characteristics and the level of FLID. Early studies concentrated on the direct and positive or negative impact of BGD on the level of FLID (e.g. Aribi *et al.*, 2018; Bravo and Alcaide-Ruiz, 2019; Dey *et al.*, 2020; Frias-Aceituno *et al.*, 2013; Kılıç and Kuzey, 2018).

7. Robustness analysis

To further assess how BGD may influence the relationship between firm characteristics and forward-looking disclosure, our main analysis was replicated by deploying a different

measure of BGD, 1 if a firm has at least one woman on its board, 0 otherwise (Chalu, 2021; Elghuweel *et al.*, 2017; Issa and Zaid, 2021), in order to examine whether our main findings are sensitive to the different measure of BGD. The results presented in Table 9 suggest that our evidence is robust to the use of this alternative BGD measure, and the results of Model 3 and Model 4 were consistent with the preceding findings.

8. Conclusion, limitation and future research

Using a sample of 49 selected companies from Egyptian non-financial companies listed in the EGX 100 with a total of 294 observations over the period from 2013 to 2018, the current research investigates the impact of firm financial characteristics (ROA and leverage) and operational characteristics (company size, company age, audit firm type and industry) on the level of FLID by Egyptian-listed non-financial companies. Further, the current research explores the moderating role of gender diversity on the board of directors in the relationship between firm financial and operational characteristics with the level of FLID.

The findings of this research revealed a significant positive impact of ROA, leverage, company size and age on the level FLID. At the same time, external audit firm type and industry were found to impact the level of FLID negatively. All these results support early findings in the literature except for the impact of audit firm type on the level of FLID. Regarding audit firm type, our results showed a negative relationship between audit firm type and FLID, which is inconsistent with previous studies in the literature that reported either a positive or no significant relationship (e.g. Agyei-Mensah, 2017; Buertey and Pae, 2021; Dey *et al.*, 2020; Krause *et al.*, 2017; Mohammadi and Jamali, 2017; Pratoomsuwa and Vu, 2016). This leads to an important conclusion: Egyptian companies whose non-Big 4 audit firms review disclose more FLID in emerging markets such as the Egyptian market. In such developing markets, companies audited by Big 4 audit firms feel that they do not need to disclose more FLID. This is

Table 9. Robustness test

	Dependent variable: FLID Model 3			Dependent variable: FLID Model 4		
Variables	Coeff	*t*-value	*p*-value	Coeff	*t*-value	*p*-value
Constant	0.259	26.839	0.000***	0.262	29.111	0.000***
ROA	0.137	3.581	0.000***			
LEV	0.012	2.426	0.026**			
BGD	0.019	1.415	0.158	0.015	1.199	0.232
ROA*BGD	0.216	1.716	0.087*			
LEV*BGD	0.193	3.642	0.000***			
SIZE				0.012	1.686	0.086*
AGE				0.009	2.656	0.037**
AUDIT				−0.001	−3.038	0.001***
IND				−0.115	−4.078	0.000***
SIZE*BGD				0.050	5.149	0.000***
AGE*BGD				0.046	1.738	0.082*
AUDIT*BGD				−0.072	−2.694	0.007***
IND*BGD				0.138	5.448	0.000***
Year effects		Yes			Yes	
R^2		0.114			0.248	
Adjusted R^2		0.099			0.224	
F-value	7.433		0.000	10.420		0.000
df-model		5			9	
df-model		288			284	

Note(s): ***, ** and * denote correlation is significant at the 1%, 5% and 10% levels

because the reputation of the audit firm gives their annual reports and disclosure more credibility, while companies that smaller audit firms audit seeks more credibility about their reports, processes and disclosures by disclosing more FLID. These results support our theoretical claims based on agency theory and signalling theory that firm characteristics significantly impact FLID and provide evidence that the Egyptian managers are seeking to reduce the information asymmetry and give good signals to all market participants directly after two revolutions (2011, and 2013) which are characterised by high level of uncertainty, economic and political instability and many changes in the rules and regulations.

The current research represents the first study – to the best of the authors' knowledge – to investigate the moderating role of BGD and its impact on the level of FLID in an emerging market. Our results revealed that gender diversity has a moderating impact as it strengthens the effect of financial and operational characteristics on the level of FLID. However, it was noticed that BGD moderating impact was more substantial with the operational characteristics when compared to its moderating impact on financial characteristics. Therefore, we argue that the inclusion of BGD as a moderator added more interpretation content to the impact of the operational characteristics on the level FLID when compared with the impact of financial characteristics. This supports early studies that concentrated on gender differences and concluded that men are more familiar with financial matters compared to women (Mittelstaedt and Wiepcke, 2014) and that they have increased levels of anxiety when dealing with complex mathematical calculations (Hill *et al.*, 2016; Malaquias and Zambra, 2019). Moreover, due to being more averse to risks (Adams and Ferreira, 2009; Croson and Gneezy, 2009) and more conservative (Barber and Odean, 2001), their impact are more apparent in the operational characteristics than in financial ones, as ROA and leverage are more controllable by the management through taking direct decisions while the management can do little regarding most of the operational characteristics studied in this research (e.g. age, size and industry). Hence, this study provides evidence that the presence of female members on the board of directors is one of the crucial aspects that increase the level of FLID. The above finding supports our theoretical claims based on resource dependency and agency theories. Furthermore, it provides evidence that the Egyptian government's latest changes in the Egyptian regulations and governance code – which concentrated on empowering women, gender diversity and gender equality – represent the proper movement. Accordingly, the Egyptian authorities need to build on these reasonable steps and ensure that all the Egyptian listed companies follow the female representation percentage stated in the latest regulations.

Based on the above discussion, the current study has important implications for Egyptian companies, regulators and investors. Based on the findings of this research, it is recommended that Egyptian companies pay more attention to gender diversity when selecting board members, as this brings a more holistic view of disclosure decisions and practices. Besides, the current study could help Egyptian regulators and policymakers, as our findings provide evidence of the importance of BGD and its impact on the level of FLID. Therefore, regulators and policymakers should follow up on the enforcement of the female quota (at least 25% or 2 female members) in the board composition of all Egyptian listed companies no later than December 2022 as stated in the latest regulations. Finally, domestic or overseas investors are required to consider the above results when making their investment decision on any of the Egyptian-listed companies. For instance, we recommend that any current or potential investor in the Egyptian market should search for additional sources of information in addition to the annual reports if the investment will be in companies audited by a Big 4 audit firm; or if these companies do not include any female representation on their board of directors.

The current study is subject to certain limitations, which could represent opportunities for future research. The current study is limited to Egyptian non-financial registered in EGX 100 from 2013 to 2018. However, future research can replicate the current study in other

African settings, especially in the MENA region, where there is a scarcity of studies that concentrate on BGD. Such replication is important in the MENA region as many countries recently shared the same political and economic instability in the Arab Spring revolutions. Further, the Egyptian market includes many family-owned firms. Having said this, future research could explore how the change in ownership could impact the level of FLID and the moderating role of BGD in such different settings.

Moreover, the current study concentrated only on BGD as one of the corporate governance mechanisms. In contrast, the new Egyptian corporate governance code includes many changes suggested for study. Accordingly, future research could concentrate on other corporate governance mechanisms like board composition, board size, board meeting frequency, managerial ownership and foreign ownership. Finally, future research can study the impact of board members' political connections and management entrenchment on FLID; as in developing markets like Egypt and especially in times of revolutions, these factors should be observed closely as they are expected to impact managers' behaviour, management style and disclosure initiatives.

Note

1. Annual reports are available for some Egyptian companies on the following websites: www.misrmubasher.com, www.egx.com.eg/ar/homepage.aspx

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Appendix

Table A1. Forward-looking information disclosure index

Financial disclosure items	Non-financial disclosure items
(1) Profitability ratios and expected profitability	(1) Discussion about corporate strategy
(2) Expected cash flows	(2) Sales target/improved export
(3) Financial structure	(3) Advertising and marketing plan
(4) Costs evolution/distribution	(4) Products and innovation
(5) Shares and market capitalisation	(5) Growth opportunities
(6) Capital expenditure	(6) Company market analysis and competitors' analysis
(7) Dividend per share/rate	(7) Investment projects
	(8) Investment in R&D, human resources and other intangibles
	(9) Intellectual capital
	(10) Industry or market risks
	(11) Environmental risks
	(12) Financial risks
	(13) Political risks
	(14) Expected technological changes

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