

ESG DISCLOSURE, BOARD DIVERSITY AND OWNERSHIP: DID THE REVOLUTION MAKE A DIFFERENCE IN EGYPT?

Omar Al Farooque^{*}, Khaled Dahawy^{**}, Nermeen Shehata^{***},
Mark Soliman^{****}

^{*} UNE Business School, University of New England, Australia

^{**} School of Business, Department of Accounting, The American University in Cairo, Egypt

^{***} Corresponding author, School of Business, Department of Accounting, The American University in Cairo, Egypt

Contact details: AUC Avenue, P.O. Box 74, New Cairo 11835, Egypt

^{****} Marshall School of Business, University of Southern California, the USA



Abstract

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Egypt witnessed radical and unexpected changes in the political, social and cultural environment that came as a result of the Arab Spring. Since the revolution caused a paradigm shift in so many socio-economic aspects, it is plausible that it also caused dramatic changes in the relationships of board, ownership, and environmental, social, and governance (ESG) practices in different ways. Accordingly, understanding the corporate governance of the largest Arab state in the MENA region following the Arab Spring is a huge benefit. Using the 2011 Egyptian revolution as the exogenous shock, this study empirically examines the effects of board diversity and ownership structure on the ESG disclosure index in the Egyptian Stock Exchange (EGX) listed firms for the pre-revolution (2007–2011) and post-revolution (2012–2014) periods. Using 160 observations for the pre-revolution and 99 observations for the post-revolution periods, we document a significant positive effect of board national diversity on the ESG index in the pre-revolution period. This effect disappears in the post-revolution period. In contrast, we find that board gender diversity shows no significant effect in determining the ESG index in both pre- and post-revolution periods. We additionally find that ownership variables have a positive impact on ESG disclosure in the pre-revolution period. However, this impact is not carried forward to the post-revolution period. Further analysis on moderating effects suggests that the presence of female board members and state ownership can diminish the effective role of foreign board members towards ESG disclosure. These findings can provide policymakers, regulators, investors, and other stakeholders with a broader perspective of corporate board diversity and ownership when aiming to ensure an optimal level of ESG disclosure from listed companies in Egypt or other emerging markets.

Keywords: ESG Disclosure, Board Diversity, Ownership, Revolution, Egypt

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1. INTRODUCTION

The sustainability and societal impact of firms are measured by environmental, social, and governance (ESG) factors. As the climate and social changes continue to have effects on global markets, sustainability considerations and sustainable finance have become increasingly critical to financial decision-making. Galbreath (2013, 2018) asserts that ESG disclosure has become a key indicator of non-financial performance, management competence, and risk management. These indicators cover many issues relating to the environment (e.g., climate, energy, and water), social responsibility (e.g., gender balance, human rights), as well as governance (e.g., ethics, investor protection). Therefore, they are linked to corporate social responsibility (CSR) (Cucari, Falco, & Orlando, 2018). In recent years, ESG issues have become increasingly important inputs for firm valuation (Cormier & Magnan, 2014; Seto-Pamies, 2015; Cucari et al., 2018). Garcia-Sanchez, Cuadrado-Ballesteros, and Sepulveda (2014) state that disclosure of information on socially responsible activities can positively affect market performance and improve relationships with stakeholders. ESG information enhances transparency and improves stakeholders' capabilities of evaluating the non-financial dimensions of firms' performance (Czerwińska & Kaźmierkiewicz, 2015). Most importantly, the market pays a premium to invest in companies with ESG initiatives (Czerwińska & Kaźmierkiewicz, 2015). Prior work in this area has the additional complexity of an endogenous relation between board diversity, ownership variables, and ESG scores/disclosure level. Using the 2011 Egyptian revolution as an exogenous shock, we attempt to isolate some of these relations to study the effects of boards, ownership structure and ESG factors thoroughly. The research design in this paper allows conducting a study on how these relations change and isolate the effects more comprehensively, given the endogenous and contingent nature of firm's governance choices.

The growing public demand for information on ESG activities has pressured firms to undertake and disclose more information about ESG activities (Ioannou & Serafeim, 2012). Cormier and Magnan (2014) contend that an increasing number of firms are motivated by this demand. As such, the measurement and disclosure of ESG activities evolved as a novel idea for firms in both developed and developing markets. Since the last financial crisis, the traditional indicators of firm financial performance and information on ESG activities became complementary and increasingly firm value relevant (Dienes & Velte, 2016; Aureli, Gigli, Medei, & Supino, 2019). Extant literature also calls for addressing the impact and measurement of ESG ratings (Eccles, Ioannou, & Serafeim, 2014; Montiel & Delgado-Ceballos, 2014; Busch, Bauer, & Orlitzky, 2016; El Ghouli, Guedhami, & Kim, 2017; Li, Gong, Zhang, & Koh, 2017; Limkriangkrai, Koh, & Durand, 2017; Brooks & Oikonomou, 2018). The growth of ESG disclosure has been documented to improve a firm's transparency and accountability (Boulouta, 2013), reputation (Axjonow, Ernstberger, & Pott, 2018), and financial performance (Platonova, Asutay, Dixon, & Mohammad, 2018). In fact, firms undertake

socially appropriate measures to fulfil the needs of multiple stakeholders by creating an alignment between corporate operations and social value to improve firm legitimacy and capitalize on them (Cormier & Magnan, 2014; Chauvey, Giordano-Spring, Cho, & Patten, 2015; Khan, Khan, & Saeed, 2019a; Khan, Khan, & Senturk, 2019b). Such socially responsible behaviour also benefits the firm by improving competitiveness, its relationships with stakeholders, as well as its market reputation, etc. (Jia, 2020).

One component of ESG, the composition of the board of directors, has gained attention in recent years. Given that, it is the responsibility of the board to direct the firm towards sustainable development processes (Jo & Harjoto, 2011). The composition of the board plays a key role in determining socially responsible behavior (Cuadrado-Ballesteros, Martinez-Ferrero, & Garcia-Sanchez, 2017). Board diversity is closely linked to the financial outcome of a firm (Levine & Stark, 2015). Board diversity proponents have argued that diverse directors are individually stronger monitors (Ramirez, 2004; Adams, De Haan, Terjesen, & Van Ees, 2015) that can improve the board's role of executive management oversight. Carleton, Nelson, and Weisbach (1998) argue that "a diverse board is less likely to be beholden to management" (p. 1343). Rao and Tilt (2016a, 2016b) claim that board diversity has the potential to increase board effectiveness and performance.

Among the various types of diversity represented on boards, gender diversity has received the most attention for its potential impact on the economy vis-a-vis financial outcomes and the decision-making processes of firms. A large number of prior studies provide evidence that gender diversity results in stronger oversight (Larcker & Tayan, 2016), improved performance for firms and/or firm value (Daehyun & Starks, 2016), enhanced CEO turnover-performance sensitivity (Adams & Ferreira, 2009), stock price information (Gul, Srinidhi, & Ng, 2011), as well as better earnings quality (Gul, Srinidhi, & Tsui, 2011) by offering specific functional expertise (i.e., unique skills, knowledge, and experience) on corporate boards. The meta-analysis of 140 cases by Post and Byron (2015) generally demonstrates a positive link between female directors and better financial performance. In comparison, the effects of gender diversity on ESG and/or CSR disclosure have been much less studied and with mixed findings (Rao & Tilt, 2016a, 2016b). In addition to gender diversity, there is a paucity of studies on national diversity including ethnic minorities. The role of the board and its composition differs between developing and developed countries due to institutional differences (governance, ethics, and social regulation) such as high family and concentrated ownership (Machuga & Teitel, 2009; Sundarasan, Je-Yen, & Rajangam, 2016), poor regulatory authority (Lock & Seele, 2015), low stakeholder and legal protection (Ntim, Lindop, Thomas, & Abdou, 2017), weak institutional setup (Muttakin, Khan, & Subramaniam, 2015), external governance mechanisms (Claessens & Yurtoglu, 2013), and high corruption indices (Transparency International, 2017).

Despite the many consequences of ESG disclosure, there are few contemporary studies on

ESG disclosure. Although there has been an interest in the relationship between board diversity and CSR disclosure, little is known about the association between board diversity and ESG disclosure. The scant ESG literature has primarily concentrated on ESG performance (De Bakker, Groenewegen, & Den Hond, 2005; Benlemlih & Bitar, 2018), and the relationship between ESG and company performance. A lot of studies investigated ESG ratings in developed and politically stable countries (Richardson & Welker, 2001; Aerts, Cormier, & Magnan, 2008; Harjoto & Jo, 2015; Plumlee, Brown, Hayes, & Marshall, 2015; Yadav, Han, & Rho, 2016) with the exception of a few studies that focused on emerging markets (Siagian, Siregar, & Rahadian, 2013; Akrouf & Ben Othman, 2016; Malarvizhi & Matta, 2016) and African markets (De Villiers & Van Staden, 2006; Barako & Brown, 2008; Aboud & Diab, 2018, 2019).

In this study, we empirically examine the effects of board diversity and ownership structure on ESG disclosure in Egyptian listed firms before and after the revolution held in 2011. We find an important gap in the literature by answering the following, “*What are the effects, if any, of board diversity, ownership structure, and their interactions on ESG disclosure in Egyptian listed firms in the pre- and post-revolution periods?*” Since the revolution caused a paradigm shift in so many socio-economic aspects, it is plausible that it also caused dramatic changes in the relationships of the board, ownership, and ESG practices in different ways. From a theoretical and conceptual perspective, the effect of board diversity and ownership on ESG could be positive, neutral, or negative. Board effectiveness may be stronger if diverse boards are in place and have more information to make better monitoring decisions. However, we argue that differences in board effectiveness may also be possible between the pre- and post-periods due to the new socio-political environment in the post-revolution period. This is despite the fact that firms with ESG disclosure are perceived as trustworthy, legitimate, and reputable.

Our study makes several contributions to the existing literature. Firstly, while most of the studies on board diversity and ESG disclosure are focused on developed countries, we extend the literature by examining the relationship between board diversity, ownership structure, and ESG reporting/disclosure in the Egyptian pre- and post-revolution context. To our knowledge, no paper to date has investigated the relationship between ESG reporting/disclosure and board diversity, including gender, national diversity, and ownership structure in Egypt. Secondly, unlike previous studies in the developed markets (Cucari et al., 2018; Yu, Guo, & Luu, 2018) that mainly rely on Bloomberg’s ESG score as a measure of ESG disclosure, we use Standard & Poor’s Egyptian Corporate Responsibility Index from the developing market context as a proxy for the ESG score. The Index ranks the best 30 companies from the pool of the top 100 Egyptian companies listed in the Egyptian stock market in terms of their disclosures of social and environmental issues as well as their CG practices (Aboud & Diab, 2018). We explore a long period that covers the years from 2007 (when the index was first initiated) to 2014 to explore if there is a change in

this relationship as an impact of the Egyptian 2011 revolution. Thirdly, we examine the association between board diversity and ESG disclosure while controlling for internal corporate governance variables covering board, ownership, and audit characteristics in the regression model. In addition, the interaction terms between respected board diversity and ownership structure variables are also used to indicate different moderation effects between the pre-revolution (2007-2011) and post-revolution (2012-2014) periods, something that has not been attempted before in the prior literature. Galbreath (2016) states that a complementary relationship shows creating value greater than that created by any individual or primary variable, and the opposite relationship is called a substitution relationship. We consider a ‘complementary relationship’ when the interaction term shows a significant positive association with ESG, and a ‘substitutive relationship’ when a significant negative relationship occurs with ESG. No studies have focused on complementary and substitution relationships between board diversity and ESG disclosure. As such, we argue that board diversity variables could have a complementary or substitution association with ESG disclosure which could differ for the pre-revolution (2007-2011) and post-revolution (2012-2014) periods.

The remainder of the paper is structured as follows: Section 2 provides a summary of the political environment surrounding the Egyptian revolution. Section 3 presents relevant theories, literature review and hypotheses development. Section 4 presents the empirical methodology, data, and model design. Section 5 reports the empirical results, while Section 6 draws together the discussion and conclusions derived from the study.

2. POLITICAL CHANGES IN EGYPT

The Arab Spring (coined by the media) was a series of anti-government protests, uprisings, and armed rebellions that spread across much of the Arab world in 2011. Starting with protests in Tunisia, the Arab Spring began in response to oppressive regimes and a low standard of living. While a power struggle continued after the immediate response to the Arab Spring, leadership changed and regimes were held accountable, power vacuums opened across the Arab world. This turmoil ultimately resulted in a contentious battle in many Muslim-majority states between those who supported a consolidation of power by religious elites and those who supported for democracy. The Arab Spring caused the biggest transformation of the Middle East since decolonization (Agdemir, 2016).

In Egypt, the Arab Spring brought profligate turbulences to the balance of political power. In response to the stifling and disappointing sociopolitical and economic climate caused by the 30-year tenure of President Hosni Mubarak (1981-2011), massive protests filled the streets of Egypt during an 18-day uprising. Because of these protests, Mubarak was forced to resign (Eltantawy & Wiest, 2011; Aboud & Diab, 2018, 2019). The Supreme Council of the Armed Forces took

transitional power, bringing with it a suspension¹ of the constitution, dissolution of the parliament, dissolution of the National Democratic Party (NDP)², as well as the end to the 31-year constant state of emergency. Democratic elections then followed, resulting in the election of Mohamed Morsi, a member of the Muslim Brotherhood³ regime. Morsi ruled Egypt for one year.

The quick and repeated political transitions resulted in political, economic, and social instability. Egypt's subsequent economic decline intensified macro-economic structural imbalances. Political instability decreased tourism revenues, citizens' investments and savings. The Egyptian pound depreciated 4.5% of its US dollar value in January 2013, that is more than 10% since the beginning of the revolution. The GDP growth rate drastically declined from 5.5% in December 2010 to 2.2 % in December 2012. The budget deficit doubled to 15.8% in the 2013–2014 budget because of fuel and food subsidies. This economic instability led to a \$14.6 billion depletion of the foreign reserves. The unemployment rate increased to 13.3%, while the poverty rate reached 26.3% in 2013 compared to 25.2% in 2011 (Abdou & Zazzou, 2013; Egyptian Corporate Social Responsibility Centre, 2016).

The "worsening economic situations and alleged misuse of religion in politics" resulted in mass protests starting in June 2013 (Farah, as cited in Aboud & Diab, 2019, p. 502). After months of tension, Egypt's political crisis collapsed as the army, led by Abdel-Fattah el-Sissi, former field marshal and Chief-of-Staff, overthrew President Mohamed Morsi. In 2014, Abdel-Fattah el-Sissi won the presidential election. The following period was plagued with internal tensions brought forth by terrorism and economic struggles, especially in the Sinai Peninsula. In 2017 and 2018, the government started an ambitious socioeconomic program slashing public subsidies and resulting in the rise of prices of utilities and public transportation.

3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

3.1. Theory

The existing literature is based on well-established theories and is considered a multi-theoretical framework for interrogative purposes. In order to demystify the impact of board diversity on ESG disclosure, we rely on the following theories: legitimacy theory, institutional theory, stakeholder theory, and resource-based view theory. Both legitimacy theory and institutional theory illuminate firm's motivations to present ESG disclosures. Legitimacy involves perceived conformity with both formal laws and social norms associated with or implied by organisational activities, i.e., the actions of any entity are required to be desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions (Suchman,

1995). The practice of voluntary disclosure, such as ESG disclosure, is a strategic behaviour of an organisation aiming at conveying a message to society that the firm is aware of and engaged in meeting stakeholders' expectations. Based on this theory, to meet societal expectations and enjoy social legitimacy, some firms undertake certain values or signals, such as CSR. Similarly, firms can signal to stakeholders and society increased legitimacy through ESG disclosure. The institutional theory also focuses on the association between the firm and stakeholders, as firms are impacted by governmental and other social organizations that intend to supervise firm behaviour. In this context, such monitoring can affect firms' ESG transparency.

While both legitimacy and institutional theories are interconnected, Manita, Bruna, Dang, and Houanti (2018) state that stakeholder theory explains firms' motivation to provide transparent ESG disclosures. According to stakeholder theory, an organization must manage its relationship with stakeholders who both affect and are affected by its business decisions. Thus, there exists an interdependence between a firm and its stakeholders. As such, ESG disclosure on environment, social and governance/ethics areas can be a useful tool to meet the various expectations of different stakeholders. Finally, the resource-based view theory states that board diversity is a valuable firm resource by demonstrating board uniqueness and supporting divergent perspectives. This allows firms to delineate strategies to improve their social and environmental circumstances (Katmon, Mohamad, Norwani, & Al Farooque, 2019). Resource-based view theory reflects internal resources as the cornerstone for firms to achieve competitive advantage (Yu & Choi, 2016; Galbreath, 2018) and considers that a diverse board is more likely to be stakeholder-oriented to offer a greater range of human capabilities, skills and experiences, deliver ethical practices and exhibit socially responsible behaviour (Adams & Ferreira, 2009).

3.2. Hypotheses development

In recent years, firms are faced mounting pressures from different groups of stakeholders to meet broader societal interests. This has led to swift changes in corporate practices towards social, environmental, and ethical issues. Reverte (2009) argued that people expect firms to align corporate operational goals with environmental, social, and ethical values. As an example of increased expectations in the United States, the percentage of S&P 500 firms presenting sustainability reports increased to 85% in 2017 and almost 75% of investment professionals incorporate firm ESG reports into their investment decisions (Governance and Accountability Institute, 2018). Prior literature also notes that ESG transparency helps firms to create legitimacy and good reputations (Eccles et al., 2014). Given the rising pressures for firms to disclose more information about ESG issues, higher levels of ESG disclosure lead to increased firm value (Yu et al., 2018), decreased cost of capital (Galbreath, 2013), as well as the decreased probability of bankruptcy (Fisch, 2019). Despite the large volume of literature showing that stakeholders are essential for sustaining a firm's competitiveness and long-

¹ The Supreme Council of Armed Forces is a statutory body of senior Egyptian military officers.

² The National Democratic Party is the ruling political party during Hosni Mubarak ruling time.

³ The Muslim Brotherhood is a political, religious, charitable, and educational group. While the Brotherhood movement claimed to stand for democracy and freedom, it did so within an Islamic framework (Aboud & Diab, 2019).

term growth (Flammer, Hong, & Minor, 2019), the literature examining firms' ESG transparency is scarce.

Board diversity is directly measured through observable aspects such as gender, age, and ethnicity (Galia & Zenou, 2013; Katmon et al., 2019). Most prior studies investigating board characteristics and board diversity find favourable associations of board diversity on firms' economic activities, ultimately improving firm performance. Cucari et al. (2018) investigate the impact of board characteristics including gender diversity, CSR committees, average number of board members and independent directors on ESG transparency, and report that ESG disclosure by firms is associated with the number of independent directors and the existence of a CSR committee. A diverse board improves financial disclosure and performance (Aribi, Alqatamin, & Arun, 2018). According to Katmon et al. (2019), the role of a diverse board is central to CSR disclosure. Extant literature demonstrates that board diversity is significantly associated with CSR disclosure (Chang, Oh, Park, & Jang, 2017).

Within the characteristics of board diversity, gender diversity has received most attention from policymakers in the current global social-political environment. While greater diversity enhances information resources and broadens the cognitive and behavioural range of the board, the literature suggests that having more women on boards encourages companies to adopt a more socially responsible approach (Ferrero-Ferrero, Fernández-Izquierdo, & Muñoz-Torres, 2015). Post, Rahman, and McQuillen (2015) investigate the relationship between the number of women on boards and specific strategic behaviours and report that boards with a higher female representation are more likely to form a sustainability-themed alliance. Both Hillman (2015) and Adams et al. (2015) reveal that a gender-diverse board is more likely to bring independent perspectives that improve the quality of strategic decisions and overall board effectiveness. Post and Byron (2015) argue that the knowledge and experience of female directors tend to result in a positive performance of the firms in countries with stronger shareholder protection. The percentage of female directors on the board is also found to have a positive association with firm performance in Hong Kong, South Korea, Malaysia, and Singapore (Low, Roberts, & Whiting, 2015). Kassinis, Panayiotou, Dimou, and Katsifarakis (2016) also explore the effect of gender diversity on corporate environmental sustainability and suggest that gender has a direct relationship with environmental sustainability practices. Firms with more independent directors and more women directors are more likely to develop a proactive and comprehensive board CSR strategy (Rao & Tilt, 2016a; Shaikat, Qiu, & Trojanowski, 2016). Similarly, Sundarasan et al. (2016), Jizi (2017) and Khan et al. (2019b) document a positive relationship between female directors and firm's CSR practices. In contrast, Muttakin et al. (2015) demonstrate a negative association between gender diversity and CSR reporting. Khan (2010), Galbreath (2013) and Giannarakis (2014) find no significant relationship between women on a board and CSR reporting/environmental disclosure. In the context

of Egypt, there is no study that examines the relationship between gender diversity and ESG disclosure/CSR reporting. The socio-economic changes that happened in the post-revolution period have also been reflected in the corporate sector. As such, the number of women on corporate boards increased in the post-2011 periods. We expect that such an improvement in women's representation on the corporate board could be influenced by radical changes in the political environment and social expectations. We argue this provides the opportunity for women on boards to play a greater positive role in board governance in the post-revolution period that was hardly possible in the pre-revolution period. It suggests that the post-2011 period reflects in boards' cultural change evolving to one where dissenting women's voices are heard and valued. Building on prior literature, we expect this increase in women directors in boards is highly associated with an increase in ESG practices in post-revolution than in the pre-revolution period. Based on the above arguments, the following hypothesis is formulated:

H1: The presence of women on the board of directors has a stronger influence on ESG disclosure in the post-revolution period than in the pre-revolution period.

In addition to the number of women, the other widely used board diversity characteristic is national diversity. Although there are few empirical studies exist on board's national heterogeneity and ESG/CSR disclosure, it remains one of the most important issues for corporate boards in the current globalised environment. Given an increase in business diversification, firms require dynamic resources to cater to international markets in order to achieve a competitive advantage. The appointment of directors with different nationalities is expected to improve firm CSR disclosure (Katmon et al., 2019). Hsu, Chen, and Cheng (2013) argue that for multinational directors representation on the board is a valuable firm resource that improves a firm's competitive advantage and accelerates CSR reporting. Ibrahim and Hanefah (2016) claim that the appointment of multinational directors on boards promotes CSR reporting because these directors have international exposure, skills, knowledge, and experience. Foreign directors on a board play a strong monitoring role that increases strategic decisions regarding public and social activities and these activities' subsequent reporting (Zainal & Zulkifli, 2013). Ararat, Aksu, and Tansel Çetin (2015) also contend that the appointment of director representative from different nations improves board performance, as their knowledge and experience on CSR challenges in the international markets can be used to improve corporate CSR quality. Che-Ahmad and Osazuwa (2015) indicate that diverse board nationalities have a positive and significant influence on CSR disclosure. Other studies also find a positive linkage between the nationally diverse board and social reporting (Zainal & Zulkifli, 2013; Muttakin et al., 2015; Khan et al., 2019b). In contrast, Hahn and Lasfer (2016) show a negative relationship between board nationality diversity and the quality of CSR disclosure. Barako and Brown (2008) also do not find any significant relationship between the nationally diverse board and the quality of CSR disclosure.

In the context of Egypt, while there is no prior study exploring the association between national diversity and ESG disclosure/CSR reporting, in the post-revolution period, we observe more foreign representation on corporate boards. We argue that changes in macroeconomic and socio-political norms led to the improvement in foreign director presence in corporate boards in Egypt. It recognises the need for a different set of resources for rebalancing boards' expertise in dealing with uncertainty in business that would be in Egypt after the revolution. For the new needs and social expectations, we predict that national diversity plays a vital role in the post-revolution period compared to the pre-revolution. Considering the above arguments and the ones mentioned for gender diversity, the following hypothesis is formulated:

H2: The presence of foreigners on the board of directors has a stronger influence on ESG disclosure in the post-revolution period than in the pre-revolution period.

In addition to board diversity, ownership structure represented by ownership concentration and different owner types has been considered as a significant explanatory variable in the extant literature that could influence firms' ESG/CSR disclosure. Although CSR is still debated whether it is value-enhancing, value-destroying or value-irrelevant literature indicates that key shareholders exert direct influence on firm's strategic decision, such as CSR investment and ownership types play a major role in firms CSR reporting and performance. In emerging economies, firms' organisational structure has been featured with a high level of ownership of insiders, government/state and private investors (domestic and foreign). In the literature, Choi, Doowon, and Youngkyu (2013) reveal that ownership structure can influence managerial motivation to engage in corporate social disclosure, while McGuinness, Vieito, and Wang (2017) document a positive association between institutional ownership and greater CSR ratings in Korean firms. Both Khan (2010) and Khan, Muttakin, and Siddiqui (2013) also find a significant relationship between CSR disclosure and foreign ownership in Bangladesh. Oh, Chang, and Martynov (2011) also report higher CSR rating in firms with greater foreign ownership. However, separating foreign ownership into Arab and non-Arab ownership, Al-Gamrh, Al-Dhamari, Jalan, and Jahanshahi (2020) indicate that non-Arab foreign ownership positively affects firms' social performance, while Arab foreign ownership shows no significant effect. Further, Hoang, Abeysekera, and Ma (2019) reveal mixed results for both foreign and state ownerships with corporate social disclosure in Vietnamese listed firms. On the contrary, while Dam and Scholtens (2012) find that the extent of individuals' ownership is associated with poor corporate social policies in the European firms, Gavana, Gottardo, and Moisello (2016) report the level of family ownership is negatively related to sustainability reporting. In this study, the ownership structure is represented by insider ownership, state ownership, and public free float individual ownership (domestic and foreign). In the context of Egypt, given the nature of the revolution that calls for equality and social

justice, we note a positive change in the composition of ownership types in post-2011 periods showing increased stake for insider and public free float (domestic and foreign) shareholdings and decreased stake for state shareholdings. Such reshaping of ownership stake provides foreign ownership to become an integral part of the ownership structure of Egyptian companies in the post-revolution period. The change in the macroeconomic and political environment in the post-2011 periods led to different ownership types to strengthen their influence on strategic decisions such as ESG in the post-revolution period compared to the pre-revolution period. Based on the findings in the literature, as well as the socio-political context in Egypt, the following hypothesis is formulated:

H3: Ownership structure has a stronger influence on ESG disclosure in the post-revolution period than in the pre-revolution period.

4. METHODOLOGY

4.1. Data and sample

Our sample consists of firms listed with the Egyptian Stock Exchange (EGX) over the 8-year period (2007–2014). The index was created by the Egyptian Institute of Directors (EIOD), S&P Dow Jones Indices and Crisil⁴. We require that firms must have ESG disclosure ratings data available on the date of the analysis. Data on ESG scores were obtained from the EGX. After then, we matched companies with ESG scores to board diversity and ownership data. The final sample has 259 observations with 160 in the pre-revolution period (2007–2011) and 99 in the post-revolution period (2012–2014). Since the revolution occurred in 2011, we consider the 2007–2011 period as pre-revolution and the 2012–2014 period as post-revolution.

4.2. Constructing ESG index

The ESG index is used as the dependent variable and covers quantitative, qualitative, and narrative information. The ESG index was created by the EIOD under the guidance of Standard & Poor's in 2007. The index measures the quality of ESG information that Egyptian companies make available regarding their ESG efforts. The index is composed of quantitative, qualitative, and composite score. The quantitative score is based on the three factors – the transparency and disclosure of 1) corporate governance, 2) environmental practices, and 3) social practices. The qualitative score is based on independent sources of information, news stories, websites, and CSR filings. It is used to evaluate the actual performance of the company on a scale of 1 to 5. The composite score is then calculated for each company by summing the qualitative and quantitative scores. Each company's ranking in the index is determined based on its ESG score relative to others⁵.

⁴ Crisil is a subsidiary of S&P Global that provides analytical, ratings, research, risk, and advisory services.

⁵ Further details about ESG index methodology are available at https://www.egx.com.eg/getdoc/fdd6f085-d88e-4072-a753-fa540d136442/SP_ESG_Index_en.aspx

4.3. Constructing board diversity and ownership measures

Board diversity and ownership measures are used as independent variables. Data for companies in the pre-revolution period is extracted from the "Disclosure Book" which includes board data and ownership structure information. This book was issued yearly by the "Disclosure Department" in the EGX from 2005 to 2011. Board diversity and ownership data for the post-revolution period were

hand-collected from company websites and annual reports. Table 1 describes the measurement of the board diversity, female board members (*BFEM*) and foreign board members (*BFOR*) and ownership variables being insider ownership (*IOWN*), state ownership (*SOWN*) and publicly traded ownership (*FF*) variables. These ownership types are available in Egyptian companies that may change in post-evaluation because of socio-economic changes and have an impact on selecting female and foreign board directorships.

Table 1. Definitions of dependent, independent and control variables

Variables	Definition
ESG	Environmental, social and governance overall score
Female board members (<i>BFEM</i>)	Ratio of female board members to total number of board members
Foreign board members (<i>BFOR</i>)	Ratio of number of foreign board members to total number of board members
Insider ownership (<i>IOWN</i>)	Ratio of shares held by board members and top management to total shares
State ownership (<i>SOWN</i>)	Ratio of shares held by governmental enterprises to total shares
Free float (<i>FF</i>)	Ratio of publicly traded shares to total shares
Board size (<i>BSIZ</i>)	Total number of board members
Auditor type (<i>AUD</i>)	1 = Audited by a Big 4, 0 = Audited by a non-Big 4
Duality (<i>DUAL</i>)	1 = CEO is the same as the chairman, 0 = CEO is different from the chairman
Leverage (<i>LEV</i>)	Ratio of total debt to total equity
Profitability (<i>ROA</i>)	Return on assets
Firm size (<i>FSIZ</i>)	Log of total assets

Source: Dependent variables were provided by EGX. Independent variables were retrieved from the 'Disclosure Book' published by EGX, companies' annual reports, and companies' websites. Control variables were retrieved from Thomson Reuters database, the 'Disclosure Book' published by EGX, companies' annual reports, and companies' websites.

4.4. Control variables

In line with the existing literature, board and audit characteristics (board size, auditor type, and duality), as well as firm-specific characteristics (firm size, leverage, and profitability) are used as control variables. Data on financial characteristics are extracted from Thomson Reuters database. Table 1 defines the measurement of these control variables. Additionally, we include both year and industry fixed effects through dummy variables.

$$ESG_{(t)} = \alpha + \beta_1 BFEM_{(t)} + \beta_2 BFOR_{(t)} + \beta_3 IOWN_{(t)} + \beta_4 SOWN_{(t)} + \beta_5 FF_{(t)} + \beta_6 BSIZ_{(t)} + \beta_7 AUD_{(t)} + \beta_8 DUAL_{(t)} + \beta_9 LEV_{(t)} + \beta_{10} ROA_{(t)} + \beta_{11} FSIZ_{(t)} + \mu \quad (1)$$

The regression model in equation (2) is derived from the baseline model while adding interaction variables between board diversity and ownership structure variables. This is to explain whether

$$ESG_{(t)} = \alpha + \beta_1 BFEM_{(t)} + \beta_2 BFOR_{(t)} + \beta_3 IOWN_{(t)} + \beta_4 SOWN_{(t)} + \beta_5 FF_{(t)} + \beta_6 BSIZ_{(t)} + \beta_7 AUD_{(t)} + \beta_8 DUAL_{(t)} + \beta_9 LEV_{(t)} + \beta_{10} ROA_{(t)} + \beta_{11} FSIZ_{(t)} + \beta_{12} BFEM * BFOR_{(t)} + \beta_{13} BFEM * IOWN_{(t)} + \beta_{14} BFEM * SOWN_{(t)} + \beta_{15} BFEM * FF_{(t)} + \beta_{16} BFOR * IOWN_{(t)} + \beta_{17} BFOR * SOWN_{(t)} + \beta_{18} BFOR * FF_{(t)} + \beta_9 \mu \quad (2)$$

5. RESULTS AND DISCUSSION

5.1. Descriptive statistics and correlation analysis

Table 2 provides the results for descriptive statistics divided into the pre- and post-revolution periods. The mean level of the ESG disclosure index is 17.4 in the pre-revolution period and 19.99 in the post-revolution period, indicating a considerable increase in the post-revolution period. As for independent variables, the average female board representation is 8.93% in the pre-revolution and 9.68% in the post-revolution periods, demonstrating a small increase (nearly 10%) in the female representation on boards in the post-revolution period. Similarly, the average foreigners on board is 4.05% in the pre-revolution period and 4.98% in

4.5. Empirical model design

We use the 2011 Egyptian revolution as an exogenous shock that influenced the relationship between the board diversity and ownership variables and the ESG scores/disclosure level. Thus, we aim to use the same model for the periods before and after the revolution. Our univariate estimation as provided in equation (1) includes ESG as the dependent variable and board diversity and ownership as the independent variables.

the strengthening; i.e., complementary relationship effects or weakening; i.e., substitute relationship effects of relationships between board diversity and ESG disclosure variable.

the post-revolution period, showing a moderate increase (23%) in the foreign national representation on boards in the post-revolution period. With respect to ownership structure, average institutional ownership increased from 7.58% in the pre-revolution period to 10.54% in the post-revolution period, which is about 39% increase. In contrast, state ownership significantly decreased (nearly 54%) from 23.97% in the pre-revolution period to 11.11% in the post-revolution period, while public ownership increased marginally (4%) from 43.56% in the pre-revolution period to 45.31% in the post-revolution period.

Table 3 reports Pearson and Spearman correlations. Female board members show an insignificant correlation with the ESG, while foreign board members exhibit a significant positive

correlation with ESG. The relationships between ownership structure and ESG are mixed, ranging from positive to negative, as well as to no relationships at all. Furthermore, both Pearson and Spearman correlations show no sign of multi-

collinearity among the independent and control variables, as none of the correlation coefficients exceed the 80% threshold of severe multi-collinearity (Hair, Black, Babin, Anderson, & Tatham, 2006).

Table 2. Descriptive statistics

Variable	Pre-2011 (Revolution)					Post-2011 (Revolution)				
	N	Min	Max	Mean	SD	N	Min	Max	Mean	SD
ESG	160	8.80	50.80	17.4013	8.80445	99	10.60	50.38	19.9919	8.49069
BFEM	160	0.00	41.70	8.9325	10.29243	99	0.00	33.30	9.6747	10.10412
BFOR	160	0.00	54.55	4.0479	10.62768	99	0.00	55.56	4.6882	13.11546
IOWN	160	0.00	66.27	7.5804	16.33193	99	0.00	77.31	10.5431	19.53174
SOWN	160	0.00	97.30	23.9676	30.89542	99	0.00	91.71	11.107	22.79999
FF	160	0.00	98.90	43.5618	23.18005	99	1.03	92.45	45.3120	20.72843
BSIZ	160	4	17	9.4000	3.03500	99	3	17	9.3100	3.17700
AUD	160	0	1	0.5400	0.50000	99	0	1	0.5900	0.49500
DUAL	160	0	1	0.3400	0.47600	99	0	1	0.4400	0.49900
LEV	160	0.00	531.02	57.0987	82.50637	99	0.00	397.76	48.7757	77.65370
ROA	160	-12.03	107.58	8.9733	11.26788	99	-13.59	34.69	3.8726	7.40746
FSIZ	160	10.87	18.37	14.6553	1.73671	99	11.11	18.26	14.4730	1.87965

Note: This table presents summary statistics on variables used in the empirical analysis. All variables are defined in Table 1.

Table 3. Correlation analysis

Panel A: Pearson Correlation												
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) ESG	1	-0.008	0.322***	-0.137	-0.124	-0.115	0.301***	0.239**	0.153	0.569***	0.109	0.435***
(2) BFEM	0.011	1	-0.027	0.287***	-0.090	0.143	-0.007	-0.169*	-0.145	-0.003	-0.026	-0.254**
(3) BFOR	0.482***	0.083	1	-0.192*	-0.157	0.005	0.166	0.273***	0.199**	0.359***	-0.069	0.558***
(4) IOWN	0.160**	-0.152*	0.081	1	-0.163	-0.148	-0.016	-0.139	-0.222**	-0.146	0.115	-0.131
(5) SOWN	-0.064	0.230***	-0.262***	-0.328***	1	-0.343***	0.113	-0.229**	-0.261***	-0.173**	0.332***	-0.043
(6) FF	-0.033	-0.089	-0.131*	-0.069	-0.532***	1	-0.055	-0.027	0.140	-0.237**	-0.232**	-0.171*
(7) BSIZ	0.111	0.216***	0.061	-0.064	0.070	-0.100	1	0.044	-0.140	0.166*	0.047	0.430***
(8) AUD	0.225***	-0.169**	0.354***	0.229***	-0.438***	0.067	0.197**	1	0.216**	0.287***	-0.007	0.241**
(9) DUAL	-0.004	-0.214***	0.142*	0.209***	-0.275***	0.058	0.139*	0.275***	1	0.158	-0.249**	-0.078
(10) LEV	0.231***	-0.114	0.421***	0.265***	-0.116	-0.104	0.062	0.260***	0.011	1	-0.092	0.405***
(11) ROA	0.016	-0.039	0.034	0.206***	0.061	-0.124	0.094	-0.047	0.023	0.022	1	-0.025
(12) FSIZ	0.425***	-0.155**	0.420***	0.303***	-0.119	-0.220***	0.267***	0.456***	0.207***	0.339***	0.162**	1

Panel B: Spearman's Correlation												
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) ESG	1	-0.107	0.357***	-0.293***	-0.251**	-0.086	0.206**	0.230***	0.124	0.420***	0.026	0.425***
(2) BFEM	0.001	1	-0.119	0.265***	-0.112	0.139	-0.028	-0.141	-0.136	-0.217**	0.017	-0.224**
(3) BFOR	0.337***	-0.002	1	-0.192*	-0.040	0.101	0.237**	0.312***	0.162	0.315***	-0.151	0.575***
(4) IOWN	0.019	-0.143*	-0.005	1	0.148	0.081	-0.067	-0.113	-0.148	-0.193*	0.008	-0.218**
(5) SOWN	0.013	0.306***	-0.310***	-0.564***	1	-0.103	0.195*	-0.181*	-0.281***	-0.190**	0.164	-0.001
(6) FF	-0.170**	-0.067	-0.083	0.256***	-0.437***	1	-0.022	-0.022	0.160	-0.212**	-0.153	-0.184*
(7) BSIZ	0.178**	0.203***	0.076	-0.076	0.067	-0.059	1	0.081	-0.097	0.155	-0.083	0.498***
(8) AUD	0.142*	-0.151*	0.425***	0.141*	-0.494***	0.109	0.227***	1	0.216**	0.326***	0.019	0.203**
(9) DUAL	0.012	-0.201**	0.096	0.215***	-0.315***	0.087	0.133*	0.275***	1	0.016	-0.271***	-0.107
(10) LEV	0.180**	-0.135*	0.437***	0.205***	-0.225***	-0.088	0.025	0.327***	-0.048	1	-0.097	0.552***
(11) ROA	0.086	0.023	0.074	0.000	0.038	-0.135*	0.061	-0.133*	-0.046	0.109	1	-0.086
(12) FSIZ	0.427***	-0.171**	0.484***	0.080	-0.202**	-0.253***	0.295***	0.442***	0.235***	0.359***	0.039	1

Notes: This table shows correlation coefficients between all the variables used in the empirical analysis. Panel A shows the Pearson correlations. Panel B shows Spearman's correlations. Pre-2011 is provided below the diagonal, whereas post-2011 is above the diagonal. All variables are defined in Table 1.

*** Correlation is significant at the 1% level, ** Correlation is significant at the 5% level, * Correlation is significant at the 10% level.

5.2. Multivariate regression analysis

Results are presented in Table 4 where Models 1 and 9 are the baseline models in the pre-revolution and post-revolution periods respectively. Addressing the pre-revolution period in Model 1, board gender diversity consistently shows an insignificant coefficient with ESG disclosure, while board national diversity shows a significant positive effect. Similarly, all ownership structure variables appear to have significant positive coefficients with ESG disclosure. These findings suggest that firms with more foreign directors and insider, state, and public shareholdings, enhance ESG disclosure, while female

directors do not contribute to that end. In comparison, Model 9 is about the post-revolution period. It reports similar findings for female directors of not having any impact on ESG disclosure. However, the positive effects of board national diversity and ownership structure that existed in the pre-revolution period disappear in the post-revolution period. Thus, we reject *H1*, *H2* and *H3*. As regards control variables, duality and firm size show, respectively, negative and positive effects in the pre-revolution period on ESG disclosure, while leverage, profitability and firm size display positive effects on ESG disclosure in the post-revolution period.

Table 4. Board diversity and ESG disclosure

Variable	Pre-2011 (Revolution)								Post-2011 (Revolution)							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
BFEM	-0.049 (-0.652)	0.090 (1.193)	-0.100 (1.259)	-0.190* (-1.748)	0.022 (0.158)	-0.050 (-0.655)	-0.035 (-0.460)	-0.015 (-0.210)	0.107 (1.158)	0.082 (0.851)	0.102 (0.863)	0.109 (1.089)	-0.038 (-0.168)	0.108 (1.167)	0.108 (1.154)	0.105 (1.140)
BFOR	0.495*** (5.561)	0.904*** (7.785)	0.498*** (5.645)	0.537*** (5.876)	0.490*** (5.480)	0.502*** (5.311)	0.550*** (5.933)	0.078 (0.542)	-0.036 (-0.344)	-0.140 (-0.872)	-0.036 (-0.337)	-0.036 (-0.344)	-0.047 (-0.441)	-0.055 (-0.478)	-0.028 (-0.186)	0.107 (0.557)
IOWN	0.187** (2.248)	0.184** (2.378)	0.106 (1.153)	0.192** (2.316)	0.187** (2.232)	0.201** (2.004)	0.169** (2.032)	0.155* (1.919)	-0.093 (-0.976)	-0.090 (-0.949)	-0.100 (-0.673)	-0.093 (-0.970)	-0.091 (-0.956)	-0.095 (-0.996)	-0.093 (-0.970)	-0.083 (-0.863)
SOWN	0.247** (2.349)	0.188* (1.916)	0.294*** (2.746)	0.146 (1.234)	0.245** (2.323)	0.251** (2.351)	0.240** (2.302)	0.152 (1.453)	-0.104 (-1.019)	-0.109 (-1.065)	-0.103 (-0.997)	-0.100 (-0.806)	-0.108 (-1.052)	-0.107 (-1.042)	-0.104 (-1.009)	-0.089 (-0.865)
FF	0.229** (2.566)	0.153* (1.811)	0.258*** (2.874)	0.225** (2.537)	0.265** (2.464)	0.232** (2.569)	0.208** (2.333)	0.071 (0.739)	-0.001 (-0.010)	0.004 (0.044)	-0.001 (-0.010)	-0.001 (-0.011)	-0.061 (-0.473)	-0.001 (-0.013)	-0.001 (-0.013)	0.036 (0.341)
BFEM*BFOR		-0.540*** (-5.006)								0.137 (0.855)						
BFEM*IOWN			0.169* (1.961)								0.012 (0.066)					
BFEM*SOWN				0.225* (1.794)								-0.006 (-0.050)				
BFEM*FF					-0.087 (0.600)								0.183 (0.710)			
BFOR*IOWN						-0.022 (-0.241)								0.041 (0.414)		
BFOR*SOWN							-0.146* (-1.927)								-0.011 (-0.081)	
BFOR*FF								0.480*** (3.636)								-0.175 (-0.891)
BSIZ	0.065 (0.871)	0.026 (0.375)	0.038 (0.506)	0.052 (0.693)	0.059 (0.779)	0.065 (0.863)	0.065 (0.876)	0.063 (0.874)	0.142 (1.550)	0.132 (1.431)	0.143 (1.522)	0.142 (1.533)	0.161* (1.685)	0.139 (1.505)	0.142 (1.544)	0.133 (1.445)
AUD	0.008 (0.088)	0.041 (0.520)	0.026 (0.302)	0.022 (0.253)	0.003 (0.037)	0.008 (0.090)	0.028 (0.327)	0.009 (0.105)	0.020 (0.228)	0.021 (0.240)	0.022 (0.236)	0.020 (0.226)	0.026 (0.286)	0.017 (0.188)	0.021 (0.232)	0.025 (0.279)
DUAL	-0.141* (-1.913)	-0.178** (-2.584)	-0.113 (-1.511)	-0.170** (-2.264)	-0.143* (-1.938)	-0.144* (-1.921)	-0.142* (-1.949)	-0.124* (-1.742)	0.143 (1.514)	0.128 (1.330)	0.142 (1.497)	0.143 (1.504)	0.149 (1.566)	0.137 (1.434)	0.144 (1.505)	0.155 (1.621)
LEV	-0.076 (-0.967)	-0.174** (-2.302)	-0.093 (-1.192)	-0.091 (-1.157)	-0.076 (-0.959)	-0.072 (-0.902)	-0.097 (-1.236)	-0.074 (-0.975)	0.420*** (4.279)	0.390*** (3.745)	0.421*** (4.197)	0.419*** (4.244)	0.437*** (4.313)	0.431*** (4.209)	0.417*** (4.017)	0.395*** (3.865)
ROA	-0.070 (-1.002)	-0.096 (-1.464)	-0.059 (-0.843)	-0.071 (-1.021)	-0.069 (-0.974)	-0.073 (-1.025)	-0.072 (-1.033)	-0.047 (-0.693)	0.233*** (2.654)	0.223** (2.515)	0.232** (2.601)	0.232** (2.601)	0.238*** (2.699)	0.242*** (2.657)	0.232** (2.613)	0.231** (2.630)
FSIZ	0.284*** (3.194)	0.262*** (3.178)	0.297*** (3.367)	0.248*** (2.738)	0.286*** (3.208)	0.284*** (3.182)	0.285*** (3.240)	0.210** (2.391)	0.247** (2.062)	0.261** (2.152)	0.245* (1.975)	0.248** (2.050)	0.260** (2.135)	0.243** (2.009)	0.248** (2.049)	0.282** (2.234)
N	160	160	160	160	160	160	160	160	99	99	99	99	99	99	99	99
Adjusted R2	.306	.403	.319	.316	.303	.301	.318	.359	.386	.384	.379	.379	.382	.380	.379	.385
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table shows the effects of board diversity and ownership on environment, social disclosure, and governance index in the pre-2011 and post-2011 periods. All variables are defined in Table 1.

*** Correlation is significant at the 1% level, ** Correlation is significant at the 5% level, * Correlation is significant at the 10% level.

In respect to the interaction variables, Models 2-8 address the pre-revolution period, while Models 9-16 report the post-revolution periods. The models present the interaction variables between board diversity and ownership structure variables as provided in equation (2), where each model adds only one interaction variable. The purpose of these models is to show the moderating effect of either strengthening; i.e., complementary relationship effects, or weakening; i.e., substitute relationship effects of relationships between board diversity and ESG disclosure variables.

Regarding the pre-revolution period, Model 2 shows a negative effect of the interaction term for board gender and national diversity implying a substitution relationship effect through weakening the positive effect of board national diversity on ESG disclosure. Even though board gender diversity and insider ownership show no direct effect on ESG disclosure in Model 3, their interactive term appears to have a positive association with ESG disclosure. Further, the interactive term for board gender and state ownership in Model 4 appears to have a positive association with ESG disclosure, despite their primary coefficients revealing, respectively, an inverse effect and no effect on ESG disclosure. Results in Models 5 and 6 reveal no moderating effects of the interaction terms for board gender diversity and public ownership and board national diversity and insider ownership, on ESG disclosure. Despite both board national diversity and state ownership showing a significant positive relationship with ESG disclosure in Model 7, their interactive term exhibits a negative effect on ESG disclosure, implying a lessening of the effects of primary variables; therefore, a substitution relationship effect on ESG. Finally, Model 8 exhibits no effects of the primary coefficients for board national diversity and public ownership variables on ESG disclosure. However, their interactive term shows a positive interactive effect with ESG disclosure and thus a complementary relationship effect.

In contrast to the above findings on interactive effects in the pre-revolution period, Models 10 to 16 in the post-revolution period show either complementary or substitution relationship effects on the relationships between board diversity and ESG disclosure. In fact, none of the two board diversity variables, ownership variables, or their interaction variables demonstrate any association with ESG disclosure. These results in the pre-revolution and post-revolution periods signify the differences in the role of board diversity and ownership variables, where a paradigm shift seemed to have occurred in post-revolution periods regarding the traditional roles of board and ownership characteristics. In other words, the diminishing role of board diversity and ownership variables in the post-revolution period in affecting ESG disclosure is due to broader socio-economic improvements in national-level indicators⁶.

⁶ In untabulated regressions ran for robustness checks, we replaced the overall ESG score in the two equations with G score on one hand and with ES score on the other hand, since data provided by EGX had these two sub-scores provided in addition to the overall ESG score. Results were the same for the independent variables.

6. CONCLUSION

Using the 2011 Egyptian revolution as the exogenous shock, this study explores the effects of board diversity and ownership structure on ESG disclosure in listed firms in the EGX for the pre- and post-revolution periods. We expected that the revolution influenced the relationship between board diversity, ownership variables, and ESG scores/disclosure level. The study finds that the ESG disclosure level increased in the post-revolution compared to pre-revolution period. In addition, both female and foreign national representation on the board of directors has increased marginally in the post-revolution period. Similarly, both insider ownership and general public ownership have increased moderately after the revolution, whereas state ownership sharply dropped in the post-revolution period. These changes in the variables of interest in the post-revolution period clearly indicate substantial changes in the national-level socio-economic indicators as well as the corporate environment in Egypt.

In terms of the effect of board diversity and ownership variables on ESG disclosure, this study reports that board national diversity and all ownership variables have a significant impact on the dependent variables in the pre-revolution years, but this impact is not carried forward to the post-revolution period. However, the presence of female board members does not have an impact in either pre- or post-revolution periods. Since the independent variables measured all firm-level variables, lose significance for all of them after the revolution can only be explained by a macro country-level impact.

The increase in ESG disclosure level after the revolution along with the lack of significance of the variables could be due to the political, economic, and/or social pressures that came after the revolution that have driven all companies to raise their ESG levels without any impact on the independent variable. While the results of our study do not support either hypothesis, they indicate the adherence to legitimacy theory, institutional theory and stakeholder theory, but not to the resource-based view theory. This implies that Egyptian companies have been positively responding to the expectations of their stakeholders and society because of their aim to gain stronger legitimacy through ESG disclosure.

Furthermore, as outlined in the resource-based view theory, gender diversity has never been promoted by the Egyptian companies even after the revolution, suggesting that female representation in the corporate board must be based on their skill, experience and expertise, rather than mere gender quota or tokenism. Results for the pre-revolution period provide evidence of a substitutive relationship effect where in the presence of female directors on board, the positive role of foreign directors toward ESG diminishes. It extends the need for female directors' knowledge and expertise in company affairs, as well as societal expectations. Similarly, with the presence of high state ownership, the effective role of foreign directors toward ESG disclosure lessens.

This study is not free from limitations. Firstly, the relatively small sample period and size may limit

the generalization of the findings in other jurisdictions. Secondly, the impact of board diversity on ESG disclosure may differ in other emerging countries since a country-specific context may be an issue. Despite these possible limitations, we contend that the findings of this study can provide policymakers, regulators, investors, and other

stakeholders with a broader perspective of corporate board diversity and ownership when aiming to ensure an optimal level of ESG disclosure from the listed companies in Egypt, or in other emerging markets in the region having similar institutional, regulatory, and socio-economic features.

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