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Abdelhak, Engy ; Hussainey, Khaled; Albitar, Khaldoon

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Covid-19 Disclosure: Do Internal Corporate Governance and Audit Quality Matter?

Engy Abdelhak

The Institute of Commercial Technician in Damietta

Engyelsaid@gmail.com

Khaled Hussainey

University of Portsmouth

Khaled.Hussainey@port.ac.uk

Khaldoon Albitar

University of Portsmouth

khaldoon.albitar@port.ac.uk

Abstract:

Purpose: We examine the impact of internal corporate governance and audit quality on the level of Covid-19 disclosure in Egypt.

Methodology: We use manual content analysis to measure levels of Covid-19 disclosure in the narrative sections of annual reports. We analyse all companies listed on the Egyptian Stock Exchange over 2020-2021. We use different regression models to test our research hypotheses.

Findings: The analysis adds to the literature in two crucial respects. First, it provides a measure for Covid-19 disclosure in Egypt. Second, it provides evidence that governance mechanisms (board diversity, audit committee (AC) independence), auditor type and audit opinion affect the level of Covid-19 disclosure. The higher level of Covid-19 disclosure is associated with firms with more female directors on the board, being audited by one of the big four audit firms and receiving standard clean audit opinion. While the inexistence of an AC and more executives on the AC negatively affect Covid-19 disclosure levels.

Originality: To the best of our knowledge, it is the only paper that examines Covid-19 disclosure in the Egyptian context. It is also the first paper that provides evidence on the impact of internal governance and audit quality on Covid-19 disclosure.

Keywords

Covid-19 disclosure, narrative disclosure, corporate governance, audit quality

1. Introduction

The disclosure of Covid-19-related information in corporate annual reports attracted regulators and researchers in developed countries. For example, the Financial Reporting Council (FRC) - an independent regulator in the United Kingdom (UK) and Ireland – has issued a framework on Covid-19 reporting that encourages UK companies to disclose relevant information on how they impacted and reacted to the Covid-19 pandemic. Users of annual reports would welcome this type of disclosure because it reduces information asymmetry between managers and stakeholders. Reducing the level of information asymmetry would be associated with positive financial consequences (e.g., increased share price anticipation of earnings evidenced by Hussainey et al, 2003; Schleicher et al 2007 and Hussainey and Walker, 2009).

In their article ‘The Spread of COVID-19 Disclosure’ Larcker et al (2020) have raised an important research question, “What motivates some companies to be forthcoming about what they are experiencing while others remain silent?”. Our paper aims to address this question by focusing on a developing country. Prior research shows that corporate governance (CG) is one of the main drivers of corporate voluntary disclosure (Wang and Hussainey, 2013). We, therefore, examine the impact of internal CG (e.g. board and audit committee (AC) characteristics) and audit quality on the level of Covid-19 disclosure.

The current study is important for two primary reasons. First, it provides a measure of Covid-19 disclosure using a sample of companies in one of the developing countries. Second, it explores what drives these companies to voluntarily disclose information about the impact of the Covid-19 pandemic on their activities and the proposed actions that will be taken. So, this study could inform stakeholders about Covid-19 disclosure practices and the main drivers for this type of disclosure. Although the importance of Covid-19 disclosure has been

highlighted in the UK by FRC (FRC, 2020), there is no such guidance for developing countries. To the best of our knowledge, research – to date – provides limited empirical evidence on the drivers of Covid-19-disclosure in the narrative sections of their annual reports in developing countries.

Limited recent studies have examined Covid-19 disclosure practice in the narrative sections of corporate annual reports. For example, Elmarzouky et al. (2021b) provide a new measure of Covid-19 disclosure using an automated content analysis approach. They provide evidence that this type of disclosure varies between industries and is linked with levels of uncertainty disclosure in UK annual reports. They also provide evidence on the importance of board size as a driver for Covid-19 disclosure. Elmarzouky et al. (2021a) provide evidence that Covid-19 disclosure in UK annual reports is related to performance disclosure and that board independence and gender diversity moderate this relationship. Albitar et al. (2022) find that ownership concentration affects Covid-19 disclosure in the UK. They also find that corporate leverage moderates ownership concentration-Covid-19 disclosure relationship. Alshabibi et al. (2021) find that AC characteristics affect the tone of Covid-19 disclosure in Oman. Haj-Salem and Hussainey (2022) find that liquidity and risk are the main drivers for Covid-19 disclosure in Omani Islamic banks. These studies have considered limited governance mechanisms. The current study aimed to address this research gap using the Egyptian context. We choose Egypt as it is one of the most important developing countries in the MENA region. Egypt has paid attention to CG early 2000 and experiences two waves of CG reform that affect the quality of financial reporting (AbdelFattah and Hussainey, 2019; Ibrahim et al 2020).

This paper examines the impact of board and AC characteristics and audit quality on Covid-19 disclosure for Egyptian firms that are listed on the stock market during the period 2020-2021. It provides evidence that governance mechanisms (board diversity, the existence

of an AC in a firm and AC independence), auditor type and audit opinion are the main drivers for Covid-19 disclosure in the Egyptian context.

Our contribution to corporate narrative reporting research is two-fold. First, we extend the literature on Covid-19 disclosure. We used the manual content analysis to identify the current Covid-19 disclosure practices by Egyptian companies. Our measure can be used in other emerging countries where automated content analysis is not applicable. Our measure is different from Elmarzouky et al. (2021b) that depends on a bag of keywords related to Covid-19 disclosure. We did not limit our measure to the tone of Covid-19 disclosure as investigated by Alshabibi et al. (2021). We follow the special guidance of the International Finance Corporations' Framework on « *Disclosure and Transparency in Crisis – Increasing Resilience and Building Trust during and after COVID-19* ». Our paper differs from Haj-Salem and Hussainey (2022)'s study that explores Covid-19 disclosure in Islamic banks in Oman. In our study, we have considered financial and non-financial companies. Second, we examine whether governance mechanisms and audit quality explain variation in Covid-19 disclosure practice. To the best of our knowledge, no prior research has examined this issue in Egyptian context.

The remainder of this paper is organised as follows. Section 2 reviews the previous literature and develops our research hypotheses. Sections 3 describes the research method. Section 4 presents and interprets the empirical results. Section 5 concludes the study.

2. Literature review and hypotheses development

Covid-19 disclosure importance

The disclosure of Covid-19 is of interest to stakeholders in developed and developing countries. The crisis of Covid-19 pandemic is considered one of the worst global economic crises that not been seen since the 2008 global financial crisis (OECD,2020). This makes it a “life-and-death context not only for human beings but also for businesses and bodies corporate”

(Brennan et al,2022). Although the Covid-19 pandemic affects all countries worldwide, its impact is not the same for each industry sector (OECD,2020; Elmarzouky et al.,2021b; World Bank,2020). Stakeholders would welcome information about the Covid-19 pandemic and how this crisis affects corporate activities. They also will be interested to see how companies manage this crisis. Companies could communicate this important information to stakeholders via the narrative sections of their annual reports. Increasing the level of Covid-19 narrative information could reduce the information asymmetry between insiders (managers) and outsiders (stakeholders in general and shareholders in particular). Reducing information asymmetry would lead to positive financial consequences such as improving firm value, lowering the cost of capital and increasing share price anticipation of earnings. It is worth noting that companies voluntarily disclose Covid-19 narrative information in their reports. Although there is a solid framework in the developed countries for Covid-19 disclosure (e.g. FRC, 2020), there is no such framework for developing countries. Hassan et al (2021) emphasise the need for enhancing the quality of non-financial reporting, so that companies could provide more comprehensive information to stakeholders. Based on this discussion, it would be interesting to measure levels of Covid-19 disclosure to understand what drives companies to disclose this type of voluntary disclosure in their annual report narratives.

The institutional setting in Egypt

The institutional setting in Egypt can be described as one of the forms of the code-law model, which is influenced by many factors like political influences, banks, tax, enforcement mechanisms, investor protection mechanisms, and other factors (Ebaid, (2016). Historically Egypt was the first country in the Middle East and North Africa (MENA) region that issued its' Charter of Accounting and Auditing profession in 1958 and began to organize its national accounting profession (Larsen et al., 2014: 491). In the 1960s, Egypt was not a capital-oriented country and putting accounting standards was a government function, so the Unified

Accounting System was issued in 1966. It was a public sector improvement and nationalization period, and the Egyptian stock exchange activities were frozen. From the mid of the 1970s, Egypt adopted an "open-door" policy, encouraged the private sector and issued Company Law 159 in 1981 that regulates private sector companies. By the 1990s, Egypt moved more to the free market economy and more privatization programs. The country's orientation enhanced the convergence process with international accounting standards and procedures. The minister of economics issued many copies of Egyptian accounting standard EAS beginning in 1997 that tried to be more harmonized with the international accounting standards IAS; these trials continue to date. In 1992, the Egyptian stock exchange was reopened to attract investors and foreign direct investments to help economic development (Ghattas et al, 2021; Makhaiel and Sherer, 2018).

Egypt established the Capital Market Authority (CMA) in 1992, aiming to control the disclosure and compliance practices of listed companies. Egypt was one of the first countries in the MENA region that responded to the growing attention to CG procedures. The first assessment conducted by the World Bank to the CG practices in Egypt in 2001 described that more than 60% of the principles of CG were applied.

Egypt issued several codes to regulate CG procedures that focus on explaining many aspects of CG related to the structure of the board of directors, independence, external auditor, AC, and disclosure of social practices, However, these rules were neither mandatory nor legally binding. Also, despite the essential importance of financial statements, it is still the only available source of information to stakeholders due to the lack of other sources in Egypt. There was a lack of compliance of the listed companies to the rules of Capital Market Authority (CMA) as it has no effective mechanisms for punishing the registrants who do not comply with the rules. This enhances Egypt to enter the second wave of improving CG procedures through the CG code of 2016 to shift the focus to enforcing commitment and implementation of rules

and allowing firms to clearly explain the reasons behind non-compliance activities (comply or explain), in addition to considering the international agreed procedures are the best practices of firms (Samaha and Dahawy, 2010; Ebaid, 2016; Abdelfattah & Hussainey, 2019; Abdelfattah, 2018).

Theoretical framework

This study primarily aims to identify the impact of internal CG on Covid-19 disclosure under the multi-theoretical lenses of agency, stakeholders, resource dependence, human capital, gender socialization, critical mass, social-emotional wealth and theory of helping behavior and social responsibility norm theories. We also use reputation, signalling, egocentric bias and economic game theories to examine the impact of audit quality on Covid-19 disclosure. The use of a multi-theoretical framework is well established in the disclosure and governance literature (see, for example, Christopher, 2010; AbuGhazaleh et al., 2012 and Abed et al., 2014). We justify our decision to use multi-theoretical as follows. First, the literature argued that a single theory cannot explain corporate voluntary disclosure practice (Cormier et al., 2005 and Tagesson et al., 2009). Second, although different theoretical arguments could be competing or complementary, they are needed to develop our research hypotheses. We consider seven internal governance variables and two audit quality variables. Relevant theories support each variable as we observe that each theory handles one aspect of the investigated variable of interest. Therefore, we believe that using a multi-theoretical approach overcomes using a single theory approach in supporting our investigation. We use non-directional hypotheses for competing theories and directional hypotheses for complementary theories.

Hypotheses Development

Board of directors' characteristics

Board size

The impact of the number of directors on boards on corporate disclosure has been explained by different theories (Mooneeapen et al.,2021; Harun et al., 2020). According to agency and stakeholders' theories, large boards may raise agency costs and problems. This is because large boards bring more diverse viewpoints and can represent different stakeholders' preferences and conflict interests in decision-making processes. This could raise the costs related to communication and coordination that could negatively affect disclosure (Alkayed & Omar, 2022; Albitar, et al., 2020). On the other hand, resource dependence and human capital theories suggest that a high level of human capital is positively associated with productivity and efficiency. So large board size offers more resources to carry out tasks effectively. Hence, a larger number of directors are more likely to take decisions that can enhance the decision-making process and improve disclosure quality because it can bring more expertise (Elamer et al., 2019).

The literature on the relationship between board size and disclosure offers mixed findings. On the one hand, some studies provide evidence that the relationship is positive (e.g. Husted and de Sousa-Filho (2019); Alkayed and Omar (2022); Albitar, et al. (2020); Elmarzouky et al (2021); Pucheta-Martínez and Gallego-Álvarez (2019); Harun et al. (2020) and Lagasio and Cucari (2019). On the other hand, several studies find no relationship between the two variables (e.g. Al-Qahtani and Elgharbawy (2020); Rouf & Hossan (2020); Mazumder & Hossain (2022) and Mooneeapen et al. (2021). Based on the above competing theories, we set the following non-directional hypothesis:

H1: Covid-19-related disclosure level is likely to be influenced by board size.

Board independence

According to resource dependence and human capital theories, independent directors are additional resources for the company due to their expertise, prestige and different contacts.

Hence, they can enhance disclosure. Human capital theory suggests that education qualifications and a person's experience and skills can improve disclosure practices (Salem et al., 2019; Baalouch et al., 2019). In this regard, the two theories suggest that independent directors enhance disclosure quality.

The empirical studies offer mixed findings on the impact of board independence on disclosure. On the one hand, some studies find a positive relationship (e.g. Elmarzouky et al. (2021); Elshandidy et al. (2013); Samaha et al. (2012); Grassa et al. (2021) and Moumen et al. (2016). On the other hand, a number of studies find a negative association between the two variables (e.g. Elgammal. et al (2018). The third group of studies did not find any relationship between the two variables (e.g. Baalouch et al. (2019); Habbash et al. (2016); Allini et al. (2016); Ananzeh et al. (2022); Elgattani & Hussainey (2020) and Grassa et al. (2018). Based on the above complementary theories, we set the following directional hypothesis:

H2: Covid-19-related disclosure level is likely to be positively influenced by board independence

Board diversity

Several theories can explain the impact of board diversity on disclosure. Agency and stakeholder theories imply that representation of females on board can enhance board effectiveness and satisfy stakeholders' information needs (Assenga et al., 2018). On the same direction, according to resource dependence theory, female directors are considered additional resources of expertise and has the ability to enhance firm performance (Sarhan, and Ntim, 2019). Gender socialization theory also argues that boards with more female directors can manage wider stakeholder relationships and be concerned more by stakeholder's welfare and sensitive to ethical issues and try to not harm community as women are more community-minded (Carvajal et al., 2022). On the other hand, the critical mass theory assumes that a critical

number of females on the board must be reached before positive disclosure results are observed (Radu and Smaili, 2021).

Several show that gender diversity positively affects corporate disclosure (e.g. Hasan et al (2022); Al-Shaer et al (2021); Elmarzouky et al. (2021); Peng et al. (2021); Ben Fatma and Chouaibi (2021); Albitar et al. (2022); Radu and Smaili, 2021; and Seebeck and Vetter (2021). However, other studies find a negative relationship (e.g. Ashfaq and Rui (2019)). Based on the above competing theories, we set the following non-directional hypothesis:

H3: Covid-19-related disclosure level is likely to be influenced by board diversity

Family members

According to social-emotional wealth theory, family-dominated companies will tend to preserve a good family image and reputation and disclose more information to improve their social emotional wealth. However, according to stakeholders and resource independence theories, family-dominated firms cannot satisfy stakeholders' information needs, especially the minority. They also do not have the chance to renew their resources by recruiting external independent members who can add their expertise to the firm and enhance disclosure practice (Biswas et al., 2019 ; Biswas et al.,2020)

Researchers find a negative relationship between family ownership and disclosure (e.g. Qa'dan and Suwaidan (2019); Biswas et al (2019); Biswas et al (2020); Darmadi & Sodikin (2013); Md Zaini et al (2020). On the other hand, Aribi et al (2018) find a positive relationship while Al Amosh and Khatib (2021) and Alfraih and Almutawa (2017) find no relationship. Based on the above competing theories, we set the following non-directional hypothesis:

H4: Covid-19-related disclosure level is likely to be influenced by the number of board family members.

AC characteristics

Audit committee existence

The effective AC can play an important role in enhancing levels of disclosure (Pucheta-Martínez et al. ,2021). Agency theory suggests that an AC can help in decreasing agency cost. It is an internal governance mechanism that can improve efficiency and coordination and overcome agency problems among different parties by disclosing more information (Alotaibi and Hussainey,2016). Stakeholders theory considers the AC as a delegate committee that can help satisfy all stakeholders' information needs (Pucheta-Martínez et al. ,2021).

The literature shows that AC characteristics (e.g. (gender diversity, independence and ownership concentration) affect disclosure practice (Agyei-Mensah, 2019). Abad and Bravo (2018) also provide evidence that members with accounting expertise in AC positively enhance disclosure. Raimo et al. (2021) also find that AC characteristics (size; independence; meeting frequency positively affect disclosure practice. Pucheta-Martínez et al. (2021), Alkayed and Omar (2022) and Muttakin et al. (2015) find that the existence of an AC is positively associated with disclosure practice. Based on the above complementary theories, we set the following directional hypothesis:

H5: Covid-19-related disclosure level is likely to be positively influenced by the presence of an AC in a firm.

AC size

According to agency theory, large AC can raise agency costs, decrease communication and coordination between committee members, and reflect interest conflicts despite more expertise and diversity. However according to resource-dependence theory, a large AC will offer various resources that can add to the company's expertise and improve accounting and disclosure quality (Alshabibi et al., 2021; Rifai and Sireger,2021; Al Lawati et al., 2021).

A number of studies find a positive impact of AC size on disclosure practice (e.g. Alkurdi et al.,2019; Ashfaq and Rui,2019; Al Lawati et al., 2021; Rifai and Sireger,2021 and Alshabibi et al., 2021). On the other hand, other studies find no relationship between the two variables (e.g. Naimah and Mukti,2019). Based on the above competing theories, we set the following non-directional hypothesis:

H6: Covid-19-related disclosure level is likely to be influenced by AC size.

AC independence

According to resource dependence and human capital theories, independent directors are additional resources for the company due to their expertise and qualifications and can enhance disclosure practices (Salem et al., 2019; Baalouch et al.,2019). According to the theory of helping behavior and social responsibility norm, AC members are devoted to protect shareholders' interests and they are a critical part of CG mechanism (Kang, 2019). So, one of the most important attributes that investors tend to assess is AC independence (Cohen et al., 2022), as increasing disclosure quality will be a desirable consequence. According to complexity theory disclosure relies on a complex configuration of different AC attributes, so many researches have investigated the impact of different AC characteristics on disclosure (Dwekat et al.,2020). To enhance AC independence, the Egyptian Exchange (EGX) listing rules 2013-2017 require that listing companies should have an audit committee that consists of at least three members, who should be non-executive directors ([Abdelfattah and Hussainey 2019](#)).

The literature on the impact of AC independence on disclosure offers mixed results. Some studies find a positive relationship (e.g. Agyei-Mensah,2019; Raimo et al.,2021 and Dwekat et al.,2020), while others did not find such a positive relationship (e.g.Musallam,2018). Based on the above complementary theories we believe that more independent AC directors are more likely to improve disclosure practice while more executives in AC will negatively

affect levels of corporate narrative disclosure. We, therefore, set the following directional hypothesis

H7: Covid-19-related disclosure level is likely to be negatively influenced by the number of executives in AC.

External audit characteristics

Audit office size

Aligned with the reputation theory, the big 4 audit firms have more inspirations to provide a higher quality audit to protect and maintain their reputation (Rusmin, 2010). So, we can argue that big 4 audit firms are more pressured to provide higher quality services and provide higher quality disclosure than non-reputable firms. In addition, according to signaling theory, auditing and assurance are believed to be signal to the external stakeholders, as choosing one of the big 4 can give signals that there will be a high-quality audit and this can affect corporate reputation (Albitar et al., 2021; El-Halaby & Hussainey, 2016).

The literature shows that the presence of Big-4 audit firms enhances disclosure levels (e.g. Albitar et al., 2021; Wuttichindanon & Issarawornrawanich, 2020; Morris & Tronnes, 2018; Rao et al., 2022 and Hassan et al., 2020). However, other literature shows a negative relationship (e.g. Habbash et al., 2016) or no relationship (e.g. Aljifri & Hussainey, 2007; Aly et al, 2010; El-Halaby & Hussainey, 2016).

Based on the above complementary theories, we set the following directional hypothesis:

H8: Covid-19-related disclosure level is likely to be positively influenced by auditing office size.

Audit opinion

The Covid-19 pandemic is a challenge for auditors and can largely affect their opinions and assessment. In March 2020, FRC issued guidance on the impact of Covid-19 on auditing

quality. It mentioned that auditors should consider the impact of the pandemic on their ability to assess risks and report opinions (Albitar et al., 2020). In this regard, audit opinion is considered the final and the most important product of the audit process to all parties (Vichitsarawong and Pornupatham,2015; Mong and Roebuck, 2005).

Signaling theory suggests that audit opinion can send a powerful signal to stakeholders whether the company is on the right way or not. Egocentric bias theory suggests that the management will always try to disclose more information and that auditor opinion will drive high-quality disclosure (Merkl-Davies and Brennan,2011; Elmarzouky et al., 2022). The two theories suggest that disclosure tone is associated directly with audit opinion. However, when employing economic game theory, the audit opinion process is like an economic game that can decrease the quality of financial reporting. The severe consequences of receiving a qualified audit report may cause audit clients to perceive the qualified opinion as a non-credible threat. This may decrease the financial reporting quality by issuing financial statements that do not fully comply with GAAP. So, a qualified audit opinion is rare because it is not in the auditors' best interest (Cipriano et al., 2017).

Empirical studies argue that auditor opinion can enhance disclosure quality (e.g. Yao et al, 2019; Street and Bryant, 2000). Hossain et al. (2020) also provide evidence that abnormal positive disclosure tone is associated with a higher likelihood of a going concern opinion of auditor. On the other hand, other studies did not find an impact of auditor opinion on disclosure (e.g. Abid et al., 2018).

Based on the above competing theories, we set the following non-directional hypothesis:

H9: Covid-19-related disclosure level is likely to be influenced by auditor opinion.

3. Research Methodology

Sample and data collection

Our analysis is based on all companies listed on the Egyptian Stock Exchange during the Corona pandemic for the period 2020-2021. The total number of listed companies is 205 (410 firm-years observations). We collect annual reports from <https://www.mubasher.info/countries/eg>. We identify Covid-related information in annual reports by using manual content analysis. We search for sentences that are related to Covid-19 pandemic. We follow the special guidance of the International Finance Corporations' Framework on « *Disclosure and Transparency in Crisis – Increasing Resilience and Building Trust during and after COVID-19* ». Governance data is collected from CG reports and annual reports. We use the following regression model to test our research hypotheses (Table 1 shows the variables' definitions):

$$COVID-Disc = \beta_0 + \beta_1 BSIZE + \beta_2 INDEP + \beta_3 DIV + \beta_4 FAM + \beta_5 BIG4 + \beta_6 OPIN + \beta_7 AC-INEXIS + \beta_8 AC SIZE + \beta_9 AC-EXCUT + \beta_{10} F-SIZE + \beta_{11} LEV + \beta_{12} LIQ + \beta_{13} AGE + \beta_{14} Industry\ dummies + \beta_{15} Year\ dummies + e_i \quad (\text{Model 1})$$

We also run three different models to determine the sole impact of each explanatory variable group on Covid-19 disclosure as follows:

The effect of the characteristics of the board of directors on Covid-19 disclosure:

$$COVID-Disc = \beta_0 + \beta_1 BSIZE + \beta_2 INDEP + \beta_3 DIV + \beta_4 FAM + \beta_5 F-SIZE + \beta_6 LEV + \beta_7 LIQ + \beta_8 AGE + \beta_9 Industry\ dummies + \beta_{10} Year\ dummies + e_i \quad (\text{Model 2})$$

The impact of audit quality on Covid-19 disclosure:

$$COVID-Disc = \beta_0 + \beta_1 BIG4 + \beta_2 OPIN + \beta_3 F-SIZE + \beta_4 LEV + \beta_5 LIQ + \beta_6 AGE + \beta_7 Industry\ dummies + \beta_8 Year\ dummies + e_i \quad (\text{Model 3})$$

The impact of AC characteristics on Covid-19 disclosure:

$$COVID-Disc = \beta_0 + \beta_1 AC-INEXIS + \beta_2 AC SIZE + \beta_3 AC-EXCUT + \beta_4 F-SIZE + \beta_5 LEV + \beta_6 LIQ + \beta_7 AGE + \beta_8 Industry\ dummies + \beta_9 Year\ dummies + e_i \quad (\text{Model 4})$$

Insert Table 1 about here

Measures of variables

Dependent variable: Our measurement of Covid-19 disclosure

By employing a wordlist related to Covid-19, Elmarzouky et al. (2021b) introduced a new measure for Covid-19-related disclosure. They use computer software to count the

frequency of Covid-19-related keywords in UK annual report narratives. Computer-based content analysis is widely used in accounting research especially in developed countries, as annual reports are available in electronic form and English language. In developing countries, not all companies provide electronic version of their annual reports and might use different language when writing their annual reports. This motivates us to use the manual content analysis to identify Covid-19-related sentences in corporate narrative reports in the Egyptian context. We read all narrative sections of Egyptian annual reports, such as the chairman statement, management discussion and analysis, and notes to financial statements. We count the number of sentences in each annual report that include information about the impact of the Covid-19 pandemic on corporate activities. The same measure is used by Alshabibi et al (2021) and Haj-Salem and Hussainey (2022) for the Omani context. Alshabibi et al (2021) focus only on the tone of Covid-19 disclosure in non-financial institutions, while Haj-Salem and Hussainey (2022) focus on Covid-19 disclosure in Islamic banks in Oman. Unlike these studies, we focus on all financial and non-financial companies listed on the Egyptian stock market. The use of manual content analysis in measuring disclosure levels is very welcomed in the literature (see, for example Allini et al. (2016) and Bravo (2017)).

We follow the guidance of the International Finance Corporations' Framework on « *Disclosure and Transparency in Crisis – Increasing Resilience and Building Trust during and after COVID-19* to identify Covid-19 disclosure. The framework identified three categories namely (strategic disclosure - performance disclosure - governance disclosure). Strategic disclosure deals with how companies deal with the Corona epidemic in the long run and how to analyze the risks associated with the pandemic. The performance disclosure, which deals with the actual steps taken by companies to deal with the exceptional situation of the epidemic. The governance category is related to CG information that a company disclose at times of the Covid-19 pandemic. We did not limit our content analysis to these three categories.

We also search for any general disclosure that covers Covid-19 related information in the narrative sections of annual reports.

Based on the above, our dependent variable is the level of Covid-19 disclosure in the annual report narrative sections of Egyptian companies (*COVID-Disc*). Annual reports are the most important source of information, which are more reliable and important for investors' and stakeholders' decision-making process (El-Haj et al.,2020). Companies with quarterly reports and/or with missing annual reports were excluded. We used the number of sentences as more reliable measure of disclosure (Allini et al.,2016 ; Bravo,2017).

Independent variables

Following prior research (discussed in section 2), BSIZE is measured by the number of directors on board (Alkayed and Omar 2022). Following Allini et al. (2016); Ananzeh et al. (2022), we use the number of independent directors on the board (INDEP) as a proxy for board independence. Following Al-Shaer and Zaman (2016) and Aribi et al. (2018), we used the number of women on the board as a measure of gender diversity (DIV). We used the number of family members (FAM) on the board as an indicator of family-dominated firms. Following Habash et al, (2016), we measure auditor type (Big4) as a dummy variable equals 1 if the annual reports are audited by one of the big4, 0 otherwise. Following Arens et al., (2017); Shuraki et al., (2020), we measure auditor opinions OPIN as a dummy variable equals to 1 for the standard clean opinion, 0 otherwise. To examine the impact of the internal AC formed by the board of directors, the independent variable ACINEXIS was used. It is a dummy variable scored as 1 for the absence of an AC without a justified reason and 0 otherwise (Pucheta-Martinez et al.,2021). ACSIZE is measured by the number of directors of AC (Al Lawati et al.,2021). ACEXCUT measures the number of executives in AC as a measurement of AC's level of independence.

Control variables

We follow prior disclosure literature (Boshnak, 2021; Abhayawansa and Guthrie, 2016; Wang et al., 2022; Jana and McMeeking, 2021; Hamrouni et al., 2019) and control for a number of firm-specific characteristics such as size, liquidity, leverage, and age. We measure firm size (FSIZE) by the natural logarithm of total assets. We use current ratio (current assets/current liabilities) as a proxy for liquidity proxy (LIQ). Leverage (LEV) is measured by the long-term debts to capital equity ratio. Firm age (AGE) is measured by the difference between the year of establishment and year of the publication of the annual report. We include year dummies and industry dummies in all regressions.

4. Empirical results and discussion

Descriptive statistics

Table 2 shows Covid-19 disclosure for each industry and over the sample period. It shows that the sample covers both financial and non-financial firms. Financial firms represent 21% of our sample. The number of companies that disclosed information about the Covid-19 pandemic is 162 and 158 in 2020 and 2021 respectively. The level of Covid-19 disclosure is driven by the number of companies in each industry sector. The table also shows no significant differences between the level of Covid-19 disclosure over the sample period.

Insert Table 2 about here

Table 3 presents descriptive statistics. It shows that the mean Covid-19 disclosure level is relatively low (about 2 sentences), with a minimum of 0 which reflects that some companies did not disclose any information about the Covid-19 pandemic and a maximum of Covid-19 disclosure level is 10 sentences. The mean board size is about 8 directors (minimum 3 directors and maximum 19 directors). The mean gender diversity is about 1. The table also shows that some firms have no women on the board of directors (minimum DIV = 0), which reflects the

need to improve the role of women in Egyptian companies. The maximum number of women on the board is 6 in our sampled companies. It also shows that some Egyptian firms have no independent directors on the board, and the mean board independent directors is about 1 while a maximum number of independent directors on the board is 7 directors. Some Egyptian firms have no family directors on the board. The mean family directors is about 1, with a maximum of 8 family members on the board.

The table also shows the mean of the inexistence of AC is about .05 which reflect the presence of AC in the majority of Egyptian companies. On the other hand, AC size mean is about 3. Some firms have no AC directors at all (minimum ACSIZE=0) and a maximum of 8 directors. Some Egyptian firms have no executives in their AC. The mean of number of executive directors in AC is about 1 while the maximum executives in AC is 8.

The descriptive analysis also shows that 25% of our sampled companies are audited by big 4 auditing firms, and the mean clean audit opinion is 0.739. For the control variables, the analysis shows that the sample covers large and small companies. Firms have no liquidity problems as the average current ratio is 23.6. The mean leverage ratio is 24 and the average firm age is about 36 years.

Insert table 3 about here

Correlation analysis

Table 4 shows the correlation matrix. It shows that Covid-19 disclosure is correlated with a number of CG mechanisms such as board size, board gender diversity, independent directors, AC characteristics and the quality of audit firms measured by Big4; clean audit opinion. It is also correlated with firm- specific characteristics such as firm size, liquidity, leverage and firm age. There is no high correlation between our independent/control variable, suggesting that the multicollinearity issue is not a problem in our analysis. We confirm this

finding using the Variance inflation factor (VIF). Table 5 shows that VIF values ranges from 1.036 to 1.609, with a mean value of 1.252, suggesting no sign of a multicollinearity problem.

Insert tables 4 & 5 about here

Regression Analyses

Table 6 shows the regression analysis for 5 different models. Column 1 reports the results for the full set of explanatory variables, column 2 reports the results for board characteristics only, and column 3 reports the results for audit quality variables. Column 4 report the findings for AC characteristics, while column 5 reports the findings for the full set of explanatory variables using the fixed effect model.

Table 6 (models 1, 2 and 5) shows the impact of board of directors' characteristics on Covid-19 disclosure. It shows that board size does not significantly impact the Covid-19 disclosure. This result is consistent with prior research (e.g., Al-Qahtani and Elgharbawy, 2020; Rouf & Hossan, 2020; Mazumder & Hossain, 2022; Mooneepen et al., 2021). So H1 is rejected. Similarly, board independence does not significantly impact Covid-19-related-disclosure. This finding is consistent with prior studies that consider various voluntary disclosures (e.g., Habbash et al., 2016; Allini et al., 2016;; Elgattani & Hussainey, 2020;). Therefore, H2 is rejected. Our analysis shows evidence that gender diversity positively affects Covid-19 disclosure. This result is consistent with the previous disclosure literature (Liao et al., 2015; Nicolò et al., 2021; Haque & Jones, 2020; Elmarzouky et al., 2021). We, therefore, accept H3. Finally, consistent with Alfraih and Almutawa, (2017), we did not find an impact of family members on the board of directors on Covid-19 disclosure. Hence, H4 is rejected.

Table 6 (models 1, 4 and 5) shows the impact of AC characteristics on Covid-19 disclosure. It shows that AC inexistence (AC-INEXIS) negatively affects Covid-19 disclosure indicating that the existence of AC has a positive impact on Covid-19 disclosure. This result is

consistent with prior research (Alshabibi et al., 2021; Muttakin et al.,2015; Dwekat et al.,2020;; Said et al.,2020; Al Shaer et al.,2017; Ashfaq and Rui,2019; Kusnadi et al.,2016). This result is in line with agency theory and will help decision makers in Egypt to understand the importance of convergence with international procedures. We, therefore, accept H5. Contrary to prior research (e.g.,Alkurdi et al., 2019; Ashfaq and Rui, 2019; Al Lawati et al., 2021; Rifai and Sireger, 2021), the analysis shows that AC-size has no impact on Covid-19 disclosure. Therefore, H6 is rejected. The analysis also shows that the number of AC executives negatively impacts Covid-19 disclosure. This could be explained that more executives on the board with their level of responsibilities other than AC responsibility can put a load on executive members who are exposed to many matters during their work through different situations that may take a lot of time and effort. Therefore, H7 is accepted.

Regarding audit quality impact on Covid-19 disclosure, Table 6 (models 1, 3 and 5) shows that the coefficients for being audited by one of the Big4 are positive and significant at the 1% level. The standard clean audit opinion coefficients are positive and significant at the 1% level. These findings are consistent with prior research (Albitar et al., 2021; Hassan et al., 2020; Wuttichindanon and Issarawornrawanich, 2020; Shuraki et al., 2020). We, therefore, accept H7 and H8.

For the control variables, we find that firm size and leverage positively impact Covid-19 disclosure, while other variables are not statistically significant. To conclude, the main drivers for Covid-19 disclosure in the narrative sections of the Egyptian annual reports are board diversity, audit quality, auditor type, AC existence and independence, firm size and leverage.

Insert table 6 about here

We run a number of regression models to check the robustness of our findings. We apply Tobit regression (table 7). Our dependent variable Covid-19 disclosure is fallen in one side (absolute). Tobit regression is a censored regression model designed to estimate the linear relationship between variables when the dependent variable is only right or left censoring (Winship et al., 2016). Further, we also run the analysis for each governance category separately, and our results hold. We also use Two-Stage least squares (2SLS) regression analysis to address the endogeneity. We report the second stage regression result in Table 8 and our results are similar to our main findings. In Table 9, we also run the analysis for non-financial firms only and our results hold.

Insert Tables 7, 8 and 9 about here

5. Conclusion

Despite the scientific attempts to respond quickly to the effects of the Corona pandemic, the current research on Covid-19 disclosure is somehow less developed, and the motives behind some companies having a higher disclosure about the pandemic especially in developing countries are less understood. In our study, we addressed this research gap by exploring the influence of internal CG mechanisms and audit quality on Covid-19 disclosure level in Egypt. Our analysis shows that auditor type, audit opinion; and gender diversity have a significant and positive impact on the level of Covid-19 disclosure while AC inexistence and more executives in AC have a significant and negative impact. We did not find an impact of board size, AC size, board independence, and family members in the board on Covid-19 disclosure. This paper contributes to the literature by establishing a measure of Covid-19 disclosure, which we believe should move the financial disclosure research forward, especially in developing countries. It also provides empirical evidence on the drivers of this type of disclosure.

The research findings offer practical implications to stakeholders interested in what drive companies to voluntarily disclose Covid-19-related information. By disclosing more Covid-19 related disclosure, stakeholders will be able to understand how Egyptian companies have been affected by this pandemic and how they reduce the pandemic impact on their activities. Therefore, proactive efforts are needed from regulators to encourage Egyptian companies to comply with the CG code and international standards on auditing to ensure high-quality narrative disclosures in annual reports.

Our paper uses auditor type and audit opinion as proxies for audit quality. However, prior studies have found that co-audit is a reliable proxy for audit quality (Taktak, and Mbarki, 2014; Salem et al, 2021). Future research could consider exploring the impact of co-audit on corporate Covid-19 disclosure. It also might consider how governance and audit quality affect Covid-19 disclosure in other countries. Further research also could explore the impact of gender diversity in AC on Covid-19 disclosure. We limit our analysis to the determinants of Covid-19 disclosure. Further research should also investigate the economic consequences of Covid-19 disclosure.

References

- Abad, C., & Bravo, F. (2018). Audit committee accounting expertise and forward-looking disclosures: A study of the US companies. *Management Research Review*, 41(2), 166-185.
- Abdelfattah, T., (2018). The Second Wave of Corporate Governance in Egypt: Challenges Ahead. In D. Jamali, V. Bodolica and Y. Lapina (Eds.) *Corporate Governance in Arab Countries: Specifics and Outlooks*. Virtus Interpress, 70 – 88.
- Abdelfattah, T., & Hussainey, K. (2019). Development and impact of corporate governance in Egypt. In *The Routledge Companion to Accounting in Emerging Economies* (pp. 184-195). Routledge.
- Abed, S., Roberts, C., & Hussainey, K. (2014). Managers' incentives for issuing cash flow forecasts. *International Journal of Accounting, Auditing and Performance Evaluation*, 10(2), 133-152.

Abhayawansa, S., & Guthrie, J. (2016). Does intellectual capital disclosure in analysts' reports vary by firm characteristics? *Advances in accounting*, 35, 26-38.

Abid, A., Shaique, M., & Anwar ul Haq, M. (2018). Do big four auditors always provide higher audit quality? Evidence from Pakistan. *International Journal of Financial Studies*, 6(2), 58.

AbuGhazaleh, N., Qasim, A & Roberts, C. (2012). The determinants of web-based investor relations activities by companies operating in emerging economies: the case of Jordan. *Journal of Applied Business Research* 28 (2): 209-226.

Agyei-Mensah, B. K. (2019). The effect of audit committee attributes on compliance with IAS 24-related party disclosure: An empirical study. *International Journal of Law and Management*, 61(1), 266-285.

Al Amosh, H., & Khatib, S. F. (2021). Ownership structure and environmental, social and governance performance disclosure: the moderating role of the board independence. *Journal of Business and Socio-economic Development*.

Albitar, K., Abdoush, T., & Hussainey, K. (2022). Do corporate governance mechanisms and ESG disclosure drive CSR narrative tones? *International Journal of Finance & Economics*.

Albitar, K., Al-Shaer, H., & Elmarzouky, M. (2021). Do assurance and assurance providers enhance COVID-related disclosures in CSR reports? An examination in the UK context. *International Journal of Accounting & Information Management*, 29(3), 410-428.

Albitar, K., Gerged, A. M., Kikhia, H., & Hussainey, K. (2020). Auditing in times of social distancing: the effect of COVID-19 on auditing quality. *International Journal of Accounting and Information Management*, 29(1), 169-178.

Albitar, K., Hussainey, K., Kolade, N., & Gerged, A. M. (2020). ESG disclosure and firm performance before and after IR: The moderating role of governance mechanisms. *International Journal of Accounting and Information Management*, 28(3), 429-444

Albitar, K., Elmarzouky, M., & Hussainey, K. (2022). Ownership concentration and Covid-19 disclosure: the mediating role of corporate leverage. *International Journal of Accounting & Information Management*. <https://doi.org/10.1108/IJAIM-10-2021-0202>

Alfraih, M. M., & Almutawa, A. M. (2017). Voluntary disclosure and corporate governance: empirical evidence from Kuwait. *International Journal of law and Management*, 59 (2): 217-236.

Aljifri, K., & Hussainey, K. (2007). The determinants of forward-looking information in annual reports of UAE companies. *Managerial Auditing Journal*, 22(9), 881-894.

Alkayed, H., & Omar, B. F. (2022). Determinants of the extent and quality of corporate social responsibility disclosure in the industrial and services sectors: the case of Jordan. *Journal of Financial Reporting and Accounting*.

Alkurdi, A., Hussainey, K., Tahat, Y., & Aladwan, M. (2019). The impact of corporate governance on risk disclosure: Jordanian evidence. *Academy of Accounting and Financial Studies Journal*, 23(1), 1-16.

Allini, A., Manes Rossi, F., & Hussainey, K. (2016). The board's role in risk disclosure: an exploratory study of Italian listed state-owned enterprises. *Public Money & Management*, 36(2), 113-120.

Al-Mudhaki, J., & Joshi, P. L. (2004). The role and functions of audit committees in the Indian corporate governance: Empirical findings. *International Journal of Auditing*, 8(1),33-47.

Al-Qahtani, M., & Elgharbawy, A. (2020). The effect of board diversity on disclosure and management of greenhouse gas information: evidence from the United Kingdom. *Journal of Enterprise Information Management*, 33(6), 1557-1579.

Al Lawati, H. and Hussainey, K. (2021). “Disclosure of forward-looking information: Does audit committee overlapping matter?”. *International Journal of Accounting and Performance Evaluation*, In Press.

Al Lawati, H., Hussainey, K., & Sagitova, R. (2021). Disclosure quality vis-à-vis disclosure quantity: Does audit committee matter in Omani financial institutions? *Review of Quantitative Finance and Accounting*, 57(2), 557-594.

Alotaibi, K., & Hussainey, K. (2016). Determinants of CSR disclosure quantity and quality: Evidence from non-financial listed firms in Saudi Arabia. *International Journal of Disclosure and Governance*, 13(4), 364-393.

Alshabibi, B., Pria, S., & Hussainey, K. (2021). Audit committees and COVID-19-related disclosure tone: Evidence from Oman. *Journal of Risk and Financial Management*, 14(12), 609.

Al-Shaer, H., & Zaman, M. (2016). Board gender diversity and sustainability reporting quality. *Journal of Contemporary Accounting & Economics*, 12(3), 210-222

Al Shaer, H., Salama, A., & Toms, S. (2017). Audit committees and financial reporting quality: Evidence from UK environmental accounting disclosures. *Journal of Applied Accounting Research*, 18(1), 2-21.

Al-Shaer, H., Albitar, K., & Hussainey, K. (2021). Creating sustainability reports that matter: An investigation of factors behind the narratives. *Journal of Applied Accounting Research*, 23 (3), 738-763.

Aly, D. A., Simon, J., & Hussainey, K. (2010). Determinants of corporate internet reporting: evidence from Egypt. *Managerial Auditing Journal*, 25(2), 182-202.

Ananzeh, H., Alshurafat, H., Bugshan, A., & Hussainey, K. (2022). The impact of corporate governance on forward-looking CSR disclosure. *Journal of Financial Reporting and Accounting*. <https://doi.org/10.1108/JFRA-10-2021-0379>

Arens, A, Elder, R., and Beasley, M., (2017), *Auditing & Assurance Services*, Pearson Education Limited, Essex, England.

Aribi, Z. A., Alqatamin, R. M. H., & Arun, T. G. (2018). Gender diversity on Boards and Forward-looking Information Disclosure: Evidence from Jordan. *Journal of Accounting in Emerging Economies*, 8(2), 205-222.

Ashfaq, K., & Rui, Z. (2019). The effect of board and audit committee effectiveness on internal control disclosure under different regulatory environments in South Asia. *Journal of Financial Reporting and Accounting*, 17(2), 170-200.

Assenga, M., Aly, D. A., & Hussainey, K. (2018). The impact of board characteristics on the financial performance of Tanzanian firms. *Corporate Governance: The International Journal of Business in Society*, 18(6), 1089-1106.

Baalouch, F., Ayadi, S. D., & Hussainey, K. (2019). A study of the determinants of environmental disclosure quality: evidence from French listed companies. *Journal of Management and Governance*, 23(4), 939-971.

Ben Fatma, H., & Chouaibi, J. (2021). Corporate governance and CSR disclosure: evidence from European financial institutions. *International Journal of Disclosure and Governance*, 18(4), 346-361.

Biswas, P. K., Roberts, H., & Whiting, R. H. (2019). The impact of family vs non-family governance contingencies on CSR reporting in Bangladesh. *Management Decision*, 57(10), 2758-2781.

Biswas, P. K., Roberts, H., & Whiting, R. H. (2020). Female directors and CSR disclosure in Bangladesh: the role of family affiliation. *Meditari Accountancy Research*, 30(1), 163-192.

Boshnak, H. A. (2021). Determinants of corporate social and environmental voluntary disclosure in Saudi listed firms. *Journal of Financial Reporting and Accounting*. 20 (3/4), 667-692

Bravo, F. (2017). Are risk disclosures an effective tool to increase firm value? *Managerial and Decision Economics*, 38(8), 1116-1124.

Brennan, N. M., Edgar, V. C., & Power, S. B. (2022). COVID-19 profit warnings: Delivering bad news in a time of crisis. *The British Accounting Review*, 54(2), 101054.

Carvajal, M., Nadeem, M., & Zaman, R. (2022). Biodiversity disclosure, sustainable development and environmental initiatives: Does board gender diversity matter? *Business Strategy and the Environment*, 31(3), 969-987.

Christopher, J. (2010). Corporate governance—A multi-theoretical approach to recognizing the wider influencing forces impacting on organizations. *Critical perspectives on accounting*, 21(8), 683-695.

Cipriano, M., Hamilton, E. L., & Vandervelde, S. D. (2017). Has the lack of use of the qualified audit opinion turned it into the “Rotten Kid” threat? *Critical Perspectives on Accounting*, 47, 26-38.

Cohen, J. R., Gaynor, L. M., Krishnamoorthy, G., & Wright, A. M. (2022). The effects of audit committee ties and industry expertise on investor judgments—Extending Source Credibility Theory. *Accounting, Organizations and Society*, 101352.

Cormier, D., Magnan, M., & Van Velthoven, B. (2005). Environmental disclosure quality in large German companies: Economic incentives, public pressures or institutional conditions? *European Accounting Review*, 14(1), 3-39.

Darmadi, S., & Sodikin, A. (2013). Information disclosure by family-controlled firms: The role of board independence and institutional ownership. *Asian Review of Accounting*, 21(3), 223-240.

Dwekat, A., Seguí-Mas, E., Tormo-Carbó, G., & Carmona, P. (2020). Corporate governance configurations and corporate social responsibility disclosure: Qualitative comparative analysis of audit committee and board characteristics. *Corporate Social Responsibility and Environmental Management*, 27(6), 2879-2892.

Ebaid, I. E. S. (2016). International accounting standards and accounting quality in code-law countries: The case of Egypt. *Journal of Financial Regulation and Compliance*, 24(1), 41-59.

Elamer, A. A., Ntim, C. G., Abdou, H. A., Zalata, A. M., & Elmagrhi, M. (2019, April). The impact of multi-layer governance on bank risk disclosure in emerging markets: The case of Middle East and North Africa. *Accounting Forum*, 43 (2): 246-281.

Elgammal, M. M., Hussainey, K., & Ahmed, F. (2018). Corporate governance and voluntary risk and forward-looking disclosures. *Journal of Applied Accounting Research*, 19(4), 592-607.

Elgattani, T., & Hussainey, K. (2020). The determinants of AAOIFI governance disclosure in Islamic banks. *Journal of Financial Reporting and Accounting*, 18(1), 1-18.

El-Haj, M., Alves, P., Rayson, P., Walker, M., & Young, S. (2020). Retrieving, classifying and analysing narrative commentary in unstructured (glossy) annual reports published as PDF files. *Accounting and Business Research*, 50(1), 6-34.

El-Halaby, S., & Hussainey, K. (2016). Determinants of compliance with AAOIFI standards by Islamic banks. *International Journal of Islamic and Middle Eastern Finance and Management*, 9(1), 143-168.

Elmarzouky, M., Albitar, K., & Hussainey, K. (2021a). Covid-19 and performance disclosure: does governance matter? *International Journal of Accounting & Information Management*, 29(5), 776-792.

Elmarzouky, M., Albitar, K., Karim, A. E., & Moussa, A. S. (2021b). COVID-19 disclosure: a novel measurement and annual report uncertainty. *Journal of Risk and Financial Management*, 14(12), 616.

Elshandidy, T., Fraser, I., & Hussainey, K. (2013). Aggregated, voluntary, and mandatory risk disclosure incentives: Evidence from UK FTSE all-share companies. *International Review of Financial Analysis*, 30, 320-333.

Financial Reporting Council (2020), "Guidance on audit issues arising from the covid-19 (coronavirus) pandemic", available at: [www.frc.org.uk/news/march-2020-\(1\)/guidance-on-audit-issues-arising-from-the-COVID-19](http://www.frc.org.uk/news/march-2020-(1)/guidance-on-audit-issues-arising-from-the-COVID-19) (accessed 22 August 2020).

Ghattas, P., Soobaroyen, T., & Marnet, O. (2021). Charting the development of the Egyptian accounting profession (1946–2016): An analysis of the State-Profession dynamics. *Critical Perspectives on Accounting*, 78, 102159.

Grassa, R., Chakroun, R., & Hussainey, K. (2018). Corporate governance and Islamic banks' products and services disclosure. *Accounting Research Journal*, 31(1), 75-89.

Grassa, R., Moumen, N., & Hussainey, K. (2021). What drives risk disclosure in Islamic and conventional banks? An international comparison. *International Journal of Finance & Economics*, 26(4), 6338-6361.

Habbash, M., Hussainey, K., & Awad, A. E. (2016). The determinants of voluntary disclosure in Saudi Arabia: an empirical study. *International Journal of Accounting, Auditing and Performance Evaluation*, 12(3), 213-236.

Haj-Salem, I., & Hussainey, K. (2022). A content analysis of narrative COVID-19 disclosure in Omani Islamic banks. *Corporate Narrative Reporting: Beyond the Numbers*, 360.

Haj-Salem, I., Damak Ayadi, S., & Hussainey, K. (2020). The joint effect of corporate risk disclosure and corporate governance on firm value. *International Journal of Disclosure and Governance*, 17(2), 123-140

Hamrouni, A., Boussaada, R., & Toumi, N. B. F. (2019). Corporate social responsibility disclosure and debt financing. *Journal of Applied Accounting Research*, 20(4), 394-415.

Hasan, A., Hussainey, K., & Aly, D. (2022). Determinants of sustainability reporting decision: evidence from Pakistan. *Journal of Sustainable Finance & Investment*, 12(1), 214-237.

Hassan, A. M., Roberts, L., & Atkins, J. (2020). Exploring factors relating to extinction disclosures: What motivates companies to report on biodiversity and species protection? *Business Strategy and the Environment*, 29(3), 1419-1436.

- Hassan, A., Elamer, A. A., Lodh, S., Roberts, L., & Nandy, M. (2021). The future of non-financial businesses reporting: Learning from the Covid-19 pandemic. *Corporate Social Responsibility and Environmental Management*, 28(4), 1231-1240.
- Haque, F., & Jones, M. J. (2020). European firms' corporate biodiversity disclosures and board gender diversity from 2002 to 2016. *The British Accounting Review*, 52(2), 100893
- Harun, M. S., Hussainey, K., Mohd Kharuddin, K. A., & Farooque, O. A. (2020). CSR Disclosure, Corporate Governance and Firm Value: a study on GCC Islamic Banks. *International Journal of Accounting and Information Management*, 28(4), 607-638.
- Hossain, M., Raghunandan, K., & Rama, D. V. (2020). Abnormal disclosure tone and going concern modified audit reports. *Journal of Accounting and Public Policy*, 39(4), 106764.
- Hussainey, K., Schleicher, T., & Walker, M. (2003). Undertaking large-scale disclosure studies when AIMR-FAF ratings are not available: the case of prices leading earnings. *Accounting and Business Research*, 33(4), 275-294.
- Hussainey, K., & Walker, M. (2009). The effects of voluntary disclosure and dividend propensity on prices leading earnings. *Accounting and Business Research*, 39(1), 37-55.
- Husted, B. W., & de Sousa-Filho, J. M. (2019). Board structure and environmental, social, and governance disclosure in Latin America. *Journal of Business Research*, 102, 220-227
- Ibrahim, A. E. A., Abdelfattah, T., & Hussainey, K. (2020). Artificial and real income smoothing around corporate governance reforms: further evidence from Egypt. *Journal of Applied Accounting Research*. 21 (4): 701-720.
- Jana, S., & McMeeking, K. (2021). Alternative performance measures: Determinants of disclosure quality—Evidence from Germany. *Accounting in Europe*, 18(1), 102-142.
- Kang, Y. J. (2019). Are audit committees more challenging given a specific investor base? Does the answer change in the presence of prospective critical audit matter disclosures? *Accounting, Organizations and Society*, 77, 101051.
- Ke, B., Lennox, C. S., & Xin, Q. (2015). The effect of China's weak institutional environment on the quality of Big 4 audits. *The Accounting Review*, 90(4), 1591-1619.
- Kusnadi, Y., Leong, K. S., Suwardy, T., & Wang, J. (2016). Audit committees and financial reporting quality in Singapore. *Journal of Business Ethics*, 139(1), 197-214.
- Lagasio, V., & Cucari, N. (2019). Corporate governance and environmental social governance disclosure: A meta-analytical review. *Corporate Social Responsibility and Environmental Management*, 26(4), 701-711

Larcker, D. F., Lynch, B., Tayan, B., & Taylor, D. J. (2020). The spread of covid-19 disclosure. *Rock Center for Corporate Governance at Stanford University Closer Look Series: Topics, Issues and Controversies in Corporate Governance No. CGRP-84*.

Larsen, J., ElDeeb, M. and AbdelFattah, T., (2014). *Modern Advanced Accounting*. McGraw Hill International limited. UK.

Liao, L., Luo, L., & Tang, Q. (2015). Gender diversity, board independence, environmental committee and greenhouse gas disclosure. *The British Accounting Review*, 47(4), 409-424.

Makhael, N. K. B., & Sherer, M. L. J. (2018). The effect of political-economic reform on the quality of financial reporting in Egypt. *Journal of Financial Reporting and Accounting*, 16(1), 245-270.

Mazumder, M. M. M., & Hossain, D. M. (2022). Voluntary cybersecurity disclosure in the banking industry of Bangladesh: does board composition matter? *Journal of Accounting in Emerging Economies*.

Md Zaini, S., Sharma, U., Samkin, G., & Davey, H. (2020, January). Impact of ownership structure on the level of voluntary disclosure: A study of listed family-controlled companies in Malaysia. *Accounting Forum*, 44 (1): 1-34.

Merkel-Davies, D. M., & Brennan, N. M. (2011). A conceptual framework of impression management: new insights from psychology, sociology and critical perspectives. *Accounting and Business Research*, 41(5), 415-437.

Mong, S., & Roebuck, P. (2005). Effect of audit report disclosure on auditor litigation risk. *Accounting & Finance*, 45(1), 145-169.

Mooneepen, O., Abhayawansa, S., Ramdhony, D., & Atchia, Z. (2021). New insights into the nexus between board characteristics and intellectual capital disclosure: the case of the emerging economy of Mauritius. *Journal of Accounting in Emerging Economies*, 12(1), 29-51.

Morris, R. D., & Tronnes, P. C. (2018). The determinants of voluntary strategy disclosure: an international comparison. *Accounting Research Journal*, 31(3), 423-441.

Moumen, N., Othman, H. B., & Hussainey, K. (2016). Board structure and the informativeness of risk disclosure: Evidence from MENA emerging markets. *Advances in Accounting*, 35, 82-97.

Musallam, S. R. (2018). The direct and indirect effect of the existence of risk management on the relationship between audit committee and corporate social responsibility disclosure. *Benchmarking: An International Journal*, 25(9), 4125-4138.

Muttakin, M. B., Khan, A., & Belal, A. R. (2015). Intellectual capital disclosures and corporate governance: An empirical examination. *Advances in accounting*, 31(2), 219-227.

Naimah, Z., & Mukti, N. A. (2019). The influence of audit committee's and company's characteristic on intellectual capital disclosure. *Asian Journal of Accounting Research*, 4(2), 170-180.

Nicolò, G., Zampone, G., Sannino, G., & De Iorio, S. (2021). Sustainable corporate governance and non-financial disclosure in Europe: does the gender diversity matter? *Journal of Applied Accounting Research*. 23 (1), 227-249.

OECD.(2020). Available online: https://read.oecd-ilibrary.org/view/?ref=134_134947lyixdpsqh2&title=Employment-Outlook-United Kingdom-EN.

Peng, X., Yang, Z., Shao, J., & Li, X. (2021). Board diversity and corporate social responsibility disclosure of multinational corporations. *Applied Economics*, 53(42), 4884-4898.

Pucheta-Martínez, M. C., Gallego-Álvarez, I., & Bel-Oms, I. (2021). Corporate social and environmental disclosure as a sustainable development tool provided by board sub-committees: Do women directors play a relevant moderating role? *Business Strategy and the Environment*, 30(8), 3485-3501.

Pucheta-Martínez, M. C., & Gallego-Álvarez, I. (2019). An international approach of the relationship between board attributes and the disclosure of corporate social responsibility issues. *Corporate Social Responsibility and Environmental Management*, 26(3), 612-627.

Qa'dan, M. B. A., & Suwaidan, M. S. (2019). Board composition, ownership structure and corporate social responsibility disclosure: the case of Jordan. *Social Responsibility Journal*, 15(1), 28-46.

Radu, C., & Smaili, N. (2021). Board gender diversity and corporate response to cyber risk: Evidence from cybersecurity related disclosure. *Journal of Business Ethics*, 1-24.

Raimo, N., Vitolla, F., Marrone, A., & Rubino, M. (2021). Do audit committee attributes influence integrated reporting quality? An agency theory viewpoint. *Business Strategy and the Environment*, 30(1), 522-534.

Rao, K. K., Burritt, R. L., & Christ, K. (2022). Quality of voluntary modern slavery disclosures: top Australian listed companies. *Pacific Accounting Review*, 34(3), 451-478.

Rifai, M., & Siregar, S. V. (2021). The effect of audit committee characteristics on forward-looking disclosure. *Journal of Financial Reporting and Accounting*, 19(5), 689-706.

Rouf, M., & Hossan, M. (2020). The effects of board size and board composition on CSR disclosure: a study of banking sectors in Bangladesh. *International Journal of Ethics and Systems*, 37(1), 105-121

Rusmin, R. (2010). Auditor quality and earnings management: Singaporean evidence. *Managerial auditing journal*. 25 (7), 618-638.

Said, R. M., Aawizm, A., & Rashid, N. (2020). Audit committee effectiveness and sustainability disclosure of Ftse4good Bursa Malaysia indexed companies. *International Journal of Accounting*, 5(30), 248-257.

Salem, I. H., Ayadi, S. D., & Hussainey, K. (2019). Corporate governance and risk disclosure quality: Tunisian evidence. *Journal of Accounting in Emerging Economies*, 9(4), 567-602.

Salem, I. H., & Hussainey, K. (2021). A content analysis of narrative COVID-19 disclosure in Omani Islamic banks. In *Corporate Narrative Reporting: Beyond the Numbers*. Routledge.

Salem, R., Usman, M. and Ezeani, E., 2021. Loan loss provisions and audit quality: Evidence from MENA Islamic and conventional banks. *The Quarterly Review of Economics and Finance*, 79, pp.345-359.

Samaha, K., & Dahawy, K. (2010). Factors influencing corporate disclosure transparency in the active share trading firms: An explanatory study. *Research in Accounting in Emerging Economies*. 87. Emerald Group Publishing Limited.,

Samaha, K., Dahawy, K., Hussainey, K., & Stapleton, P. (2012). The extent of corporate governance disclosure and its determinants in a developing market: The case of Egypt. *Advances in Accounting*, 28(1), 168-178.

Sarhan, A.A. and Ntim, C.G. (2019). Corporate boards, shareholding structures and voluntary disclosure in emerging MENA economies. *Journal of Accounting in Emerging Economies*, 9 (1), 2-27.

Schleicher, T., Hussainey, K., & Walker, M. (2007). Loss firms' annual report narratives and share price anticipation of earnings. *The British Accounting Review*, 39(2), 153-171.

Seebeck, A., & Vetter, J. (2021). Not just a gender numbers game: How board gender diversity affects corporate risk disclosure. *Journal of Business Ethics*, 1-26.

Shuraki, M., Pourheidari, O., & Azizkhani, M. (2020). Accounting comparability, financial reporting quality and audit opinions: evidence from Iran. *Asian Review of Accounting*, 29(1), 42-60.

Smith, S. R. (2003). Audit Committees: Combined Code Guidance (pp. 3-17). London: Financial Reporting Council.

Street, D. L., & Bryant, S. M. (2000). Disclosure level and compliance with IASs: A comparison of companies with and without US listings and filings. *The International Journal of Accounting*, 35(3), 305-329.

Taktak, N.B. and Mbarki, I., 2014. Board characteristics, external auditing quality and earnings management: Evidence from the Tunisian banks. *Journal of Accounting in Emerging Economies*. 4 (1), 79-96.

Tagesson, T., Blank, V., Broberg, P., & Collin, S. O. (2009). What explains the extent and content of social and environmental disclosures on corporate websites: a study of social and environmental reporting in Swedish listed corporations. *Corporate Social Responsibility and Environmental Management*, 16(6), 352-364

Vichitsarawong, T., & Pornupatham, S. (2015). Do audit opinions reflect earnings persistence? *Managerial Auditing Journal*, 30(3), 244-276.

Wang, M., & Hussainey, K. (2013). Voluntary forward-looking statements driven by corporate governance and their value relevance. *Journal of Accounting and Public Policy*, 32(3), 26-49.

Wang, Y., Yekini, K., Babajide, B., & Kessy, M. (2022). Antecedents of corporate social responsibility disclosure: evidence from the UK extractive and retail sector. *International Journal of Accounting & Information Management*.

Winship, C., & Western, B. (2016). Multicollinearity and model misspecification. *Sociological Science*, 3(27), 627-649.

World bank. (2020). Covid-19 coronavirus pandemic. Retrieved from <http://datatopics.worldbank.org/universal-health-coverage/covid19>

Wuttichindanon, S., & Issarawornrawanich, P. (2020). Determining factors of key audit matter disclosure in Thailand. *Pacific Accounting Review*. 32 (4), 563-584.

Yao, S., Pan, L., & Zhang, Z. (2019). Does environmental disclosure have an auditing effect? *Managerial Auditing Journal*, 35(1), 43-66.

Table 1 : Variables definition

| List of variables | Measures |
|------------------------------|---|
| Dependent variables | |
| COVID-Disc | The number of covid-19 sentences disclosed in the company's annual report narratives. |
| Independent variables | |
| BSIZE | Total number of the board of directors |
| INDEP | Number of independent members in the board of directors |
| DIV | Number of women on the board of directors |

| | |
|--------------------------|---|
| FAM | Number of the same family members in the board of directors |
| ACINEXIS | A dummy variable scored as 1 for the absence of an audit committee without a justified reason and 0 otherwise |
| ACSIZE | The number of directors of the audit committee |
| ACEXCUT | the number of executives in the audit committee |
| BIG4 | A dummy variable equals 1 for the Big 4 audit offices and 0 otherwise. |
| OPIN | A dummy variable equals to 1 for the standard clean opinion and 0 otherwise |
| Control Variables | |
| FSIZE | Firm size measured by the natural logarithm of total assets |
| LEV | Firm leverage measured by long term liabilities divided by capital equity |
| LIQ | Liquidity measure by current assets by current liabilities |
| AGE | Year of 2020 and 2021 minus year of establishment |

Table 2: Industry sectors and Covid-19 Disclosure

| Industry | Number of firms | % Of firms | Total disclosure 2020 | Total disclosure 2021 |
|---------------------------|-----------------|------------|-----------------------|-----------------------|
| Health care | 19 | 9.27% | 14 | 16 |
| Chemicals | 11 | 5.37% | 9 | 9 |
| Electronics and equipment | 4 | 1.95% | 4 | 4 |

| | | | | |
|---|-----|---------|-----|-----|
| Mining & Energy | 5 | 2.44% | 4 | 2 |
| Shipping | 4 | 1.95% | 2 | 3 |
| Textiles | 7 | 3.41% | 6 | 6 |
| Construction | 34 | 16.59% | 29 | 27 |
| Heavy Industry | 12 | 5.85% | 6 | 5 |
| Food | 32 | 15.61% | 23 | 21 |
| Other sectors | 13 | 6.34% | 9 | 10 |
| Tourism | 10 | 4.88% | 6 | 6 |
| Financial | 45 | 21.95% | 41 | 40 |
| Information and telecommunications | 9 | 4.39% | 9 | 9 |
| Total | 205 | %100.00 | 162 | 158 |

Table 3: Descriptive statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|------------|-----|-------|-----------|-----|-----|
| COVID-Disc | 410 | 1.82 | 1.743 | 0 | 10 |
| BSIZE | 410 | 7.995 | 2.682 | 3 | 19 |
| DIV | 410 | 1.015 | 1.025 | 0 | 6 |
| INDEP | 410 | 1.305 | 1.413 | 0 | 7 |
| FAM | 410 | 1.063 | 1.628 | 0 | 8 |
| ACINEXIS | 410 | .051 | .221 | 0 | 1 |
| ACSIZE | 410 | 2.859 | 1.54 | 0 | 8 |

| | | | | | |
|---------|-----|--------|--------|---------|---------|
| ACEXCUT | 410 | .654 | 1.064 | 0 | 6 |
| BIG4 | 410 | .251 | .434 | 0 | 1 |
| OPIN | 410 | .739 | .44 | 0 | 1 |
| FSIZE | 410 | 8.944 | .971 | 6.548 | 11.696 |
| LEV | 410 | .236 | 1.329 | -10.671 | 13.308 |
| LIQ | 409 | 3.951 | 11.016 | .08 | 128.841 |
| AGE | 410 | 35.473 | 20.487 | 2 | 134 |

Table 4: correlation matrix.

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|----------------|---------|---------|---------|---------|-------|-------|-----|-----|-----|------|------|------|
| (1) COVID-Disc | 1.000 | | | | | | | | | | | |
| (2) BSIZE | 0.230* | 1.000 | | | | | | | | | | |
| | (0.000) | | | | | | | | | | | |
| (3) DIV | 0.223* | 0.324* | 1.000 | | | | | | | | | |
| | (0.000) | (0.000) | | | | | | | | | | |
| (4) INDEP | 0.246* | 0.294* | 0.250* | 1.000 | | | | | | | | |
| | (0.000) | (0.000) | (0.000) | | | | | | | | | |
| (5) FAM | 0.003 | 0.013 | 0.092 | 0.017 | 1.000 | | | | | | | |
| | (0.949) | (0.794) | (0.064) | (0.730) | | | | | | | | |
| (6) BIG4 | 0.422* | 0.138* | 0.041 | 0.202* | 0.009 | 1.000 | | | | | | |

| | | | | | | | | | | | | | |
|--------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| | (0.000) | (0.005) | (0.406) | (0.000) | (0.863) | | | | | | | | |
| (7) OPIN | 0.273* | 0.098* | 0.117* | 0.132* | 0.095 | 0.191* | 1.000 | | | | | | |
| | (0.000) | (0.046) | (0.018) | (0.007) | (0.055) | (0.000) | | | | | | | |
| (8) ACINEXIS | -0.211* | -0.198* | -0.144* | -0.121* | 0.005 | -0.084 | -0.215* | 1.000 | | | | | |
| | (0.000) | (0.000) | (0.004) | (0.014) | (0.927) | (0.091) | (0.000) | | | | | | |
| (9) ACSIZE | 0.123* | 0.363* | 0.156* | 0.185* | -0.068 | 0.039 | 0.097* | -0.432* | 1.000 | | | | |
| | (0.012) | (0.000) | (0.002) | (0.000) | (0.172) | (0.435) | (0.050) | (0.000) | | | | | |
| (10) ACEXCUT | -0.195* | -0.131* | -0.125* | -0.182* | -0.080 | -0.076 | -0.152* | -0.143* | 0.054 | 1.000 | | | |
| | (0.000) | (0.008) | (0.011) | (0.000) | (0.104) | (0.125) | (0.002) | (0.004) | (0.279) | | | | |
| (11) FSIZE | 0.336* | 0.480* | 0.185* | 0.190* | -0.032 | 0.293* | 0.086 | -0.224* | 0.342* | -0.002 | 1.000 | | |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.516) | (0.000) | (0.081) | (0.000) | (0.000) | (0.973) | | | |
| (12) LEV | 0.096 | -0.033 | -0.011 | 0.067 | 0.053 | 0.012 | -0.042 | -0.028 | 0.038 | 0.068 | 0.081 | 1.000 | |
| | (0.053) | (0.501) | (0.823) | (0.173) | (0.283) | (0.812) | (0.399) | (0.568) | (0.441) | (0.172) | (0.101) | | |
| (13) LIQ | -0.082 | 0.005 | 0.024 | 0.091 | -0.011 | -0.049 | 0.050 | 0.089 | 0.020 | -0.030 | -0.175* | -0.032 | |
| | (0.097) | (0.924) | (0.628) | (0.066) | (0.830) | (0.322) | (0.309) | (0.071) | (0.683) | (0.550) | (0.000) | (0.521) | |
| (14) AGE | -0.087 | 0.035 | -0.004 | -0.031 | -0.092 | -0.149* | -0.237* | -0.125* | 0.146* | 0.145* | 0.174* | -0.027 | |
| | (0.079) | (0.486) | (0.938) | (0.528) | (0.062) | (0.003) | (0.000) | (0.011) | (0.003) | (0.003) | (0.000) | (0.585) | |

* p<0.05

Table 5: Variance inflation factor

| | VIF | 1/VIF |
|----------|-------|-------|
| BFSIZE | 1.562 | .64 |
| INDEP | 1.22 | .819 |
| DIV | 1.181 | .847 |
| FAM | 1.036 | .966 |
| ACSIZE | 1.448 | .691 |
| ACINEXIS | 1.365 | .733 |

| | | |
|-------|-------|------|
| OPIN | 1.203 | .831 |
| BIG4 | 1.202 | .832 |
| FSIZE | 1.609 | .621 |
| AGE | 1.195 | .837 |

| | | |
|-----|-------|------|
| LIQ | 1.081 | .925 |
| LEV | 1.037 | .964 |

| | | |
|----------|-------|---|
| Mean VIF | 1.252 | . |
|----------|-------|---|

Table 6: Regression Analysis

| VARIABLES | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 Fixed Effect |
|-----------|----------------------|----------------------|---------|---------|-------------------------|
| BSIZE | 0.00775 (0.0334) | 0.00940 (0.0355) | | | 0.00923 (0.0331) |
| DIV | 0.202*** (0.0760) | 0.223*** (0.0825) | | | 0.207*** (0.0753) |
| INDEP | 0.0830 (0.0561) | 0.190*** (0.0596) | | | 0.0716 (0.0556) |

| | | | | | |
|-----------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| FAM | -0.0421 (0.0449) | -0.0190 (0.0488) | | | -0.0436 (0.0445) |
| BIG4 | 1.194*** (0.181) | | 1.253*** (0.184) | | 1.188*** (0.179) |
| OPIN | 0.536*** (0.179) | | 0.764*** (0.177) | | 0.543*** (0.177) |
| ACINEXIS | -1.014*** (0.379) | | | -1.588*** (0.397) | -1.120*** (0.377) |
| ACSIZE | -0.0469 (0.0560) | | | -0.0483 (0.0588) | -0.0826 (0.0568) |
| ACEXCUT | -0.238*** (0.0719) | | | -0.341*** (0.0747) | -0.236*** (0.0712) |
| FSIZE | 0.301*** (0.0942) | 0.504*** (0.0969) | 0.392*** (0.0841) | 0.565*** (0.0884) | 0.317*** (0.0935) |
| LEV | 0.116** (0.0549) | 0.0780 (0.0598) | 0.105* (0.0561) | 0.0991* (0.0588) | 0.117** (0.0544) |
| LIQ | -0.00756 (0.00677) | -0.0103 (0.00735) | -0.00636 (0.00688) | -0.00443 (0.00725) | -0.00623 (0.00672) |
| AGE | -0.00292 (0.00383) | -0.0118*** (0.00393) | -0.00307 (0.00388) | -0.0113*** (0.00393) | -0.00278 (0.00379) |
| Year & Industry | Y | Y | Y | Y | Y |
| Constant | -1.449* (0.750) | -2.769*** (0.772) | -2.454*** (0.732) | -2.392*** (0.770) | -1.503** (0.743) |
| Observations | 409 | 409 | 409 | 409 | 409 |
| R-squared | 0.330 | 0.187 | 0.271 | 0.204 | 0.315 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Tobit Regression

| VARIABLES | (1) COVID-Disc | (2) COVID-Disc | (3) COVID-Disc | (4) COVID-Disc |
|-----------|----------------------|----------------------|-------------------|-------------------|
| BSIZE | 0.00775 (0.0328) | 0.00940 (0.0351) | | |
| DIV | 0.202*** (0.0747) | 0.223*** (0.0816) | | |
| INDEP | 0.0830 (0.0551) | 0.190*** (0.0590) | | |
| FAM | -0.0421 | -0.0190 | | |

| | | | | |
|-----------------|-----------|------------|-----------|------------|
| | (0.0441) | (0.0483) | | |
| BIG4 | 1.194*** | | 1.253*** | |
| | (0.178) | | (0.183) | |
| OPIN | 0.536*** | | 0.764*** | |
| | (0.176) | | (0.176) | |
| ACINEXIS | -1.014*** | | | -1.588*** |
| | (0.373) | | | (0.393) |
| ACSIZE | -0.0469 | | | -0.0483 |
| | (0.0550) | | | (0.0582) |
| ACEXCUT | -0.238*** | | | -0.341*** |
| | (0.0706) | | | (0.0739) |
| FSIZE | 0.301*** | 0.504*** | 0.392*** | 0.565*** |
| | (0.0926) | (0.0958) | (0.0833) | (0.0875) |
| LEV | 0.116** | 0.0780 | 0.105* | 0.0991* |
| | (0.0540) | (0.0591) | (0.0557) | (0.0582) |
| LIQ | -0.00756 | -0.0103 | -0.00636 | -0.00443 |
| | (0.00666) | (0.00727) | (0.00682) | (0.00718) |
| AGE | -0.00292 | -0.0118*** | -0.00307 | -0.0113*** |
| | (0.00376) | (0.00389) | (0.00385) | (0.00389) |
| Year & Industry | Y | Y | Y | Y |
| Constant | -1.449** | -2.769*** | -2.454*** | -2.392*** |
| | (0.737) | (0.764) | (0.726) | (0.762) |
| Observations | 409 | 409 | 409 | 409 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8: Two-Stage least squares (2SLS) regression

| VARIABLES | (1) 2SLS | (2) 2SLS | (3) 2SLS | (4) 2SLS |
|-----------------|-------------------------|---------------------------|-------------------------|---------------------------|
| BSIZE | 0.00172 (0.00730) | 0.00209 (0.00781) | | |
| DIV | 0.0448*** (0.0166) | 0.0496*** (0.0181) | | |
| INDEP | 0.0185 (0.0122) | 0.0422*** (0.0131) | | |
| FAM | -0.00935 (0.00980) | -0.00422 (0.0107) | | |
| BIG4 | 0.265*** (0.0395) | | 0.278*** (0.0406) | |
| OPIN | 0.119*** (0.0391) | | 0.170*** (0.0390) | |
| ACINEXIS | -0.225*** (0.0829) | | | -0.353*** (0.0873) |
| ACSIZE | -0.0104 (0.0122) | | | -0.0107 (0.0129) |
| ACEXCUT | -0.0529*** (0.0157) | | | -0.0758*** (0.0164) |
| FSIZE | 0.0669*** (0.0206) | 0.112*** (0.0213) | 0.0871*** (0.0185) | 0.125*** (0.0194) |
| LEV | 0.0258** (0.0120) | 0.0173 (0.0131) | 0.0233* (0.0124) | 0.0220* (0.0129) |
| LIQ | -0.00168 (0.00148) | -0.00230 (0.00162) | -0.00141 (0.00152) | -0.000985 (0.00160) |
| AGE | -0.000650 (0.000836) | -0.00263*** (0.000864) | -0.000681 (0.000855) | -0.00250*** (0.000864) |
| Year & Industry | Y | Y | Y | Y |
| Constant | -0.322** (0.164) | -0.615*** (0.170) | -0.545*** (0.161) | -0.532*** (0.169) |
| Observations | 409 | 409 | 409 | 409 |
| R-squared | 0.330 | 0.187 | 0.271 | 0.204 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Regression analysis for non-financial firms.

| VARIABLES | (1) COVID-Disc | (2) COVID-Disc | (3) COVID-Disc | (4) COVID-Disc |
|--------------|-----------------------|-------------------------|-----------------------|-------------------------|
| BSIZE | 0.0184 (0.0384) | 0.00272 (0.0403) | | |
| DIV | 0.248*** (0.0815) | 0.251*** (0.0877) | | |
| INDEP | 0.146** (0.0672) | 0.280*** (0.0700) | | |
| FAM | -0.0493 (0.0478) | -0.0150 (0.0513) | | |
| BIG4 | 1.198*** (0.216) | | 1.214*** (0.220) | |
| OPIN | 0.531*** (0.185) | | 0.768*** (0.185) | |
| ACINEXIS | -0.948** (0.384) | | | -1.558*** (0.405) |
| ACSIZE | -0.00131 (0.0630) | | | -0.0233 (0.0671) |
| ACEXCUT | -0.184** (0.0776) | | | -0.302*** (0.0807) |
| FSIZE | 0.123 (0.119) | 0.321*** (0.121) | 0.292*** (0.105) | 0.402*** (0.113) |
| LEV | 0.215*** (0.0628) | 0.191*** (0.0679) | 0.214*** (0.0651) | 0.211*** (0.0676) |
| LIQ | -0.00762 (0.00885) | -0.0123 (0.00953) | -0.00835 (0.00911) | -0.00584 (0.00952) |
| AGE | -0.00404 (0.00404) | -0.0122*** (0.00404) | -0.00280 (0.00408) | -0.0109*** (0.00415) |
| Year effect | Y | Y | Y | Y |
| Constant | -0.175 (0.930) | -1.270 (0.957) | -1.592* (0.908) | -1.125 (0.968) |
| Observations | 319 | 319 | 319 | 319 |
| R-squared | 0.323 | 0.189 | 0.236 | 0.177 |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1