

The Relationship Between Corporate Internet Reporting and Firm Performance: Evidence from Egypt

Rasha Hanafy

Faculty of Commerce – Cairo University
البريد الإلكتروني: rasha.hanafi@foc.cu.edu.eg

Abstract

This study aims to examine the relationship between corporate internet reporting (CIR) and firm performance in Egypt. In specific, the study investigates whether CIR has any effect as a moderating variable in the relationship between environmental, social and corporate governance (ESG) practices (independent variable) and financial performance as measures by Return on Assets (ROA) (dependent variable). A sample of 96 companies listed on EGX100 index is used. To test the research hypotheses, an ordinary least square regression model is used.

The results indicate there is a substantial negative association between CCIR (content score) and ROA. However, TCIR (total score) and ROA have a weak positive relationship, but PCIR (presentation score) and ROA have a weak negative relationship. H1 is rejected. Findings also show a significant negative association between ESG and ROA. H2 is rejected. When testing the impact of the interaction between CIR and ESG on ROA, it is found that CIR is a moderating variable, in relation to CCIR and PCIR. Therefore, H3b and H3c are accepted. Results reveal support for agency theory, signalling theory, resource-based view theory and stakeholders theory.

The originality of the paper lies in the following. It adds to the empirical literature on the impact of CIR on the performance of enterprises. Moreover, CIR impact is examined in combination with ESG practices to study CIR role as a moderating variable. ESG is used, in this paper, as a comprehensive measure covering environmental, social and corporate governance practices. In addition, this relationship is examined in a new context that is not well presented in the literature, notably Egypt. Furthermore, firm performance, contrary to most of the prior literature, is measured in terms of profitability, in specific, ROA.

Introduction:

The global business climate has been quickly evolving for the past thirty years or so. There was a continuous increase in globalization efforts, everlasting technological developments and innovations as well as wide geographic dispersion of corporate stakeholders. As a result, traditional paper-based corporate reporting has become less effective for decision-making purposes by different stakeholders (Ashbaugh et al., 1999). As a consequence, internet reporting became critical (Mokhtar, 2017; Al-Htaybat, 2011; Khan and Ismail, 2011; Jones and Xiao, 2003). Many businesses have recognised the internet as a valuable tool for circulating information and have created a website to announce their financial and non-financial information (Zadeh et al., 2018; Zakeya and Alsartawi, 2016). Companies' websites, as alternative reporting channels, have increasingly been proved to be a better resort for users seeking information on overall corporate performance as stated by Lodhia and Stone (2017). Other interested parties also perceived corporate internet reporting as beneficial to some level (Beattie and Pratt, 2003). AbuGhazaleh et al. (2012b) claimed that the most prevalent explanation for a corporation not to have a website was because it held a monopoly position in the market.

Besides technological development, corporate illegal and immoral actions in the United States and Europe that resulted in the failure and breakdown of significant businesses such as Enron and WorldCom have severely harmed investor trust and prompted stakeholders to demand reforms in publication policies (Turrent and Ariza, 2012). Companies all around the world have been more conscious about giving additional information to investors and financial data consumers in order to promote transparency and signify positive performance (Alsartawi et al., 2013). Here, the Internet is intended to perform a crucial role in bringing about the necessary changes and advancements in corporate disclosure (Larrán and Giner, 2002).

A considerable increase in the number of internet users, including corporate users, around the world lately has enabled the change to an internet-based disclosure model. Internet users number climbed to almost four billion, accounting for 55.1 percent of the global population in 2018 (Internet

World Stats, 2018). In response to this development in the business environment, the FASB (2000) published the first phase of its research on business disclosure, titled “Electronic Distribution of Business Reporting Information”.

Despite the fact that using the internet for corporate information distribution has a number of obstacles (see, Hansen, 2001), it has been argued that corporate online reporting provides a number of advantages to different stakeholders (Elhelaly and Mohamed, 2014). CIR is regarded by various stakeholders and interested parties as spreading more information to many global stakeholders, in an efficient, timely, updated, future-oriented, cost-effective and personalised manner (Matuszak and Rozanska, 2020; Bowrin, 2015; Al-Htaybat et al., 2011; Rowbottom and Lymer, 2009; Marston and Polei, 2004; Debreceny et al., 2002). It also provides simpler access, direct user interaction, decrease in information asymmetry and two-way communication features (Wang et al., 2021; Sia et al., 2018; Lodhia and Stone, 2017; Gowthorpe, 2004). This increases the utility of internet disclosure for more effective and informed decision making by the various stakeholders (Lodhia and Stone, 2017; Al-Htaybat et al., 2011; Gowthorpe, 2004; Debreceny et al., 2002; Ashbaugh et al., 1999). Moreover, because CIR boosts the company’s image, repute, and trustworthiness, this information can lead to higher performance (Sia et al., 2018).

In academia, initial attempts at studying CIR are made to arrive to a definition for CIR. Along two decades, many definitions were put forward which mostly revolved around that CIR is the use of worldwide web to present to all concerned stakeholders (e.g., current shareholders, customers, potential investors, employees, governmental authorities) and many interested parties, information relating to the company’s historical and current financial/nonfinancial performance as well as future goals (Sia et al., 2018; Ashbaugh et al., 1999).

Research focus was on the CIR status in the industrialised world (e.g. Xiang and Birt, 2021; Basuony et al., 2020; Gowthorpe and Amat, 1999; Lymer and Tallberg, 1997) as well as emerging countries (e.g. Hussein and Nounou, 2021; Wang et al., 2021; Matuszak and Rozanska, 2020; AbuGhazaleh et al., 2012a, b; HENCHIRI, 2011; Al-Htaybat, 2011). This

clearly implies that CIR adoption is not a topic of discussion in advanced economies only. However, in industrialised countries, the transmission of company information via websites has become a well-established and standard practise (Fisher and Naylor, 2016). Developing economies, however, where these challenges are particularly important, are still lagging behind and could be improved (Matuszak and Rozanska, 2020; Oyelere and Kuruppu, 2012; Al-Hayale, 2010). In Arab countries, in particular, studies revealed a low proclivity for CIR usage (e.g., Basuony and Mohamed, 2014; Desoky and Mousa, 2013; AbuGhazaleh et al., 2012a; Henchiri, 2011).

Despite the extensive use of CIR, there are disparities in the amount of information supplied by countries and companies (Basuony et al., 2020; Alsartawi, 2018; Alsartawi and Reyad, 2018). Furthermore, in most countries, CIR is currently voluntary due to the fact that such disclosures are still not governed by any laws, rules or guidelines (Amin and Mohamed, 2016; Desoky, 2009; Dutta and Bose, 2007).

In addition, much of the previous literature looks at the factors that influence CIR (e.g., Khlifi, 2021; Basuony et al., 2020; Amin et al., 2020; Nawang et al., 2020; Marston and Polei, 2004; Debreceny et al., 2002; Ettredge et al., 2002) indicating a number of factors that impact CIR adoption (see Section 3; Literature Review). However, very few studies investigated the economic and financial impact of CIR (e.g., Hussien and Nounou, 2021; Alsartawi, 2018; Sia et al., 2018). According to the literature on CIR, technologies and business websites may help to facilitate the flow of voluntary disclosures to interested parties. Owing to the increased transparency in disclosure, stakeholders' actions may be influenced, which may have an impact on the firms' performance (Pinto and Picoto, 2016; Trabelsi et al., 2014; Hodge et al., 2004).

As will be discussed in Section 3 (Literature Review), most CIR studies measure performance in terms of stock prices, stock returns or firm value. Three studies only; Nagarajah and Alagathurai (2021), Alebrahim (2018) and Alsartawi (2018), are found that study CIR impact on performance and measure corporate performance in terms of profitability. Furthermore, to the best of the author's knowledge, no prior research has looked into the link between CIR and profitability in Egyptian firms. As a result, the goal

of this study is to close this gap and see if corporate online reporting has any bearing on business profitability, in particular, ROA. In addition, this will be further investigated for companies that engage in environmental, social and governance (ESG) activities. The aim is to explore whether CIR act as a moderating variable in the relationship between ESG practices and financial performance. Prior literature suggests that ESG practices positively affect corporate performance (Nguyen et al., 2021; Aareeni and Hamdan, 2020).

In specific, the goal of this research is to provide a complete description of recent CIR practices among 100 Egyptian listed companies and to find out the influence of ESG practices combined with CIR on corporate performance in order to better understand how CIR is progressing in emerging countries like Egypt. As a result, the work is exploratory in character and contributes to CIR research in numerous ways. Primarily, the study examines the financial impact of corporate disclosure over the Internet. Moreover, contrary to most of the previous studies on CIR impact on corporate performance, firm performance is measured in terms of profitability, in specific, ROA. Second, this study applies a comprehensive CIR index which provides information on the “content” and “presentation” of financial as well as non-financial information by all EGX100 enterprises on the Cairo Alexandria Stock Exchange. This can be used as benchmarks when studying developing countries practices. Third, this study is applied on an understudied but increasingly important empirical environment of Egypt. Fourth, ESG is used, in this paper, as a comprehensive measure covering environmental, social and corporate governance practices when studying the role of CIR in the relationship between ESG and ROA.

The outcomes as well as the recommendations of the current paper will assist Egyptian standard-setting bodies and governing organisations in developing strategies to encourage listed firms to engage in CIR in order to entice potential stakeholders and improve their own performance. This type of research is important not just for financial/non-financial data users and preparers, but it also brings up issues about Egypt’s and other countries’ regulatory structures. Managers may also recognise the necessity of enhanced information disclosure processes as a result of their impact on performance. As a result, monitoring expenses will be reduced, and stakeholders and potential investors would have better access to

information. As a consequence, they have a better chance of making healthier and more cost-effective judgments about their activities. Besides, Egypt is one of the world's most populous underdeveloped countries and has the educational and cultural background that makes it more influential on the surrounding states. Thus, developments which may occur in the Egyptian market will be reflected in the surrounding markets.

Following the introduction, the remaining of this study is organised in the following manner. To put the study in its context, a concise account of Egypt's institutional history and the Egyptian environment is outlined in Section Two while the extant literature on CIR is reviewed in Section Three. A discussion of the research methods and design used to conduct the empirical work of the current study follows; Section Four. Section Four also includes the theoretical foundation and hypotheses development. Next, Section Five reports the results and analyses. Discussions on the study findings are delivered in the penultimate section. Finally, Section Seven brings the study to a close with a summary of the study's main findings, limitations, implications and prospects for future research.

1. Egyptian Background and Context

Egypt is a growing country with policies aimed at attracting and encouraging foreign investment. Egypt's financial reporting framework is built on a well-ordered, structured and long history of exchange of securities. The Egyptian corporate legal framework (Company Law 159/1981) is based on French civil law, while Anglo-American common law elements underpin "Capital Market Law" (CML) 95/1992, and "Central Depository Law" 93/2000.

Since its inception, the EGX has gone through various structural changes, and the growth of Egypt's capital market is related to the economic policy of the country. The EGX is the first in the Middle East and one of the world's earliest. It began in the nineteenth century, when the "Alexandria Stock Exchange" was formed in 1883, and subsequently the "Cairo Stock Exchange" in 1903. Both branches are at present overseen by the same BOD (board of directors) and have one chairman. One of the primary elements of the 1990s reforms was the revival of the capital market with the issuing of CML 95/1992. As a result, market capitalization increased

and listed businesses expanded (EGX, 2009). EGX took the second place in 2002, in North Africa and the Middle East, after Saudi Arabia stock exchange. EGX market capitalization was 122 billion L.E. then.

The “Egyptian Financial Supervisory Authority” (EFSA) – originally the “Capital Market Authority” (CMA) – was a prominent state authority supervised by the Ministry of Investment and had judicial status. The CMA was in charge of all investment legislation and executive guidelines when it was founded by passage of CML 95/1992 until it was replaced in 2009 by the EFSA. The CMA established new listing standards in July 2002, with the goal of improving disclosure and governance quality among listed organisations (Berg and Capaul, 2004). In 2014, as a result of the EGX’s stringent implementation of the listing and disclosure standards, the number of listed businesses declined drastically. However, market capitalization gradually increased till 2007 but plummeted in 2008 as a result of the worldwide financial global crisis (EGX, 2008). Moreover, the 2011 uprising did have a terrible effect on the “Egyptian Stock Exchange”. The disruption of economic activities as well as widespread civil upheaval forced the EGX to close for an extended period of time (EGX, 2012).

Egypt has witnessed radical political transformation in 2011 and the civil unrest after the revolution of January 2011 had a strong harmful influence on the Egyptian economy, which increases the importance of disclosure and financial reporting as an important tool to support the financial market on the one hand and attract foreign investments on the other. Egypt has been implementing several approaches to entice investment from abroad and to regain the trust of the world in its market. This has been accomplished through Egypt’s increasing integration with foreign markets, the adoption of international standards and through aspects that attract investors, such as understandable legislation, corporate governance, and technical foundation.

According to ArabSalehi and Velashani (2009), the financial reporting gap may be greater in emerging nations where the legal reporting system is primarily influenced by external factors (e.g., US accounting standards) rather than contextual factors. Previous studies on Egypt support this argument where companies are found not to comply with financial reporting standards (Hanafi, 2006; Fawzy, 2003; Rahman et al., 2002;

Dahawy, et al., 2002). As a result, stakeholders may have a negative perception of public disclosure (Hassan et al., 2009). One of the proposed explanations for this practice is the high cost of meeting disclosure requirements, and thus, of the advantages of using internet is low-cost disclosure. In addition, there is a need to change this negative view of stakeholders by increasing disclosure and one of the effective ways to do that is using the internet.

Thus, CIR practices may be useful in the economic recovery procedure by publishing comprehensive and up to date information that is required to entice international investment. During the few years prior to 2011, Egypt has seen several economic and regulatory reforms, including considerable privatisation of the public sector, restructuring laws and regulations organizing firms, and a growth in the number of internet users. Users of the Internet in Egypt, like in other parts of the world, have expanded dramatically in recent years, reaching 49,231,493 as of June 30, 2018, or 49.5 percent of the population (Internet World Stats, 2018), up from 0.58 percent in 1999. In addition, 75% of users come from the corporate community (Aly et al., 2010). Consequently, there is a greater demand for company data of greater quality (Ezat and El-Masry, 2008).

This rate of expansion in internet users is pertinent to the current research because it has been suggested that as internet access becomes widely available in a country, users would demand more corporate information to be posted online. Similarly, if a company believes there is a significant internet audience, the CIR is likely to be greater (Debreceeny et al., 2002). Recently, 100% of publicly traded firms have an active website and are reporting online (EGX, 2019) as opposed to 36% in 2014 (Elhelaly and Mohamed, 2014).

Furthermore, with the goal of improving corporate data quality, Egypt has already been implementing improved corporate governance, transparency, and disclosure rules (Dahawy and Samaha 2010; Samaha and Stapleton, 2009; Samaha et al., 2009). In this regard, the EFSA published Decision 15/2012 (amended in 2014) in an effort by both the EGX and EFSA to inspire companies listed on the Egyptian stock exchange to launch a website and publish company information over the internet. This means that listed companies will participate in CIR practices by publishing their

financial statements whether annual or periodic. According to this Decision and beginning March 2013, all publicly traded firms have been expected to have a website and participate actively in CIR practices (EFSA, 2012). This move indicates that the government of the country recognises CIR's potential. Furthermore, given the ongoing turmoil in the Middle East, this action could be interpreted as an endeavour by the Egyptian government to alleviate concerns by international investors about the financial viability of Egyptian listed companies (Ahmed et al., 2017; 2015). Moreover, Ahmed et al. (2018) found that CIR is seen as useful and critical by users in Egypt. Given the above, Egypt is chosen as the research context. In the following section, prior CIR literature will be briefly reviewed.

2. Literature Review

An examination of pertinent literature on CIR adoption finds that investigations have primarily been conducted along the following themes. Initially, some studies primarily aimed to provide a descriptive overview of corporations' CIR practices. This branch of accounting literature arose in the 1990s, primarily to depict the use of online disclosure, with the purpose of revealing the disparities in online disclosure procedures between firms with websites against those without, or investigating the discrepancies between organisations that give financial information via their websites against those who do not, as well as differences in the levels of disclosure (Gowthorpe, 2004; Allam and Lymer, 2003; Ashbaugh et al., 1999; Craven and Marston, 1999). According to the majority of descriptive research from the late 1990s, internet disclosures to stakeholders have become more common especially in industrialised countries. However, there are country-specific differences in the scope and complexity of internet financial reporting practices (Basuony et al., 2020). Moreover, the use of the internet to report financial information has grown to a lesser extent in developing countries (Ahmed et al., 2017). Providing a general overview of CIR in Egypt, Elhelaly and Mohamed (2014) found that 36 out of the 100 companies listed on EGX100 had websites with 29 companies only engaging in CIR.

Since the beginning of the 2000s, a new area of research has looked into the determining factors that may have an impact on corporate decisions to engage in CIR activities (Mokhtar, 2017). The study of CIR's determinants

has piqued the interest of both developed (e.g., Xiang and Birt, 2021; Amin et al., 2020; Basuony et al., 2020) and emerging countries (e.g., Khlifi, 2021; Nawang et al., 2020; Matuszak and Rozanska, 2020). The most prominent predictor variables used to determine a company's adoption status are company size, profitability, leverage, industry sector and liquidity (see, Khlifi, 2021; Xiang and Birt, 2021; Basuony et al., 2020; Amin et al., 2020; Alsartawi and Reyad, 2018; Bowrin, 2015; Al-htaybat, 2011; Debreceny et al., 2002; Ettredge et al., 2002; Ashbaugh et al., 1999; Craven and Marston, 1999).

In addition, several studies looked into the impact of other factors such as *auditor type* and *corporate governance (CG)* mechanisms¹ on CIR (e.g., Khlifi, 2021; Nawang et al., 2020; Matuszak and Rozanska, 2020; Amin et al., 2020; Sanad and Alsartawi, 2016; Desoky and Mousa, 2013; Al-Htaybat, 2011; Kelton and Yang, 2008; Xiao et al., 2004). A disclosure index is used in the bulk of the studies mentioned above to assess corporate internet reporting, which is based on a set of criteria developed by the literature studying online reporting (Pinto and Picoto, 2016; Marston and Polei, 2004).

With regard to the Egyptian context, a number of studies were conducted emphasizing determinants of CIR. For example, between January and February 2008, Desoky (2009) looked at the predictors of CIR in 88 publicly traded companies in Egypt. The statistical tests demonstrated that the size of the company, how profitable it is, and stock activity were the key characteristics that accounted for online reporting involvement, with no other variables showing any correlation. Similarly, Aly et al. (2010) studied a sample of 62 nonfinancial Egyptian listed companies between October 2005 and January 2006 to investigate whether the following variables affect CIR practices or not; size, profitability, leverage, liquidity, industry sector, auditor size, and international listing. Profitability, international listing, and industry sector were shown to be the only factors that were substantially connected with the amount of online disclosure practices by the companies studied. Previously, Ezat and El-Masry (2008) studied factors influencing the timeliness of CIR in Egypt and found supporting evidence for the

¹ Corporate governance mechanisms covered in the literature included the following: the number of members on the board of directors, the independence of the members of the board of directors, duality of roles and ownership structure.

impact of company size, industry, liquidity, ownership structure, board composition and board size.

Ahmed et al. (2017) provided additional evidence for the importance of size of the company, leverage, liquidity, auditor type, foreign listing, and industry sector, but not profitability except for CIR presentation score. Furthermore, various corporate governance parameters (the number of members on the board of directors, duality of roles and ownership structure) were examined by Samaha et al. (2012) to determine their impact on CIR. They also find evidence for significant impact of size and industry sector on CIR, but not leverage. Samaha and Abdallah (2012) add to the evidence on the effect of leverage and size, as well as some governance proxies such as the independence of the members of the board of directors and duality of roles.

Regardless of the fact that substantial studies have been conducted on the explanatory variables that influence internet reporting, the results are inconclusive owing to variances in size of the sample, difference in variable measures, study setting, methodological elements, society and accounting norms, company environment, and technology level (Khan and Ismail, 2012; Al-Htaybat, 2011).

A different branch of the literature examined the influence of CIR on *firm performance*. It is argued that company performance is an indication of its success in managing its resources and in conducting its operations (Hussein and Nounou, 2021). Marston and Polei (2004) argue that online reporting enhances the performance of the company. CIR has the potential to affect the company's reputation, which will affect sales, which, in turn, will have an impact on firm performance. CIR boosts confidence in the company from different stakeholders that will reflect on the firm's performance. Prior research used different measures of market-based and accounting-based company performance. These measures include: stock price, stock return, firm value (Tobin's Q), earning per share (EPS), and profitability measures (ROA, ROE). The majority of this growing literature regarding CIR influence on firm performance was concerned with measures relating to stock prices and returns as well as company value.

Antweiler and Frank (2004), for example, find that stock message boards on the Internet provide relevant information to the market significantly affecting stock returns. Internet-based disclosure of price-sensitive events adds value to the market, according to Duque and Pinto (2008), as the information promptly reaches all investors than it would otherwise. Hunter and Smith (2009) also demonstrated that stocks listed on stock exchanges in developing markets performed well when financial disclosures were made available online. Their study demonstrated that stock market prices are positively related to the use of the internet for reporting. Recently, Sia et al. (2018) discovered an increase in firm value in association with increased CIR (see also, Pinto and Picoto, 2016). Further support is provided by Yassin and AlKhatib (2019) who find that CIR with its components; content and presentation, influence expected stock return in Jordan. According to Trabelsi et al. (2014), voluntary disclosures on business websites have a positive impact on future earnings and stock price performance at the time of the disclosures. On the other hand, Ettredge et al. (2002) find no association between CIR and stock return. Applying on Egyptian data, Ahmed et al. (2015) suggested CIR increases market value and market returns. In addition, Hussein and Nounou (2021), who studied Egyptian listed companies, find some supporting evidence for significant positive influence of CIR on stock price and company value (Tobin's Q) but not stock return.

Despite the growing literature on corporate internet reporting influence on firm performance, there is little research on the effects of CIR on *firm profitability*. In 2018, Alsartawi studied 274 listed companies from Gulf Council Countries to investigate the effect of CIR on firm performance. He chose five measures for company performance, namely, market value, net profit margin, return on assets (ROA), return on equity (ROE) and EPS. He find significant impact of CIR on company profitability measures (i.e., ROA and ROE) in addition to market value (Alsartawi, 2018). Moreover, Nagarajah and Alagathurai (2021) studied 68 institutions in Sri Lanka. Their results reveal significant positive impact of content element of CIR on ROA but no effect of the presentation element. In addition, their results showed no association of CIR, neither content nor presentation element, with Tobin's Q. Alebrahim (2018), on the other hand, find no significant influence of CIR on ROA, ROE or Tobin's Q in Saudi Arabia.

It is, thus, clear that results regarding CIR impact on firm performance is mixed. Besides, research on the relationship between CIR and firm performance in terms of profitability measures is limited. Furthermore, to the best of the author's awareness, no research has been conducted in Egypt to assess the economic repercussions of CIR activities in terms of profitability; ROA. As a result, the current study examines the association between CIR and business profitability of Egyptian listed companies, filling a specific knowledge gap in the literature. In particular, this research is concerned with whether CIR acts as a moderating variable in the relationship between ESG practices and ROA for Egyptian listed companies.

Previous research advocates that ESG practices have a significant positive influence on firm performance. For example, van Emous et al. (2021), Galama and Scholtens (2021), and Danso et al. (2019), find that companies engaging in environmental and social activities tend to perform better than companies that do not. In addition, Khan et al. (2021) and Saygili et al. (2021), provide further evidence that some CG mechanisms have significant positive influence on corporate performance. In particular, Kyere and Ausloos (2021), van Emous et al. (2021), Saygili et al. (2021) and Secinaro et al. (2020), find evidence for the positive influence of ESG on firm profitability, in specific, ROA. Recent research argues that being environmentally and socially responsible improves company image and reputation amongst its stakeholders which leads to retaining talented employees as well as customers. In addition, environmental risks decrease leading to decrease in production costs (Secinaro et al., 2020). This, in turn, leads to improved production, sales and, thus, firm performance (Nguyen and Adomako, 2021). However, Ahmed (2018) find negative but not significant impact of ESG as measured by "S&P/EGX ESG index" on ROA.

As a result, this research would make a significant input to the existing literature by evaluating whether CIR has a role in the relationship between ESG and firm performance as assessed by ROA. This is especially important in the case of Egypt, because Egypt is one of the largest developing economies with a significant impact on other Middle Eastern, in specific, Arab, countries, in addition to its long-standing historical ties with

the world's wealthiest nations. Therefore, the need for timely and easy access to information is expected to be considerable in Egypt.

Thus, examining the effects of using the Internet reporting is increasingly important at the time. As a result, the current paper seeks to examine if CIR has any real-world economic consequences for the companies studied. The Egyptian government's contemporary recognition of the merits of the internet as a medium for reporting, as evidenced by the EFSA's Decision 15/2012, provides additional impetus for examining CIR's economic significance. Based on this, and in conjunction with a discussion of the existing empirical and theoretical literature, this current research predicts that companies engaging in environmental, social and governance practices and with a high degree of CIR will perform well. Accordingly, the following are the main research questions established in this paper:

Does CIR have an impact on firm performance?

Does ESG practices have an impact on firm performance?

Does CIR have a moderating impact on the relationship between ESG and firm performance?

3. Research Method

The purpose of this research is to explore and document the extent and nature of CIR procedures amongst the Egyptian Stock Exchange highly active 100 companies (companies on EGX100 index). Additionally, the current research explores the impact of CIR on firm financial performance given some control variables. Moreover, the study investigates whether CIR has a moderating effect on the impact of ESG on corporate performance. EGX100 companies are selected as the market's most active listed corporations are likely to have a well-founded website containing information that is relevant to different stakeholders. This is owing to an aspiration to widen the range of possible interested parties to access overseas markets. Corporations in the sample of the current research have also greater likelihood of using CIR than other publicly traded organizations. This could be due to the company's bigger size, increased trading activity, stronger investor relations culture, and more resources. This section describes the research methods used to achieve this goal.

4.1) Sampling and Data Collection

In February 2019, the names of the sampled companies were acquired from the “Egyptian Company for Information Dissemination” (EGID) website (www.egidegypt.com). Several methods were utilised to assess whether or not the sample companies had a website in order to decrease the risk of missing any disclosures. One was able to determine if these firms had a website or not by consulting previous studies appendices² which was updated by looking for these companies names in common search engines on the internet as well as through Mubasher Egypt website (<https://english.mubasher.info>) by searching for each company profile page.

Using this approach, all 100 companies’ websites were located. Nevertheless, the necessary information was only collected for 96 companies; the final sample with usable websites. Because one of the companies’ websites wasn't operational while another company only had a web presence through its associated holding company’s website, these companies were removed from the sample. A further company was established in 2018 (no past year information) and another company was delisted in August 2019. **Table I** depicts the sample distribution by industry. The data was collected in March 2019. The CIR index for each firm is calculated in this study using information from the firms’ websites. The websites were revisited in June 2019 to ensure their validity and no updates to the websites of the companies were discovered. Since the internet is featured by being dynamic and continuously updated (Basuony et al., 2020; Matuszak and Rozanska, 2020), the websites were revisited after a short period (three months) for the validity check. If the company website was not functioning, it was confirmed that it was still down until the end of February 2020.

² Previous studies were also referred to for corporate information regarding Reuters code and ISIN code. See, for example, Ezat and ElMasry (2008); Desoky (2009); and Samaha and Abdallah (2012). These codes were helpful when searching for companies’ data using websites such as: English.mubasher.info, www.egidegypt.com, egx.com.eg.

Table I: Sample Distribution by Industry

| Industry | Number of Companies |
|--|---------------------|
| Banks (BANKS) | 8 |
| Basic Resources (BR) | 6 |
| Chemicals (CHEM) | 5 |
| Construction and Materials (CM) | 10 |
| Financial Services Excluding Banks (FSEB) | 14 |
| Food and Beverage (FB) | 13 |
| Healthcare and Pharmaceuticals (HPH) | 2 |
| Industrial Goods and Services and Automobiles (IGSA) | 9 |
| Media (MD) | 1 |
| Oil and Gas (OG) | 1 |
| Personal and Household Products (PHP) | 4 |
| Real Estate (RS) | 12 |
| Retail (RT) | 1 |
| Technology (TECH) | 3 |
| Telecommunications (TELE) | 2 |
| Travel and Leisure (TL) | 5 |

4.2) Measuring Variables

4.2.1) CIR (Independent Variable) - The Composition of CIR Index

A content analysis approach is used in this study to quantify CIR on company websites. An additive and unweighted corporate internet disclosure index is constructed to avoid subjectivity associated with assigning weights which may lead to false results (Marston and Polei, 2004). A checklist compiled and adapted from previous web-based disclosure literature³ was adopted consisting of 148 items to measure the CIR for each EGX100 company. According to FASB (2000), there are two dimensions that characterize CIR; “content” and “presentation”. In a literature review by Khan and Ismail (2011), it is also found that content and presentation are popular dimensions, in prior research⁴, to represent the level of CIR and consequently recommended their use to comprise any disclosure index of CIR. Therefore, following previous literature, three disclosure indices are used as measures of CIR: TCIR is the total score,

³ Research consulted includes: Ahmed et al. (2017), Al-Sartawi and Reyad (2018), Aly et al. (2010), Ezat and Elmasry (2008), Kelton and Yang (2008); Marston and Polei (2004) and Samaha et al. (2012).

⁴ The following studies also used a “content” score and a “presentation” score: Nagarajah and Alagathurai (2021), Yassin and Alkhatib (2019), Alebrahim (2018), Alsartawi (2018), Kelton and Yang (2008), and Debreceeny et al. (2002).

which includes all 148 gathered items, and is separated into two parts; the Internet Content (CCIR) score and the Internet Presentation Score (PCIR).

The CCIR score (99 items) analyses the type of information disclosed by firms on their websites, which is subdivided into four varied classifications, specifically:

- (i) Accounting and financial information (41 items);
- (ii) Corporate governance information (26 items);
- (iii) Corporate social and environmental responsibility information (13 items); and
- (iv) Investors relations information (19 items).

Because online disclosure is supposed to provide stakeholders with both recent and historical information to better monitor business performance, the content score differentiates between present and previous years' information.

The presentation style items evaluate how well certain web technologies are used as well as internet benefits to add value to the online published material (Ettredge et al., 2002) and evaluate the websites' usability. A total of 49 items make up the PCIR score. It features, among other things, using text-only format, the option of searching when browsing the website, a "sitemap", a "Help section", a link to an "investor relations" service, and the usage of a variety of file types. The above items are divided into two groups:

- (i) Technological features (14 items);
- (ii) Information relating to accessibility (convenience and usability) (35 items).

The CIR index is calculated for all EGX100 companies by assigning one point to any of the 148 items that are present on the company's website based on binary approach which means that, companies who reported an item on the checklist received a 1, while those that did not disclose an item received a 0. A given item may be disclosed more than once on a company's website in some cases. To avoid double counting, the researcher grants only one point to this item in this scenario (Cooke, 1989). It is taken for granted that all objects are of equal importance. As a result, the total score is derived as the sum of the individual item scores, which is evenly weighted.

Accordingly, each company's index was determined by dividing the company's total earned points by the total maximum potential scores. This strategy is employed because it is simple to understand and produces results that are consistent with past research. The CIR index was then applied to the sampled organisations that disclosed information through their webpages. The CIR index is calculated using the formula shown below:

$$CIR = \sum_{i=1}^n \frac{d_i}{n}$$

where CIR is the Corporate Internet Reporting index, d_i equals 1 if the item is disclosed and 0 otherwise, n equals maximum score that can be obtained by each company. The information gathered from the companies' websites was subsequently summarized and analysed.

To improve the index's reliability, all conceivable efforts were made in its creation, including the following methods. First, to construct elements for the index, a thorough evaluation of existing research was conducted. Items are all adapted from previous research with particular emphasis on studies applying on Egyptian companies. Second, a "Cronbach's coefficient alpha" test was conducted to assess the consistency of the CIR attributes. "Cronbach's coefficient alpha" measures how much the connection between the CIR attributes has weakened due to the random error (Cronbach, 1951). Despite the fact that Bryman (2008) contends that this value should be 0.8 or higher and that judgement could be made in the matter, 0.6 or above is frequently cited as an acceptable threshold for this measure (Sekaran, 2003). The "Cronbach's coefficient alpha" test gave TCIR, CCIR, and PCIR scores of 0.959, 0.968, and 0.941, meaning that the disclosure index outcomes are appropriately internally consistent; no company is penalised for failing to reveal any of the items on the checklist.

Furthermore, the CIR for 30 EGX100 companies chosen at random was scored by two unbiased academic raters to determine the validity of the disclosure index. The scores of the independent raters were then compared to the researcher's published scores in this study. The Pearson's correlation matrix between the scores of the independent raters and those published in

this study was significantly correlated (p-value 0.01), which indicates that they were highly valid⁵.

4.2.2) ESG (independent variable)

ESG refers to environmental, social and governance practices by a company. Being listed on “S&P/EGX ESG Index” is used as a proxy for ESG variable. ESG is a dummy variable taking the value of 1 if the company is a constituent in the “S&P/EGX ESG Index”, 0 otherwise. Data about companies included in the “S&P/EGX ESG Index” was obtained from the “Egyptian Institute of Directors” (EIoD)⁶. This variable measures environmental practices of the company, social practices of the company as well as corporate governance measured by various corporate governance mechanisms including: ownership structure as well as board and management structure. This measurement is used following Ahmed (2018).

4.2.3) Performance Indicator (dependent variable)

As a proxy for firm performance, prior CIR literature used either accounting-based performance measure or market-based performance measure. These measures included: stock price, stock return, firm value (Tobin’s Q), earnings per share (EPS), return on equity (ROE) and return on assets (ROA). However, the majority of previous CIR studies used

⁵ On request, the author can provide the checklist of elements utilized to develop the online reporting measures.

⁶ “The Environment, Social and Governance” (ESG) Index for Egyptian listed companies was constructed by the “Egyptian Institute of Directors” (EIoD), “Egyptian Corporate Responsibility Centre” (ECRC) and “Standard & Poor’s” (S&P). It is employed as a proxy to determine ESG. To develop this index, S&P and the EGX use nine criteria namely: “ownership structure and shareholder rights, financial and operational information, board and management structure and process, corporate governance and corruption, business ethics and corporate responsibility, environment, employees, community, and customers/product”. For each of the sampled companies, two scores must be calculated in order to arrive at the overall score: (i) Quantitative Score – each of the EGX companies is given a numerical ranking based on three factors: transparency and disclosure of (1) corporate governance, (2) environmental practices, and (3) social practices, and (ii) Qualitative Score – independent sources of information (i.e. news stories, websites, and CSR filings) are used to assess the actual EGX companies performance on a scale of 5 to 1. Finally, each company’s overall score is produced by adding the qualitative and quantitative scores. The first 30 firms in the “S&P/EGX ESG Index” were chosen after these scores were ranked across all EGX listed companies. The EGX created the “S&P/EGX ESG Index” in March 2010 with the goal of improving the openness and disclosure policies of listed firms in terms of corporate governance and CSR activities. In the Middle East, this index is the first of its type. This index is reviewed and updated annually.

market-based measures as a proxy for firm performance. For example, Hussein and Nounou (2021), Trabelsi et al. (2014) and Hunter and Smith (2009) used stock prices. Nagarajah and Alagathurai (2021), Hussein and Nounou (2021), Sia et al. (2018), Alsartawi (2018), Pinto and Picoto (2016), Ahmed et al. (2015) and Duque and Pinto (2008) used company value. Hussein and Nounou (2021), Yassin and AlKhatib (2019), Ahmed et al. (2015) and Ettredge et al. (2002) used stock return.

ROA was used by Nagarajah and Alagathurai (2021), Alebrahim (2018) and Alsartawi (2018) in studying the impact of CIR on corporate performance. Alsartawi (2018) also used ROE and EPS. Since there is scarcity in prior studies studying CIR impact on performance using accounting-based performance methods, in particular, ROA, and no study is found applying on Egypt, then this research measures firm performance in terms of profitability, in specific, ROA. ROA measures how successful an organization is with respect to its total assets and demonstrates how effectively management is employing the company's total assets to generate profit. ROA is also used in literature studying impact of ESG on firm performance such as: Danso et al. (2019), Secinaro et al. (2020), Alareeni and Hamdan (2020), van Emous et al. (2021). Research argues that ROA significantly influence stock prices (Sukesti et al., 2021). Therefore, ROA is considered more comprehensive and is chosen as a measure of company performance following prior literature. Besides, a single measure of company performance is used; ROA, for fear of creating multicollinearity problem due to correlation between different measures. Moreover, to avoid endogeneity bias, van Emous et al. (2021) methodology is followed by lagging this dependant variable.

4.2.4) Control Variables

Several studies used control variables to gauge relationships with company performance. There is no consensus in prior literature on the set of control variables. However, a number of common variables are found to impact firm performance. These variables include corporate size, leverage, liquidity, industry sector and growth.

Sia et al. (2018) find that size and growth has positively significant association with firm value with leverage having a negative significant association. Alsartawi (2018) further finds that size and industry sector has

positive significant association with ROA but failed to find an association in relation to leverage. Hussein and Nounou (2021) also failed to find a significant impact of leverage or growth on performance. Alareeni and Hamdan (2020) in their study of ESG practices impact on performance find that firm size and growth have positive significant impact on ROA implying that larger size and growth enhances firm operational performance. They also find that leverage has significant positive association with firm profitability in terms of ROE. Secinaro et al. (2020), Saygili et al. (2021) and van Emous et al. (2021) find positive significant influence of company size on ROA. It is argued that larger firms tend to perform better than smaller ones due to their ability to attract different stakeholders (Hussein and Nounou, 2021). In Addition, Saygili et al. (2021) find that leverage is significantly correlated with ROA and Secinaro et al. (2020) find that firm growth is positively correlated with firm performance. Khan et al. (2021) further find that leverage impacts firm performance. Ahmed et al. (2015) find that liquidity has a significant positive relationship with firm performance. However, Ahmed (2018) find significant negative correlation between liquidity and ROA.

Following previous research, this study controlled for some variables that are likely to influence the results to ensure robustness of the study. Again, following prior literature, multiple control variables are included to reduce the threat of endogeneity and to reduce the effect of omitted variables (van Emous et al., 2021; Saygili et al., 2021). These variables are: company size, leverage, liquidity, growth and industry sector. Firm size is measured as logarithm of total market capitalisation (van Emos et al., 2021; Yassin and Alkhatib, 2019; Samaha and Abdalla, 2012). Leverage is calculated as total liabilities divided by total equity (Saygili et al., 2021; Ahmed, 2018). Liquidity is calculated by current ratio (Amin et al., 2020; Yassin and Alkhatib, 2019; Ahmed et al., 2015). Growth is calculated as log of one plus firm's growth in book value of equity (Ahmed, 2018).

The data for dependent and control variables utilised in this paper were gathered from a variety of sources. These include websites such as "Egyptian Stock Exchange" (EGX) website and its publications, Thomson Reuters database, the "Egyptian Company for Information Dissemination" (EGID), Corporate Information website, Mubasher Egypt in addition to

each company's webpage. Companies were found by using EGX's company code (Reuters Code) along with their names.

According to a search of the relevant literature, there are few studies in Egypt that look at business financial performance in relation to CIR. As a result, the target of this study is to look into the association between CIR and company performance (ROA as proxy) in Egyptian listed companies. The study will also examine the association between being listed on "S&P/EGX ESG Index" and ROA. Specifically, it examines whether or not firms are rewarded, for practicing CIR combined with being socially and environmentally responsible, with a better firm performance. In specific, it investigates whether CIR has any moderating role in the relationship between ESG and ROA. The definitions/measurement schemes of the various variables are given in **Table II**. The relationships between ESG, CIR, the selected firm characteristics and ROA will be subsequently explained.

Table II: Description of Dependent, Independent and Control Variables

| Variable | Abbreviation | Description |
|---|--------------|--|
| Dependent Variables: | | |
| Financial Performance (Profitability) | ROA | Annual Return on Assets (Net Income/Average total Assets) |
| Independent Variables: | | |
| | ROA (-1) | Annual Return on Assets-Lag 1 year |
| Corporate Internet Reporting | TCIR | The total disclosure score is measured as the percentage of the actual score awarded to the maximum possible score. Total score for the 148 items. |
| Corporate Internet Reporting-Content | CCIR | Total score for the 99 content items to the maximum possible score |
| Corporate Internet Reporting-Presentation | PCIR | The total score for the 49 presentation items to the maximum possible score |
| S&P/EGX ESG index | ESG | A dummy variable taking the value of 1 if the company is a |

| | | |
|---------------------------|---|--|
| | | constituent in the S&P/EGX ESG Index, 0 otherwise |
| Control Variables: | | |
| Size | LNSIZE | Natural Logarithm of Market Capitalization |
| Industry Type | CHEM, PHP, BANKS, FSEB, FB, IGSA, CM, BR, RS, HPH, TL, TELE, TECH, OG, MD, RT | The EGX sector indices classification |
| Leverage | LEVERAGE | The annual ratio of total liabilities to total owners' equity |
| Liquidity | LIQUIDITY | Annual Current Ratio |
| Equity Growth | BVG | Log of 1 plus Firm's growth in book value of equity per share (5Y) |

4.3) Hypotheses Development

A brief theoretical background is put forward before developing the hypotheses. Previous literature referred to a number of theories to explain the implementation of voluntary corporate disclosure in general and corporate internet reporting in particular, and its impact on corporate performance, in addition to explaining the relationship between ESG and firm performance. These include the following main theories; agency theory, signalling theory, resource-based view theory and stakeholders theory.

Agency theory is utilized when there is a conflict between two parties, for example, managers and stakeholders. This conflict may result due to managers favouring their own interests when conducting corporate operations at the expense of the interests of any other interested parties and the interest of improving the firm performance (Jensen and Meckling, 1976). Adopting CIR reduces the agency problem as disclosing over the internet in a timely manner reveals that the firm is more accountable and more transparent (Alsartawi, 2018). As a firm discloses more information online, this leads to more trust from stakeholders in that the firm is adequately operated. This in turn reduces monitoring and agency costs as well as costs associated with information asymmetry, resulting in improved performance in the long run (Hussein and Nounou, 2021; Alsartawi, 2018). Findings of several studies supports agency theory in explaining the impact

that CIR has on firm performance either using market-based measures (Hussein and Nounou, 2021) or ROA (Nagarajah and Alagathurai, 2021; Alsartawi, 2018). Agency theory also advocates that larger and highly leveraged companies perform better.

It is also argued that according to agency theory, environmental, social and corporate governance practices lead to reduction in costs, thus, reducing agency costs and conflicts. This leads to increase in stakeholders and market confidence and the company is said to have a competitive advantage which leads to increase in sales and revenues which in turn leads to better profitability (Secinaro et al., 2020). Khan et al. (2021) indicates support for agency theory in explaining impact of corporate governance practices on firm performance.

According to signalling theory, adoption of CIR may be seen as a ‘signal’ of good news (Khlifi, 2021) and competitive advantage (Hussein and Nounou, 2021). Using the internet to convey information to stakeholders might give a signal to stakeholders that this company is advanced, modernised and of high quality (Sia et al, 2018). Moreover, disclosing information that could be otherwise not observed by stakeholders could be a signal of company commitment to transparency and to reducing information asymmetry (Matuszak and Rozanska, 2020). Managers must disclose information to attract more investors and customers. The result of which will be reflected in better performance for the company (Alsartawi, 2018). Similarly, good ESG practices can provide signals to different stakeholders that this company is responsible environmentally and socially which might enhance stakeholders’ confidence where the end result would be better performance. The arguments of the signalling theory are supported in the literature (Hussein and Nounou, 2021; Khlifi, 2021; Nagarajah and Alagathurai, 2021; Sia et al., 2018).

Information is an important resource to a company (Sia et al., 2018). Resource-based view theory explains that how well a company utilises its resources explains how well it performs. According to resource-based theory, any valuable strategic resource to the company can be a source of competitive advantage which can, in return, influence its performance (Danso et al., 2019). Information disclosed on the internet might be a primary source of profit for the company (Sia et al., 2018). CIR reveals a

good image of the company and positively impacts its reputation. It also allows faster decision making by stakeholders and reduces capital costs due to reduced information asymmetry (Sia et al., 2018). Moreover, it is argued that, regarding corporate governance, board members bring valuable resources to the company in the form of skills, diversity, expertise, information, relations and legitimacy which all reduce uncertainty (Khan et al., 2021). This all ends in better performance. Resource-based view theory is supported by Khan et al. (2021) and Sia et al. (2018).

Stakeholders theory focuses on meeting stakeholder expectations that are key to the survival of the organisation (Amin et al., 2020; Secinaro et al., 2020). It indicates that CIR and good ESG practices may maximise corporate contribution to economy for the benefit of all stakeholder groups (Saygili et al., 2021). Gangi et al. (2021) supports stakeholder theory in explaining the impact of ESG on corporate performance. CIR balance the interest of stakeholders. This article predicts that companies included on the “S&P/EGX ESG index” and with a high level of CIR will have stronger performance based on empirical and theoretical literature. Accordingly, in this study, the following hypotheses are established:

H1. There is a positive association between CIR and ROA of Egyptian listed companies.

H1a. There is a positive association between TCIR and ROA of Egyptian listed companies.

H1b. There is a positive association between CCIR and ROA of Egyptian listed companies.

H1c. There is a positive association between PCIR and ROA of Egyptian listed companies.

H2. There is a positive association between ESG and ROA of Egyptian listed companies.

H³. There is a positive association between ESG*CIR and ROA of Egyptian listed companies.

H3a. There is a positive association between ESG*TCIR and ROA of Egyptian listed companies.

H3b. There is a positive association between ESG*CCIR and ROA of Egyptian listed companies.

H3c. There is a positive association between ESG*PCIR and ROA of Egyptian listed companies.

4.4) Regression Model

The model used in this study is adapted from prior literature. A single measure of company performance is used; ROA, for fear of creating multicollinearity problem due to correlation between different measures. Moreover, this dependant variable is lagged following van Emous et al. (2021) to avoid endogeneity bias. The regression model below was created in order to evaluate the hypotheses. CIR and ESG are used as independent variables and the corporate characteristics such as company size, industry type, liquidity, financial leverage and book value growth as control variables.

$$ROA = \beta_0 + \beta_1 (ROA(-1))_i + \beta_2 TCIR_i + \beta_3 CCIR_i + \beta_4 PCIR_i + \beta_5 ESG_i + \beta_6 ESG*TCIR_i + \beta_7 ESG*CCIR_i + \beta_8 ESG*PCIR_i + \beta_9 LNSIZE_i + \beta_{10} LEVERAGE_i + \beta_{11} LIQUIDITY_i + \beta_{12} BVG_i + \beta_{13} INDUSTRY_i + \varepsilon$$

A cross sectional regression is used to create this model. Normality, autocorrelation, heteroscedasticity, and multicollinearity are among the classical assumptions that must be met. The data gathered is subsequently examined and summarised. The analysis findings are given and discussed in the next section.

4. Results and Analyses

5.1) Descriptive Statistics

Results showed that 99 of the 100 corporations surveyed had accessible websites. This is an improvement since Elhelaly and Mohamed (2014) reported 36 out of the 100 companies listed on EGX100 having operating websites. Moreover, another improvement is realised; 100 percent of the 99 companies engaged in some sort of CIR as opposed to 29% engaging in CIR reported by Elhelaly and Mohamed (2014). As previously stated, the amount of CIR is determined by dividing each company's total score by the maximum likely score. In general, the CIR level had a maximum score of 148 items, with the "content" dimension contributing 99 items and the "presentation" dimension contributing 49. The data in **Table III** reveal that TCIR, CCIR, and PCIR levels differed by industry type. The Banks (BANKS) industry had the greatest total CIR (TCIR) at 49 percent, while

the Travel and Leisure (TL) industry had the lowest at 34 percent⁷. The statistics, on the other hand, demonstrate that the general level of TCIR was 44%, and it is deemed a *reasonable/moderate* level of disclosure by Egyptian businesses.

An examination of the websites of the sample EGX100 firms reveals the following: all sample companies (96 companies) provide a Corporate Profile. 17 of the 96 enterprises with websites do not give any financial reports for the current or preceding financial years, whether these reports are annual or interim, whereas 23 provide an English version of the annual report. 93 companies launch an investor relations section. Regarding corporate governance guidelines and principles, 59 companies provide related information with only one company not providing information regarding ownership structure and BOD information. 50 companies disclose Corporate Social Responsibility (CSR) policies from which 38 have a separate CSR page. From those, 11 only disclose a separate CSR/Sustainability standalone report. However, numbers of companies vary regarding disclosing individual items of CSR but are rather scarce. With regard to presentation, 43 companies provide videos, audio, graphics or diagrams. However, only 21 provide a “one-click” to get to financial information or “press releases” with 35 having an internal search engine. All companies but one provide a printing friendly format.

Table III: Level of Corporate Internet Reporting

| Industry | N | TCIR | | CCIR | | PCIR | |
|--|----|------|------|------|------|------|------|
| | | Mean | SD | Mean | SD | Mean | SD |
| Banks (BANKS) | 8 | 0.49 | 0.10 | 0.54 | 0.11 | 0.38 | 0.11 |
| Basic Resources (BR) | 6 | 0.39 | 0.06 | 0.45 | 0.08 | 0.29 | 0.05 |
| Chemicals (CHEM) | 5 | 0.39 | 0.05 | 0.47 | 0.07 | 0.24 | 0.03 |
| Construction and Materials (CM) | 10 | 0.42 | 0.08 | 0.48 | 0.10 | 0.30 | 0.05 |
| Financial Services Excluding Banks (FSEB) | 14 | 0.48 | 0.10 | 0.55 | 0.11 | 0.34 | 0.09 |
| Food and Beverage (FB) | 13 | 0.40 | 0.11 | 0.45 | 0.14 | 0.29 | 0.08 |
| Healthcare and Pharmaceuticals (HPH) | 2 | 0.53 | 0.10 | 0.59 | 0.16 | 0.40 | 0.04 |
| Industrial Goods and Services and Automobiles (IGSA) | 9 | 0.47 | 0.17 | 0.53 | 0.21 | 0.35 | 0.13 |

⁷ Excluded from calculating highest average and lowest average, industries that have 3 or less companies.

| | | | | | | | |
|---------------------------------------|-----------|-------------|-------------|------------|-------------|-------------|-------------|
| Media (MD) | 1 | 0.39 | - | 0.47 | - | 0.22 | - |
| Oil and Gas (OG) | 1 | 0.53 | - | 0.63 | - | 0.33 | - |
| Personal and Household Products (PHP) | 4 | 0.45 | 0.18 | 0.53 | 0.21 | 0.30 | 0.15 |
| Real Estate (RS) | 12 | 0.42 | 0.11 | 0.47 | 0.13 | 0.32 | 0.08 |
| Retail (RT) | 1 | 0.43 | - | 0.52 | - | 0.27 | - |
| Technology (TECH) | 3 | 0.44 | 0.14 | 0.52 | 0.17 | 0.29 | 0.08 |
| Telecommunications (TELE) | 2 | 0.47 | 0.21 | 0.54 | 0.21 | 0.33 | 0.20 |
| Travel and Leisure (TL) | 5 | 0.34 | 0.14 | 0.39 | 0.18 | 0.23 | 0.06 |
| Total | 96 | 0.44 | 0.11 | 0.5 | 0.13 | 0.31 | 0.09 |

Except for financial information, according to this preliminary online analysis, CIR is not widely used among Egypt's most active trading firms. This suggests that Egyptian companies are still in the early phases of using the Internet to disseminate corporate information. The fact that CIR is still a voluntary activity in Egypt, with no institutional rules governing it, may explain the differences across the sample companies. As a result, businesses have complete control over the amount and type of information they make public on their websites.

Additionally, the descriptive statistics for dependent and control variables in **Table IV** shows that ROA ranges from -105.21 to 44.26, with a mean of 4.46. The standard deviation for ROA implies that sample companies vary in terms of their return on assets. Firm size, represented by market capitalization, ranges from 52.65 million to 122.24 billion and has a mean of 6.6 billion. Market capitalization normality distributions were skewed. As a result, in the regression analysis, the natural logarithm was utilised to decrease skewness and bring the distribution of the variable closer to normality. All other variables were tested for normality using Jarque-Bera test and were all found to be normally distributed.

Liquidity measure spans from 0.32 to 22.44, and the mean is 1.94. Furthermore, average leverage for the companies was around 91.63 percent, with a minimum of -536.4 percent, indicating a negative net worth or interest rates on loans larger than the return on investment, and a maximum of 2862.4 percent, indicating extremely high indebtedness. Because of the significant standard variation of Leverage, the sample companies had different levels of solvency. Book Value Growth ranges from -37.55 to 192.45 with a mean of 14.28.

Table IV: Descriptive Statistics for Dependent and Control Variables

| Variable | Maximum | Minimum | Mean | Standard Deviation |
|-----------|-----------------|------------|---------------|--------------------|
| ROA | 44.26 | -105.21 | 4.46 | 16.16 |
| SIZE | 122,240,300,000 | 52,650,000 | 6,556,694,155 | 14,482,208,763 |
| LNSIZE | 25.52925 | 17.77918 | 21.27548 | 1.761143 |
| LIQUIDITY | 22.44 | 0.32 | 1.94 | 2.81 |
| LEVERAGE | 2862.4 | -536.4 | 91.63 | 315.23 |
| BVG | 192.45 | -37.55 | 14.28 | 27.55 |

Note: 27 sampled companies are included in the "S&P/EGX ESG index"

5.2) Hypotheses Testing

Table V sums up the results of the study model's regression analysis. Since the value of "F test" is 6.623 and is significant at the 0.001 level, it is believed that the independent variables were accepted in the model and had an effect on the level of ROA, according to the Multiple Regression model using "ordinary least squares". The F-test is used to see if the dependent variable (ROA) and a subset of the independent variables have a linear relationship. The statistical significance of the regression model is supported by this finding. 41.5% ($R^2=41.5\%$) from the dependent variable (ROA) total variation is explained by these independent variables. The remaining percentage is due to the regression model's random error or other independent variables that were unaccounted for in the regression model.

Table (V): Multiple Linear Regression Model to Determine the Effect of Corporate Characteristics on ROA

| Variable | Coefficient | Std. Error | t-Statistic | Prob. | VIF. |
|--------------|-------------|------------|-------------|-----------|----------|
| D(ROA(-1)) | -0.451422 | 0.073883 | -6.109973 | 0.0000*** | 2.407390 |
| ESG | -7.540545 | 3.881013 | -1.942932 | 0.050* | 3.669400 |
| LIQUIDITY | 3.818545 | 1.457611 | 2.619729 | 0.010** | 4.850601 |
| LEVERAGE | -0.009937 | 0.017970 | -0.552982 | 0.5820 | 4.391540 |
| LNSIZE | 0.362073 | 0.326068 | 1.110423 | 0.2706 | 8.391071 |
| BOOK VALUE | | | | | |
| GROWTH (BVG) | 0.076731 | 0.046482 | 1.650788 | 0.1032 | 5.167037 |
| CHEM | 3.551829 | 3.123133 | 1.137265 | 0.2593 | 2.971684 |

| | | | | | |
|----------|-----------|----------|-----------|-----------|----------|
| PHP | -5.792771 | 2.665525 | -2.173219 | 0.0331* | 2.002300 |
| BANKS | -4.669190 | 1.561979 | -2.989278 | 0.0038** | 6.015917 |
| BR | -0.799846 | 2.121291 | -0.377056 | 0.7073 | 3.275488 |
| FSEB | 0.236881 | 1.528097 | 0.155017 | 0.8772 | 3.530716 |
| FB | -0.255746 | 1.815462 | -0.140871 | 0.8884 | 3.545890 |
| IGSA | -0.719999 | 2.048622 | -0.351455 | 0.7263 | 5.751513 |
| CM | 0.162696 | 1.826626 | 0.089069 | 0.9293 | 2.112999 |
| RS | -1.376349 | 1.973550 | -0.697397 | 0.4878 | 3.813889 |
| TL | -0.181193 | 3.436925 | -0.052720 | 0.9581 | 2.819583 |
| TCIR | 25.69928 | 13.99327 | 1.836545 | 0.0705 | 4.667630 |
| CCIR | -22.88895 | 10.88680 | -2.102450 | 0.0391* | 2.911250 |
| PCIR | -3.432846 | 10.89382 | -0.315119 | 0.7536 | 3.370850 |
| ESG*TCIR | -74.32538 | 18.05836 | -4.115844 | 0.0001*** | 4.688500 |
| ESG*CCIR | 52.20257 | 15.66161 | 3.333154 | 0.0014** | 4.139700 |
| ESG*PCIR | 47.30548 | 14.74357 | 3.208549 | 0.0020** | 3.053200 |
| C | -10.56402 | 5.779892 | -1.827720 | 0.0718 | NA |

R²=41.5%, F-test=6.623, sig=0.001***, RMSE=4.135, Jarque-Bera test=0.393941, sig=0.821215, BG (F-test)=2.3809, sig=0.0771, B-P (F-statistic)=1.11, sig=0.36, B-P (Obs*R-squared)=24.1, sig=0.34, B-P (Scaled explained SS)=11.88, sig=0.96, U=0.116, D-W=2.32, RESET (t-test, F-test, Likelihood ratio)=0.76, 0.57, 0.77, sig=0.45, 0.45, 0.38

$$D(\text{ROA}) = -0.45 * D(\text{ROA}(-1)) - 7.54 * \text{ESG} + 3.82 * \text{LIQUIDITY} - 0.01 * \text{LEVERAGE} + 0.36 * \text{LNSIZE} + 0.077 * \text{BVG} + 3.55 * \text{CHEM} - 5.79 * \text{PHP} - 4.67 * \text{BANKS} - 0.80 * \text{BR} + 0.24 * \text{FSEB} - 0.26 * \text{FB} - 0.72 * \text{IGSA} + 0.16 * \text{CM} - 1.38 * \text{RS} - 0.18 * \text{TL} + 25.70 * \text{TCIR} - 22.89 * \text{CCIR} - 3.43 * \text{PCIR} - 74.33 * \text{ESG} * \text{TCIR} + 52.20 * \text{ESG} * \text{CCIR} + 47.31 * \text{ESG} * \text{PCIR} - 10.56$$

In the regression model, determining the significant value of each individual independent variable's coefficient would be beneficial. The following are the most important independent variables in the model: D(ROA(-1)) and ESG*TCIR at a significant level less than 0.001; LIQUIDITY, BANKS, ESG*CCIR, ESG*PCIR at a significant level less than 0.01 and finally, ESG, PHP, CCIR at a significant level less than 0.05.

5.3) Validity

The data were tested for multicollinearity as part of the validity test, which included using the variance inflation factor (VIF). The more severe the multicollinearity is, the bigger the variance inflation factors are. This means that the higher the value of VIF for a particular variable, the greater the correlation of this variable with other variables. Multicollinearity,

according to some authors, is a concern if any variance inflation factor surpasses 10. The VIF scores in **Table V** reveal that no variable in the model has a score greater than ten. As a result, it was determined that there were no issues with collinearity. Therefore, the model does not suffer from the multicollinearity problem.

5.4) Residuals Normality, Correlation and Heteroskedasticity Tests

It is also important to validate the study model to check for normality and correlation of the residuals. To examine whether the residuals are normally distributed, the Jarque-Bera test is conducted resulting in a value of 0.3939 and significance value 0.821215. Since the significance value of the Jarque-Bera test statistic is ≥ 0.05 , then it can be confirmed that the observed errors are normally distributed.

As reported in **Table V**, the “Durbin-Watson (D-W)” value for the regression model is 2.32. The “Durbin-Watson (D-W)” test is used to identify whether autocorrelation is present in regression analysis prediction errors. The “Durbin-Watson” statistic value ranges from 0 to 4. A number near 2 indicates non-autocorrelation, while a value near 0 denotes a positive autocorrelation, and a number near 4 signifies a negative autocorrelation. As a result, it may be inferred that the model has no autocorrelation issues, i.e., residuals are not correlated. The Breusch-Godfrey Serial Correlation LM Test (BG) further confirms this finding. Since the significance value of the BG test statistic is greater than 0.05; 0.0771, then it can be concluded that there is no residuals sequential correlation.

By conducting the Heteroskedasticity Test: Breusch-Pagan-Godfrey (B-P) for the residuals values of the multiple regression model, it showed that the level of significance for the tests: F-statistic, Obs*R-squared, and Scaled explained SS, is greater than (0.05), which indicates the acceptance of the null hypothesis which provides for the Homoskedasticity of error term.

5.5) Accuracy of the Model

Theil's inequality coefficient (U) measures the accuracy of the estimates of the multiple linear regression model. It lies between zero and one, where zero indicates a perfect fit. Since its value is close to zero (0.12), it indicates the goodness of fit of the model, at a percent not less than 88%.

The "Ramsey Regression Equation Specification Error Test (RESET)" is a general linear regression model specification test. It looks at whether non-linear combinations of fitted values can aid in explaining the response variable. Since the significance of the values of the t-statistic, F-statistic, and Likelihood ratio test statistic is ≥ 0.05 , then H_0 ; the null hypothesis, would not be rejected: The functional form is correct; no omitted or missing variables. It can be concluded that any extra terms are statistically not significant and that the model is well specified.

5. Discussion

The next paragraphs summarise the actual outcomes based on the regression analysis findings. According to the findings, there is a substantial negative association between CCIR and ROA. This is inconsistent with Nagarajah and Alagathurai (2021) who find significant positive impact of content element of CIR on ROA. However, TCIR and ROA have a weak positive relationship, but PCIR and ROA have a weak negative relationship. Therefore, H1 can be rejected. This opposes the findings of Alsartawi (2018), who discovered a substantial positive relationship between ROA and CIR.

Contrary to most of the prior literature (e.g., Kyere and Ausloos, 2021; van Emous et al., 2021; Saygili et al., 2021 and Secinaro et al., 2020), findings show a substantial negative association between ESG and ROA. Thus, ESG has an adverse effect on firm performance rejecting H2. This is consistent, however, with Ahmed (2018). Being listed on "S&P/EGX ESG index" leads to a decrease in ROA by 7.5%. Although this finding is unusual and contradicts existing literature linking ESG practices to firm performance, it is consistent with arguments that firms face a compromise between ESG practices and financial achievements because companies involved in

socially and environmentally responsible activities will incur additional costs (McGuire et al., 1988).

However, when the impact of the interaction between CIR and ESG on ROA is tested, it is found that CIR is a moderating variable. ESG*TCIR has a substantial negative relationship with ROA, whereas ESG*CCIR and ESG*PCIR have a significant positive relationship with ROA. Introducing CIR in the relationship between ESG and ROA lead to reverse of the relationship.

The above results reveal support for agency theory in that being involved in environmental, social and corporate governance practices, combined with adopting a high level of CIR (content, presentation), leads to reduction in relevant costs (agency, monitoring, and information asymmetry costs) resulting in an increase in stakeholders and market trust which increases corporate performance at the end. This is consistent with Nagarajah and Alagathurai (2021), Khan et al. (2021), Secinaro et al. (2020) and Alsartawi (2018). The above also reveals support for stakeholders theory in that the company is balancing the interests of various stakeholders, consistent with Gangi et al. (2021).

Combined together, ESG and CIR results agree with the signalling theory that higher Content of CIR and better Presentation of CIR for ESG companies provide signals to various stakeholders that the company is committed to transparency and to reducing information asymmetry in addition to that it is responsible environmentally and socially, resulting in better performance. Good companies adopt CIR in a way that entice stakeholders to deal with it which in turn results in higher profitability. This result is in line with prior literature that find support for signalling theory in explaining the positive impact of CIR on firm performance (e.g., Hussein and Nounou, 2021; Khlifi, 2021; Alsartawi, 2018).

Findings also support resource-based view theory in that information is a valuable resource for a company and that the company managed this resource, in addition to resources provided by the board members (e.g., skills, diversity, experience), in a way that resulted in better performance (higher profitability). This is consistent with Khan et al. (2021) and Sia et al. (2018).

Relating to the control variables, a link between ROA and the size of Egyptian listed companies is expected. A weak positive relationship is realised between the two variables. This contradicts most of the prior literature that finds a significant positive association between the firm size and its performance (e.g., Hussein and Nounou, 2021; Saygili et al., 2021; Secinaro et al., 2021; Alsartawi, 2018). Findings are also inconsistent with agency theory in terms of size impact on performance in that larger forms are expected to positively impact corporate performance.

With regards to liquidity, findings indicated a significant positive relationship between this characteristic and ROA. This is also in line with Ahmed et al. (2015). However, this study was unable to uncover a link between leverage and ROA consistent with Hussein and Nounou (2021) and Alsartawi (2018) but inconsistent with Khan et al. (2021) and Alareeni and Hamdan (2020). Furthermore, the results demonstrated a significant negative association between ROA and both types of industries; PHP and BANKS. As shown in **Table V** above, and inconsistent with Alsartawi (2018), insignificant positive or negative associations are found between ROA and the rest of the industry sections. Lastly, results relating to growth impact show a positive yet weak relationship between Growth and ROA, but because the p-value was greater than 10%, this relationship was not supported in the present study. This is inconsistent with most of the prior literature that found significant positive association between firm growth and firm performance (e.g., Alareeni and Hamdan, 2020; Secinaro et al., 2020; Sia et al., 2018) but is consistent with Hussein and Nounou (2021) who failed to find support for such a relationship.

Therefore, surprisingly, it can be concluded that Egyptian listed companies' CCIR has a negative relationship with their performance. This relationship, however, was not supported with reference to TCIR and PCIR. On the other hand, liquidity, ESG*CCIR and ESG*PCIR of the EGX100 companies have positive significant associations with companies' performance. Surprisingly and contrary to expectations, being listed on "S&P/EGX ESG index", being a Personal and Household Products company or a Bank and ESG*TCIR have a negative significant association with performance.

In summary, the results of the current study reveal that CIR for Egyptian companies has an indirect impact on ROA and this is consistent with agency theory, stakeholders theory and resource-based view theory. Findings also indicate that CIR supports signalling theory where managers of good companies choose a strategy for disclosure; internet disclosure, that improves firm profitability which is not the case for bad companies which end up in poor performance.

6. Conclusion

The goal of this current paper is to look into and report on the degree of CIR among Egyptian publicly traded companies. The current study also intends to explore the influence of CIR on the performance of Egyptian listed companies, as measured by ROA. This relation is further measured in conjunction with whether the company is listed on “S&P/EGX ESG index” as denoted by ESG and in relation with some control variables (i.e. size, liquidity, leverage, industry type, and growth). Although many factors influence performance, this research investigates if CIR is a moderating variable in the relationship between the dependent (ROA) and independent (ESG) variables. The findings of this article make a significant addition by filling a gap in the literature, since there is a dearth in research that addresses this type of interaction.

The data was gathered from the websites of 96 companies listed on EGX100. Furthermore, the study used other corporate information websites to obtain additional financial data that was not available on the companies’ websites. To calculate the entire level of online disclosure, a checklist was adapted from previous CIR work. The index took into account the “content” as well as the “presentation” dimensions of websites and online reporting. The overall extent of CIR in Egypt by Egyptian listed companies is 44 percent, according to this research.

The results of the current study reveals that Egyptian corporations are using the world wide web as a reporting media, although the scope of online reporting is still limited, with significant differences among the sample enterprises. Results showed that 99 of the 100 corporations surveyed had accessible websites. This is an improvement since Elhelaly and Mohamed (2014) reported 36 of EGX100 having operating websites. Moreover,

another improvement is realised; 100 percent of the 99 companies engaged in some sort of CIR as opposed to 29% engaging in CIR reported by Elhelaly and Mohamed (2014). CIR practice, on the other hand, differs greatly in terms of the depth and quantity of data given on websites. The lack of established norms for CIR practices in Egypt may be to blame for the disparities in CIR policies, with enterprises having discretion over what to reveal and what not to disclose on their websites.

Regression analysis was undertaken to look into the relation between CIR and firm profitability among companies included in the sample, given some control variables and in association with ESG. Based on the results, companies listed on “S&P/EGX ESG index” achieve significant low performance, findings also indicate that online reporting has a significant negative influence on ROA in terms of content (CCIR); a high level of CCIR leads to low performance. On the other hand, findings demonstrate that ESG combined with high level of TCIR leads to significant low performance while ESG combined with either CCIR or PCIR leads to significant high performance. This reveals that CIR is a moderating variable. No significant effect is found for size, leverage or growth on ROA. With regard to industry classifications, only PHP and BANKS are significantly negatively associated with ROA. Moreover, LIQUIDITY is positively associated with profitability.

In line with prior literature, results show support for agency theory regarding the content and presentation of CIR (ESG*CCIR, ESG*PCIR). Support is also found for stakeholders theory and resource-based view theory. Moreover, findings are also consistent with signalling theory in that managers of ESG companies adopt CIR in a way to entice stakeholders and increase firm profitability. The findings of the study suggest that managers engage in CIR not only to justify their compensation but also to gain confidence of different stakeholders which will enhance or maintain their profitable positions.

This research makes a number of significant contributions. It adds to the empirical literature on the impact of CIR on the performance of enterprises. Moreover, CIR impact is examined in combination with ESG practices to study CIR role as a moderating variable. ESG is used, in this paper, as a comprehensive measure covering environmental, social and corporate

governance practices. In addition, this relationship is examined in a new context that is not well presented in the literature, notably Egypt. Furthermore, firm performance, contrary to most of the prior literature, is measured in terms of profitability, in specific, ROA.

A better understanding of the relationship between CIR and firm performance can be beneficial theoretically and practically. Theoretically, the current paper adds to the body of knowledge on ESG and CIR, and their impact on corporate performance. Moreover, ESG includes three variables together which is environmental practices, social practices and corporate governance practices. The study also includes details on the “content” and “presentation” of online corporate information (CCIR and PCIR, respectively) for EGX100 companies which can be used as a benchmark when studying developing countries practices. In specific, the study added evidence on the effect of the interaction between ESG and CCIR, PCIR on firm profitability, in particular, ROA. This all may provide researchers with a relevant base for further research.

On practical grounds, the results of this research may assist Egyptian policy setters in developing guidelines for CIR. Understanding the impact of ESG and CIR on firm performance, will help regulators make necessary changes to the disclosure rules in order to encourage Egyptian companies to adopt CIR as well as ESG activities. Corporate managers may also recognise the necessity of enhanced information disclosure processes as a result of their impact on performance.

Consequently, the current study suggests that the Egyptian Stock Exchange maintain a written official requirement for CIR in order to achieve consistency in the disclosure of information via the worldwide web and to improve the “content” and “presentation” of financial as well as non-financial information published on company webpages. Firms themselves, especially socially and environmentally responsible companies, should consider increasing their online reporting as the results of this paper signifies that responsible companies with a high CIR have a higher chance of improving their performance.

Despite the above contributions, and like any other study, this research has a number of limitations. One of the most important limitations is the

sample size as it comprises only EGX100 companies as compared to all Egyptian listed companies. This of course limits the general applicability of the results. In addition, this study is cross-sectional and not longitudinal. Moreover, the use of unweighted disclosure index also limits the study results. Weighted index maybe gives more insights as importance of items are relative for different stakeholders. In addition, not all influencing variables are considered where some variables that might have an impact on firm performance could be missing. In addition, ESG is measured using “S&P/EGX ESG Index” with no specific measures for different environmental, social activities as well as corporate governance mechanisms. However, no academic research can address all variables as empirical research is based on abstraction. Furthermore, “Goodness of Fit” tests indicate that the model of this study is well-specified and is good enough to represent the data and be tested.

Future research could benefit from in-depth interviews with different stakeholders investigating their perceptions concerning potential usefulness from embracing CIR. This would provide a broader perspective and a better knowledge of the subject. Furthermore, more research might be done to confirm and expand on the findings of this paper through, for example, increasing the sample size, using a weighted CIR index, having more proxies for performance, expand control variables (e.g., legal form-private, public or governmental, profit orientation-profit versus non-profit organisations), replacing ESG variable with specific environmental and social practices and corporate governance mechanisms, and undertaking the study over time (longitudinal study) which could help to better investigate the phenomenon.

7. References

- AbuGhazaleh, N. M.; Qasim, A. and Haddad, A. E. (2012b) “Perceptions and Attitudes Toward Corporate Website Presence and its Use in Investor Relations in the Jordanian Context”, *Advances in Accounting*, incorporating *Advances in International Accounting*, 28 (1): 1-10.
- AbuGhazaleh, N. M.; Qasim, A. and Roberts, C. (2012a) “The Determinants of Web-Based Investor Relations Activities by Companies Operating in Emerging Economies: The Case of Jordan”, *The Journal of Applied Business Research*, 28 (2): 209-226.
- Ahmed, A. H. (2018) “Are Corporate Social and Environmental Responsibility, Firm Performance and Value Mutually Exclusive? Evidence from Egypt”, *Journal of Accounting Research*, Faculty of Commerce, Tanta University, Egypt.
- Ahmed, A. H.; Burton, B. M. and Dunne, T. M. (2017) “The Determinants of Corporate Internet Reporting in Egypt: An Exploratory Analysis”, *Journal of Accounting in Emerging Economies*, 7 (1): 35-60.
- Ahmed, A. H.; Mardini, G. H.; Burton, B. M. and Dunne, T. M. (2018) "Is Internet Reporting Useful? Evidence from Egypt", *Journal of Applied Accounting Research*, 19 (4): 574-591.
- Ahmed, A. H.; Tahat, Y. A.; Burton, B. M. and Dunne, T. M. (2015) “The Value Relevance of Corporate Internet Reporting: The Case of Egypt”, *Advances in Accounting*, incorporating *Advances in International Accounting*, 31 (2): 188–196, December.
- Alareeni, B. A. and A. Hamdan (2020) “ESG Impact on Performance of US S&P 500-Listed Firms”, *Corporate Governance*, 20 (7): 1409-1428.
- Alebrahim, N. (2018) “Corporate Internet Reporting, Firm Characteristics, Corporate Governance and Firm Financial Performance of Saudi Listed Companies”, *Unpublished PhD Thesis*, University of Plymouth, UK.
- Al-Hayale, T. (2010) “Financial Reporting on the Internet in the Middle East: The Case of Jordanian Industrial Companies”, *International Journal of Accounting and Finance*, 2 (2): 171-191.
- Al-Htaybat, K. (2011) “Corporate Online Reporting in 2010: A Case Study in Jordan”, *Journal of Financial Reporting and Accounting*, 9 (1): 5-26.

- Al-Htaybat, K.; Alberti-Alhtaybat, L. and Abed-Hutaibat, K. (2011) “Users’ Perceptions on Internet Financial Reporting Practices in Emerging Markets: Evidence from Jordan”, *International Journal of Business and Management*, 6 (9): 170-182.
- Allam, A. and Lymer, A. (2003) “Developments in Internet Financial Reporting: Review and Analysis across Five Developed Countries”, *International Journal of Digital Accounting Research*, 3 (6): 165-199.
- Alsartawi, A. M. (2018) “Online Financial Disclosure and Firms’ Performance: Evidence from the Gulf Cooperation Council Countries”, *World Journal of Entrepreneurship, Management and Sustainable Development*, 14 (2): 178-190.
- Alsartawi, A. M. and Reyad, S. (2018) “Signaling Theory and the Determinants of Online Financial Disclosure”, *Journal of Economic and Administrative Sciences*, 34 (3): 237-247.
- Alsartawi, A.; Hamdan, A.; Subry, M. and Imad, A. (2013) “The Effect of Audit Committees on Earnings Management ‘Empirical Study on Manufacturing Listed Companies before the International Financial Crisis’”, *An-Najah University Journal for Research – Humanities*, 27 (4): 819-846.
- Aly, D.; Simon, J. and Hussainey, K. (2010) “Determinants of Corporate Internet Reporting: Evidence from Egypt”, *Managerial Auditing Journal*, 25 (2): 182-202.
- Amin, H. M. G. and Mohamed, E. K. A. (2016) “Auditors’ Perceptions of the Impact of Continuous Auditing on the Quality of Internet Reported Financial Information in Egypt”, *Managerial Auditing Journal*, 31 (1): 111-132.
- Amin, M. H.; Mohamed, E. K. A. And A. Elragal (2020) “Corporate Disclosure via Social Media: A Data Science Approach”, *Online Information Review*, 44 (1): 278-298.
- Antweiler, W. and Frank, M. Z. (2004) “Is All That Talk Just Noise? The Information Content of Internet Stock Message Boards”, *The Journal of Finance*, 59 (3): 1259-1294.
- ArabSalehi, M. and Velashani, M. A. B. (2009) “Financial Reporting Gap in Developing Countries: The Case Study of Iran”, *Middle Eastern Finance and Economics*, 3: 77-88.
- Ashbaugh, H.; Johnstone, K. M. and Warfield, T. D. (1999) “Corporate Reporting on the Internet”, *Accounting Horizons*, 13 (3): 241-257.

- Basuony, M. A. K. and Mohamed, E. K. (2014) “Determinants of Internet Financial Disclosure in GCC Countries”, *Asian Journal of Finance and Accounting*, 6 (1): 70-89.
- Basuony, M. A. K.; Mohamed, E. K. A.; Elragal, A. and K. Hussainey (2020) “Big Data Analytics of Corporate Internet Disclosures”, *Accounting Research Journal*, <https://doi.org/10.1108/ARJ-09-2019-0165>
- Beattie, V. and Pratt, K. (2003) “Issues Concerning Web-Based Business Reporting: An Analysis of the Views of Interested Parties”, *The British Accounting Review*, 35 (2): 155-187.
- Berg, A. and Capaul, M. (2004) “Egypt - Report on the Observance of Standards and Codes (ROSC) - Corporate Governance Country Assessment (English)”, Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/110881468233681903/Egypt-Report-on-the-Observance-of-Standards-and-Codes-ROSC-corporate-governance-country-assessment>
- Bowrin, A. R. (2015) “Comprehensiveness of Internet Reporting by Caribbean Companies”, *Journal of Accounting in Emerging Economies*, 5 (1): 2-34.
- Bryman, A. (2008) *Social Research Methods*, 3rd Ed., USA: Oxford University Press.
- Cooke, T. E. (1989) “Disclosure in the Corporate Annual Reports of Swedish Companies”, *Accounting and Business Research*, 19 (74): 113-124.
- Craven, B. M. and Marston, C. L. (1999) “Financial Reporting on the Internet by Leading UK Companies”, *European Accounting Review*, 8 (2): 321-333.
- Cronbach, L. J. (1951) “Coefficient Alpha and the Internal Structure of Tests”, *Psychometrika*, 16: 297 – 334.
- Dahawy, K. and Samaha, K. (2010) “An Investigation of the Views and Perceptions of External Users of Corporate Annual Reports in Emerging Economies: The Case of Egypt”, *International Journal of Accounting and Finance*, 2 (3-4): 331–367.
- Dahawy, K.; Merino, B. D. and Conover, T. L. (2002) “The Conflict between IAS Disclosure Requirements and the Secretive Culture in Egypt”, *Advances in International Accounting*, 15: 203–228.

- Danso, A.; Adomako, S.; Amankwah- Amoah, J.; Owusu-Agyei, S. and R. Konadu (2019) “Environmental Sustainability Orientation, Competitive Strategy and Financial Performance”, *Business Strategy and the Environment*, 28: 885–895. <https://doi.org/10.1002/bse.2291>
- Debreceny, R.; Gray, G. L. and Rahman, A. (2002) “The Determinants of Internet Financial Reporting”, *Journal of Accounting and Public Policy*, 21 (4/5): 371-394.
- Desoky, A. M. (2009) “Company Characteristics as Determinants of Internet Financial Reporting in Emerging Markets: The Case of Egypt”, *Research in Accounting in Emerging Economies*, 9: 31-71.
- Desoky, A. M. and Mousa, G. A. (2013) “The Impact of Firm Characteristics and Corporate Governance Attributes on Internet Investor Relations: Evidence from Bahrain”, *International Journal of Business and Emerging Markets*, 5 (2): 119-147.
- Duque, J. and Pinto, I. (2008) “Regulatory Disclosure Via the Internet: Does it Make Financial Markets More Efficient?”, *Journal of Regulatory Economics*, 33: 5-19.
- Dutta, P. and Bose, S. (2007) “Web-based Corporate Reporting in Bangladesh: An Exploratory Study”, *The Cost and Management*, 35 (6): 29-45 (November-December).
- EFSA (2012) “Decision No. 15 Regarding Amending Listing and Delisting Rules”, *Egyptian Financial Supervisory Authority*: www.fra.gov.eg/content/efsa2_en/decisions_en/dec15_en.
- EGX (2008) “The Annual Report”, *The Egyptian Exchange*, Cairo, available at: www.egx.com.eg/en/Services_Reports.aspx
- EGX (2009) “The Annual Report”, *The Egyptian Exchange*, Cairo, available at: www.egx.com.eg/en/Services_Reports.aspx
- EGX (2012) “The Annual Report”, *The Egyptian Exchange*, Cairo, available at: www.egx.com.eg/en/Services_Reports.aspx
- EGX (2019) “The Annual Report”, *The Egyptian Exchange*, Cairo, available at: www.egx.com.eg/en/Services_Reports.aspx
- Elhelaly, M. and Mohamed, E. K. A. (2014) “A Survey of Internet Financial Reporting in Egypt”, *International Journal of Accounting and Financial Reporting*, 4 (1): 70-83.
- Ettredge, M.; Richardson, V. and Scholz, S. (2002) “Dissemination of Information for Investors at Corporate Web Sites”, *Journal of Accounting and Public Policy*, 21: 357-369.

- Ezat, A. and El-Masry, A. (2008) “The Impact of Corporate Governance on the Timeliness of Corporate Internet Reporting by Egyptian Listed Companies”, *Managerial Finance*, 34 (12): 848-867.
- FASB (Financial Accounting Standard Board) (2000) Electronic Distribution of Business Reporting Information, Business Reporting Research Project, Available at: <https://www.fasb.org/brrp/brrp1.shtml>
- Fawzy, S., (2003) “The Evaluation of Corporate Governance Principles in Egypt”, *The Egyptian Centre for Economic Studies (ECES)*, Working Paper (82), In Arabic.
- Fisher, R. T. and Naylor, S. T. (2016) "Corporate Reporting on the Internet and the Expectations Gap: New Face of an Old Problem," *Accounting and Business Research*, 46(2): 196-220, February.
- Galama, J. T. and B. Scholtens (2021) “A Meta-Analysis of the Relationship Between Companies’ Greenhouse Gas Emissions and Financial Performance”, *Environmental Research Letters*, 16 (4): 043006, April.
- Gangi, F.; D’Angelo, E.; Daniele, L. M. and N. Varrone (2021) “The Impact of Corporate Governance on Social and Environmental Engagement: What Effect on Firm Performance in the Food Industry?”, *British Food Journal*, 123 (2): 610-626.
- Gowthorpe, C. (2004) “Asymmetrical Dialogue? Corporate Financial Reporting via the Internet”, *Corporate Communications: An International Journal*, 9 (4): 283-293.
- Gowthorpe, C. and Amat, O. (1999) “External Reporting of Accounting and Financial Information via the Internet in Spain”, *European Accounting Review*, 8: 365-371.
- Hanafi, R. (2006) “An Exploration of Corporate Social and Environmental Disclosure in Egypt and the UK: A Comparative Study”, *Unpublished PhD thesis*, Glasgow University, UK.
- Hansen, J. V. (2001) “Internet Commerce Security: Issues and Models for Control Checking”, *The Journal of the Operational Research Society*, 52 (10): 1159-1164.
- Hassan, O. A. G.; Romilly, P.; Giorgioni, G. and Power, D. (2009) “The Value Relevance of Disclosure: Evidence from the Emerging Capital Market of Egypt”, *The International Journal of Accounting*, 44 (1): 79–102.

- Henchiri, J. E. (2011) “Voluntary Web-Based Disclosures by Moroccan and Tunisian Companies”, *EuroMed Journal of Business*, 6 (2): 155-173.
- Hodge, F. D.; Kennedy, J. J. and Maines, L. A. (2004) “Does Search Facilitating Technology Improve the Transparency of Financial Reporting?”, *The Accounting Review*, 79 (3): 687–703.
- Hunter, S. A. and Smith, L. M. (2009) “Impact of Internet Financial Reporting on Emerging Markets”, *Journal of International Business Research*, 8 (2): 21-40.
- Hussein, A. and G. Nounou (2021) “The Impact of Internet Financial Reporting on Egyptian Company’s Performance”, *Journal of Financial Reporting and Accounting*, Vol. ahead-of-print No. <https://doi.org/10.1108/JFRA-10-2020-0293>
- Internet World Stats (2018) Internet Usage Statistics, Available at: www.internetworldstats.com/stats.htm (Accessed on 20 February 2019).
- Jensen, M. and W. Meckling (1976) “Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure”, *Journal of Financial Economics*, 3 (4):305-360.
- Jones, M. J. and Xiao, J. Z. (2003) “Internet Reporting: Current Trends and Trends by 2010”, *Accounting Forum*, 27 (2): 132-165.
- Kelton, A. S. and Yang, Y. -W. (2008) “The Impact of Corporate Governance on Internet Financial Reporting”, *Journal of Accounting and Public Policy*, 27 (1): 62-87.
- Khan, M. N. A. A. and Ismail, N. A. (2011) “The Use of Disclosure Indices in Internet Financial Reporting Research”, *Journal of Global Business and Economics*, 3 (1): 157-173.
- Khan, M. T.; Al-Jabri, Q. M. and N. Saif (2021) “Dynamic Relationship Between Corporate Board Structure and Firm Performance: Evidence from Malaysia”, *International Journal of Finance and Economics*, 26 (1): 644–661, January.
- Khlifi, F. (2021) “Re-Examination of the Internet Financial Reporting Determinants”, *EuroMed Journal of Business*, <https://doi.org/10.1108/EMJB-10-2020-0115>
- Kyere, M. and M. Ausloos (2021) “Corporate Governance and Firms Financial Performance in The United Kingdom”, *International Journal of Finance and Economics*, 26 (2): 1871–1885, April.

- Larrán, M. and Giner, B. (2002) “The Use of the Internet for Corporate Reporting by Spanish Companies”, *The International Journal of Digital Accounting Research*, 2 (1): 53-82.
- Lodhia S. and Stone G. (2017) “Integrated Reporting in an Internet and Social Media Communication Environment: Conceptual Insights”, *Australian Accounting Review*, No. 80, 27 (1): 17-33.
- Lymer, A. and Tallberg, A. (1997) “Corporate Reporting and The Internet – A Survey and Commentary on the Use of the WWW in Corporate Reporting in the UK and Finland”, *20th Annual Congress of the European Accounting Association*, Graz, Austria, April 23-25.
- Marston, C. and Polei, A. (2004) “Corporate Reporting on the Internet by German Companies”, *International Journal of Accounting Information Systems*, 5: 285-311.
- Matuszak, L. and E. Rozanska (2020) “Online Corporate Social Responsibility (CSR) Disclosure in the Banking Industry: Evidence from Poland”, *Social Responsibility Journal*, 16 (8): 1191-1214.
- McGuire, J. B.; Sundgren, A. and Schneeweis, T. (1988) “Corporate Social Responsibility and Firm Financial Performance”, *Academy of Management Journal*, 31 (4): 854–872.
- Mokhtar, E. S. (2017) “Internet Financial Reporting Determinants: A Meta-Analytic Review”, *Journal of Financial Reporting and Accounting*, 15 (1): 116-154.
- Nagarajah, B. and A. Alagathurai (2021) “Corporate Internet Reporting and Firm Performance: Evidence from Banks, Diversified Financial, and Insurance firms in Sri Lanka”, *Proceedings of the 10th International Conference on Management and Economics (ICME)*, University of Ruhuna, Sri Lanka, 2nd September.
- Nawang, D.; Che Alias, C. N. B. B.; Fairuz, F. N. B. M. and H. B. Abdul Rahim (2020) “The Impact of Corporate Governance on Internet Reporting in Asian Countries”, *IEBMC 2019 9th International Economics and Business Management Conference*, European Proceedings of Social and Behavioural Sciences EpSBS, <https://doi.org/10.15405/epsbs.020.12.05.12>
- Nguyen, N. P. and S. Adomako (2021) “Environmental Proactivity, Competitive Strategy, and Market Performance: The Mediating Role of Environmental Reputation”, *Business Strategy and the Environment*, 30: 2008–2020. <https://doi.org/10.1002/bse.2729>

- Nguyen, T. H.; Vu, Q. T.; Nguyen, D. M. and H. L. Le (2021) “Factors Influencing Corporate Social Responsibility Disclosure and Its Impact on Financial Performance: The Case of Vietnam”, *Sustainability*, 13 (15): 8197-8212.
- Oyelere, P. and Kuruppu, N. (2012) “Voluntary Internet Financial Reporting Practices of Listed Companies in the United Arab Emirates”, *Journal of Applied Accounting Research*, 13 (3): 298-315.
- Pinto, I. and Picoto, W. N. (2016) “Configurational Analysis of Firms’ Performance: Understanding the Role of Internet Financial Reporting”, *Journal of Business Research*, 69 (11): 5360-5365.
- Rahman, M. Z.; Msadek, S.; and Waly, H. (2002) “Egypt, Arab Republic - Report on the Observance of Standards and Codes (ROSC) - Accounting and Auditing (English)”, Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/589181468023039456/Egypt-Arab-Republic-Report-on-the-Observance-of-Standards-and-Codes-ROSC-accounting-and-auditing>
- Rowbottom, N. and Lymer, A. (2009) “Exploring the Use of Online Corporate Sustainability Information”, *Accounting Forum*, 33 (2): 176-186.
- Samaha, K. and Abdallah, S. (2012) “Further Evidence on Web-Based Corporate Disclosures in Developed Versus Developing Countries: A Comparative Analysis of Nature and Determinants in Egypt and the United Kingdom”, *International Journal of Disclosure and Governance*, 9 (2): 148-180.
- Samaha, K. and Stapleton, P. (2009) “Firm Specific Determinants of the Extent of Compliance with International Accounting Standards in the Corporate Annual Reports of Companies Listed on the Egyptian Stock Exchange: A Positive Accounting Approach”, *Afro-Asian Journal of Finance and Accounting*, 1 (3): 266-294.
- Samaha, K.; Dahawy, K.; Abdel-Meguid, A. and Abdallah, S. (2012) “Propensity and Comprehensiveness of Corporate Internet Reporting in Egypt: Do Board Composition and Ownership Structure Matter?”, *International Journal of Accounting and Information Management*, 20 (2): 142-170.
- Samaha, K.; Dahawy, K.; Stapleton, P. and Conover, T. (2009) “Progressing Egypt towards Convergence with IFRS: An Agenda for

- Future Research”, *Journal of Current Research in Global Business*, 12 (18): 54-65.
- Sanad, Z. and Alsartawi, A. (2016) “Investigating the Relationship between Corporate Governance and Internet Financial Reporting (IFR): Evidence from Bahrain Bourse”, *Jordan Journal of Business Administration*, 12 (1): 239-269.
 - Saygili, A. T.; Saygili, E. and A. Taran (2021) “The Effects of Corporate Governance Practices on Firm-Level Financial Performance: Evidence from Borsa Istanbul Xkury Companies”, *Journal of Business Economics and Management*, 22 (4): 884-904.
 - Secinaro, S.; Brescia, V.; Calandra, D.; and B. Saiti (2020) “Impact of Climate Change Mitigation Policies on Corporate Financial Performance: Evidence-Based on European Publicly Listed Firms”, *Corporate Social Responsibility and Environmental Management*, 27:2491–2501. <https://doi.org/10.1002/csr.1971>
 - Sekaran, U. (2003) *Research Methods for Business: A Skill-Building Approach*, USA: John Wiley & Sons, Inc.
 - Sia, C. J.; Brahmana, R. and Memarista G. (2018) “Corporate Internet Reporting and Firm Performance: Evidence from Malaysia”, *Contemporary Economics*, 12 (2): 153-164.
 - Sukesti, F.; Ghozali, I.; Fuad, F.; Almasyhari, A. and N. Nurcahyono (2021) “Factors Affecting the Stock Price: The Role of Firm Performance”, *Journal of Asian Finance, Economics and Business*, 8 (2): 165-173.
 - Trabelsi, S.; Debreceny, R. and Limer, A. (2014) “An Empirical Examination of Corporate Websites as a Voluntary Disclosure Medium”, *International Journal of Applied Decision Sciences*, 7 (1): 1-32.
 - Turrent, G. C. B. and Ariza, L. R. (2012) “Corporate Information Transparency on the Internet by Listed Companies in Spain (IBEX35) and Mexico (IPYC)”, *International Journal of Digital Accounting Research*, 12: 1-37.
 - van Emous, R.; Krusinskas, R. and W. Westerman (2021) “Carbon Emissions Reduction and Corporate Financial Performance: The Influence of Country-Level Characteristics”, *Energies*, 14 (19): 6029-6048.

- Wang, Y.; Li, C.; Khan, M. A.; Li, N. and R. Yuan (2021) “Firm Information Disclosure Environment and R&D Investment: Evidence from Internet Penetration”, *PLoS ONE*, 16 (3): 1-20, March.
- Xiang, Y. and J. L. Birt (2021) “Internet Reporting, Social Media Strategy and Firm Characteristics – An Australian Study”, *Accounting Research Journal*, 34 (1): 43-75.
- Xiao, J. Z.; Yang, H. and Chow, C. W. (2004) “The Determinants and Characteristics of Voluntary Internet-Based Disclosures by Listed Chinese Companies”, *Journal of Accounting and Public Policy*, 23 (3): 191-225.
- Yassin, M. M. and E. Al-Khatib (2019) “Internet Financial Reporting and Expected Stock Return”, *Journal of Accounting, Finance & Management Strategy*, 14 (1): 1-28, June.
- Zadeh, F. N.; Salehi, M. and Shabestari, H. (2018) "The Relationship between Corporate Governance Mechanisms and Internet Financial Reporting in Iran", *Corporate Governance: The International Journal of Business in Society*, 18 (6): 1021-1041.
- Zakeya, S. and Alsartawi, A. M. (2016) “Investigating the Relationship between Corporate Governance and Internet Financial Reporting (IFR): Evidence from Bahrain Bourse”, *Jordan Journal of Business Administration*, 12 (1): 239-269.

العلاقة بين تقارير الشركات عبر الإنترنت وبين أداء هذه الشركات: أدلة من جمهورية مصر العربية

رشا حنفي

مدرس المحاسبة - كلية التجارة، جامعة القاهرة

البريد الإلكتروني: rasha.hanafi@foc.cu.edu.eg

ملخص البحث:

تهدف هذه الدراسة الى فحص العلاقة بين تقارير الشركات عبر الانترنت (CIR) و أداء الشركات في مصر. على وجه التحديد، تبحث الدراسة فيما إذا كان CIR له اي تأثير كمتغير محفز (وكثيرا ما يستخدم في إطار الكتابات العربية تحت اسم المتغير الوسيط Moderating Variable) في العلاقة بين ممارسات الشركة البيئية و الاجتماعية و في مجال حوكمة الشركات (ESG) كمتغير مستقل، وبين أداء الشركة المالي والذي تم قياسه من خلال معدل العائد على الأصول (ROA) كمتغير تابع. ولتحقيق أهداف البحث، تم استخدام عينة تتكون من ٩٦ شركة مدرجة في مؤشر EGX100 (المائة شركة الاكثر نشاطا في سوق الاوراق المصرية). لاختبار فرضيات البحث، تم استخدام نموذج انحدار المربعات الصغرى العادية ordinary least square regression.

تشير النتائج إلى وجود ارتباط سلبي كبير بين CCIR (درجة المحتوى content score) و ROA. مع ذلك، فإن TCIR (مجموع النقاط total score) و ROA لديهما علاقة إيجابية ضعيفة ولكن PCIR (درجة العرض التقديمي presentation score) و ROA لديهما علاقة سلبية ضعيفة. تم رفض H1. تظهر النتائج أيضاً وجود ارتباط سلبي كبير بين ROA و ESG. تم رفض H2. عند اختبار تأثير التفاعل بين CIR و ESG على ROA، وجد أن CIR هو متغير محفز (وسيط) moderating variable، فيما يتعلق بـ CCIR و PCIR. لذلك، يتم قبول H3b و H3c. تكشف النتائج عن دعم نظرية الوكالة agency theory، ونظرية الإشارات signaling theory، ونظرية الرؤية القائمة على الموارد resource-based view theory ونظرية أصحاب المصلحة stakeholders theory.

أصالة الورقة تكمن فيما يلي. إنها تضيف إلى الكتابات والادلة التجريبية حول تأثير CIR على أداء المؤسسات. علاوة على ذلك، تم فحص تأثير اقتران CIR مع ممارسات ESG لدراسة دور CIR كمتغير محفز (وسيط). كما تم استخدام ESG، في هذه الدراسة، كقياس شامل يغطي الممارسات البيئية والاجتماعية وحوكمة الشركات. بالإضافة إلى ذلك، تم فحص هذه العلاقة في بيئة جديدة لم يتم تقديمها بشكل جيد في الأدبيات، و هي بيئة الاعمال في مصر. علاوة على ذلك، يتم قياس أداء الشركة، على عكس معظم المؤلفات السابقة، من حيث الربحية، على وجه التحديد معدل العائد على الأصول ROA.