The determinants of corporate internet reporting in Egypt

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1. Introduction

The rapidly changing nature of the global business environment has meant that traditional paper-based annual reports have serious limitations and are becoming increasingly less timely, especially with the increase in geographic investor dispersion; they have thus become less useful for decision-making purposes (Ashbaugh et al., 1999; Debreceny et al., 2002). In the same context, Debreceny et al. (2002) indicated that: "Internet Financial Reporting (IFR) supports dynamic forms of presentation that are not available in the paper paradigm, such as direct user interaction with corporate databases and multimedia sound and video" (p. 372), a consequence of this is that: "the traditional paper-based reporting paradigm will continue to break down and move towards online reporting" (O'Kelly, 2000, p. 28). Furthermore, corporate scandals in the US and Europe leading to the failures and collapse of large corporations such as Enron, WorldCom and Parmalat, have badly undermined confidence in capital markets and provoked stakeholders to press for changes in disclosure practices (Turrent and Ariza, 2012; Ahmed, 2013). In order to restore confidence in financial reporting there has been a global call for more attention to be devoted to corporate governance matters, and international regulators and standard-setters have issued detailed regulations and codes relating to these issues (Turrent and Ariza, 2012; Ahmed, 2013). In this regard, it has been argued that: "effective communication with a company's shareholders and other stakeholders is a vital constituent of good governance" (Institute of Chartered Accountants in England and Wales (ICAEW), 1998, p. 1). This implies that disclosures and transparency are central pillars of good corporate governance practices. In a response to the critiques of extant financial reporting, there have been proposals for new reporting models for business. For example, *the 21st Century Annual Report* (ICAEW, 1998) outlined a list of 13 differences between the 'old' and the 'new' system of reporting. The richness, immediacy,

limitless access, interactivity and borderless nature of corporate information disseminated via companies' websites mesh well with the critiques of the current business reporting model (Beattie and Pratt, 2003). The implementation of these changes has become possible – and can be fuelled by – exploiting the possibilities made available by the internet as a communication medium (ICAEW, 1998) as it seems that the internet can play a vital role in achieving the needed development and change in business reporting (Larrán and Giner, 2002). In the same vein, Beattie (1999) concluded that one solution to the problems inherent in the current reporting model is to publicise corporate information via the internet to enhance the accessibility of that information to all interested parties. In addition, improved accessibility of corporate information disseminated via corporate websites fulfils one of the important requirements of good corporate governance – the equitable dissemination required to reduce the adverse effects of information asymmetry (Berk, 2001; Debreceny et al., 2002). In this regard, Gowthorpe (2004) indicated that: "internet reporting offers the potential to eliminate at least some elements of asymmetry" (p. 285).

The change towards a web-based reporting paradigm has been made feasible by a pronounced increase in the number of internet users over the past few years; in 1995 there were 44 million internet users across the world, but by the end of June 2014 this number had risen to more than 3 billion, representing 42.3% of the world's population (Internet World Stats, 2014). Consistent with this trend, Hindi and Rich (2010) concluded that the internet has become one of investors' most frequently used sources of information; however, as the supply of web-based investor relations information has risen, corporate users' demand for CIR has also increased (Debreceny et al., 2001).

Greater demand for web-based financial reporting, combined with an increase in the number of investors worldwide who are considered to be users or potential users of corporate information, has led to an increase in the number of market participants, which might itself

lead to greater market efficiency (Larrán and Giner, 2002). Furthermore, the ability of companies to provide more timely information has been enhanced, as distribution of information via websites can take place as soon as it is produced, further enhancing pricing efficiency (Larrán and Giner, 2002). The borderless nature of CIR practices also has the potential to "help listed companies to attract new shareholders, thus enabling companies to maintain a healthy demand for shares" (Craven and Marston, 1999, p. 324). Similarly, CIR practices might have an impact on the cost of capital, as relevant information about companies seeking international finance will be more accessible to global investors, reducing investment risk (Debreceny et al., 2002).

As different stakeholders have different needs for information (ICAEW, 2004), it is argued that the traditional paper-based annual reports cannot satisfy all. However, CIR "will allow multiple stakeholders to access precisely the information they want" (p. 17) and provide companies with the power to provide a menu of information to heterogeneous decision-makers (Ashbaugh et al., 1999). Furthermore, with CIR there is a potential: "to move away from a *one size fits all* model to forms of report customisation to suit a variety of different user needs" (Rowbottom and Lymer, 2009b, p. 31). Debreceny et al. (2002) argued that the presentation dimension made available via the internet enhances timeliness and promotes greater understandability of information presented via companies' websites. All in all, taking into account the potential of the internet as a reporting medium, CIR practices have the ability "to enhance the qualitative characteristics of disclosure" (Debreceny et al., 2002, p. 376), thereby enhancing the usefulness of that disclosure. In terms of the pervasiveness of CIR, Debreceny et al. (2002) stated that: "internet disclosure is of importance to securities regulators, accounting standards setters and to the broader accounting community" (p. 373).

The purpose of the present paper is to provide a detailed descriptive account of the most recent CIR practices amongst companies listed on the EGX and investigate the factors

that might affect companies' decisions to engage in such practices to improve our understanding of how this area of reporting activity is moving forward in developing nations such as Egypt. Given the dearth of knowledge and the relatively late pick-up of interest in on-line reporting in the developing world (Ahmed, 2013), as well as the specific political difficulties faced by the Arab nations of North Africa and elsewhere in recent years – often referred to as the "Arab-Spring" - the study is deliberately explorative in nature and focusses on the reporting years immediately prior to and following this period. The rest of the paper is structured as follows: Section 2 provide a brief outline of the institutional background on Egypt to put the study in its context. The extant literature on CIR is outlined in Section 3. The theoretical background is discussed in Section 4. The research methodology is revealed in Section 5. The results are reported in Section 6, while Section 7 concludes the paper.

2. Research Context – Egypt

2.1 Background

The Egyptian Stock Exchange (EGX) is one of the oldest in the world and the first to be established in the Middle East. Its history dates back to the 19th century and the 1883 establishment of the Alexandria Stock Exchange, followed in 1903 by the Cairo Stock Exchange. The branches are now directed by the same chairman and board of directors and electronically linked in order to facilitate real-time trading (Abdelsalam, 1999). The EGX has seen several structural changes since its inauguration which reflect the development of Egyptian economic policy. One of the major dimensions of the reforms launched in the 1990s was the reactivation of the capital market through the issuance of Capital Market Law (CML) No. 95 in 1992 (Azab, 2002). Consequently, market capitalisation grew exponentially from L.E. 5 billion in 1990 to L.E. 112 billion in 1999, with the number of listed companies

increasing from 627 in 1991 to 1,033 in 2000 (EGX, 2009).[1] By 2002, the EGX had become the second largest in absolute terms in the Middle East and North Africa, after Saudi Arabia, with a market capitalisation of L.E.122 billion.

The Egyptian Financial Supervisory Authority (EFSA) - formerly the Capital Market Authority - CMA[2] was a key public authority that derives judicial status via the supervision of the Ministry of Investment. The CMA, set up in 1992 via Capital Market Law 95/1992 was responsible for all law and executive regulations relating to investment matters until its replacement in 2009 by the EFSA which now exercises this authority. Of direct relevance to the present study, in July 2002[3] the CMA approved new listing rules that aimed to increase disclosure and governance quality among listed companies (ROSC, 2004)[4]. As a result of the strict enforcement of the listing and disclosure rules by the EGX, the number of listed companies decreased dramatically to 214 in 2014 compared with 1,151 in 2002. Despite the decrease in the number of listings, market capitalisation grew steadily reaching L.E. 768 billion in 2007, before falling dramatically to L.E. 474 billion in 2008 following the global financial crisis (EGX, 2008). The 2011 uprising had a disastrous impact on the EGX; the interruption to commercial activities and general civil unrest led to a prolonged closure of the EGX. By the end of 2011, the market had lost L.E.194 billion of its market capitalisation, as can be seen from Table 1; in January 2011 alone the market lost 21% of its value (EGX, 2012). In this context - and in an attempt by the EFSA and the EGX to encourage listed companies to set up a website and deliver corporate information online - the EFSA issued Decision No. 15 in 2012 which states that from March 2013 all companies listed on the EGX

[1] At the end of January 2015, the Egyptian Pound (L.E) was worth 0.1316 US dollars and 0.085 Pounds Sterling (CBE, 2015).
[2] The CMA was replaced by the Egyptian Financial Supervisory Authority by Law 10 (2009).
[3] Taking effect on August 1st, 2002.
[4] In terms of corporate governance issues, the rules require listed companies to have an audit committee, with the objective of strengthening corporate governance and enhancing financial reporting practices (ROSC, 2002). The most important development was seen to be the introduction of administrative penalties against non-complaint issuers (ROSC, 2002).

must publish annual and periodical financial statements on-line, along with explanatory notes as well as auditors' reports and other information specified by the EGX.

Insert Table 1 about Here

2.2 Choice of Research Site

Egypt was targeted for the present study as an emerging economy with a major influence on other countries in the Middle East as well as its traditionally strong relationships with the world's richest nations (Ahmed, 2013). In addition, Egypt recently confronted many challenges, before, during and following the uprising which led to President Mubarak's resignation in February 2011. Internet technology, together with Egyptians' demand for democracy and transparency fuelled the protests, as thousands of demonstrators joined together in several cities following an online campaign. Despite difficulties with communication technology at the height of the revolution, internet usage in Egypt has continued to increase dramatically, with 52.2% (44.5 million users) of the population having access to the internet in July 2014, compared to only 0.58% in 1999 (Ministry of Communications and Information Technology, 2014). This level of growth is directly relevant to the present study as it has been argued that:

> "…where general internet usage is more prevalent in a country, users will expect more company information to be placed on the internet. Similarly, firms will likely have higher IFR if they believe that there is a large internet audience" (Debreceny et al., 2002, p. 376).

The Egyptian economy was badly affected by the civil unrest, and so CIR practices might prove important in the economic re-building process by providing the detailed and timely information necessary to attract foreign investment. Finally in terms of the selection of Egypt as the empirical site, the EFSA has now obliged listed companies to set up a web presence and engage actively in CIR practices (EFSA, 2012), suggesting that the nation's

authorities take CIR's potential seriously. This decision could mark an important turning point towards the adoption of the internet as a communication channel by companies listed on the EGX and indeed set a precedent which other countries may follow. This recent decree adds to the timeliness of the present study. Furthermore, this decision may lead to greater visibility regarding Egyptian firms' financial positions, in turn (potentially) reducing foreign investors' uncertainty concerning the financial stability of these companies in a volatile political environment. Evidence such as that provided by this study regarding the impact of the Arab spring on disclosure behaviour - the paper deliberately focusses on the year before and year of the initial turmoil - is clearly important in this context in providing an indication of the upheaval's impact and the need for rebuilding this aspect of corporatee engagement.

3. Literature Review and Contribution

3.1 Extant Literature

In the last few years the use of the internet for disclosure purposes has created a great deal of debate among academics as well as professional bodies all over the world. Most companies in developed countries – and some in developing nations – have established websites to be used as a platform for disclosing financial and non-financial information. A sizeable academic and professional research literature on CIR has started to build up over the past few years (Gowthorpe, 2004). Early studies aimed to provide a descriptive account of companies' CIR practices. These studies typically provide an overview of such practices either on a single-country basis or across a range of countries. One of the earliest studies that investigated the potential of the internet for disseminating financial information was carried out by Louwers et al. (1996). The study aimed to examine the online reporting practices of the top 150 companies listed on the Fortune 500. The results showed that 97 of the sampled companies (65%) had accessible websites. Of these 97, 35 companies (36%) provided

complete annual reports online, 20 (21%) included parts or summaries of financial information, while the remaining 42 companies (43%) did not disclose any financial information on their web pages.

Other studies go a step further and investigate factors that might affect companies' decisions to engage in CIR practices. For example, Ashbaugh et al. (1999) investigated the adoption of the internet as a medium for communicating financial information using a sample of 290 non-financial companies identified by the Association for Investment Management and Research (AIMR[5]) between November 1997 and January 1998. The findings showed that 253 firms (87%) had an accessible web presence, while 37 companies (13%) had no web page at all. Of the 253 websites, 177 (70%) engaged in CIR practices. The results showed that larger and more profitable companies were more likely to exploit the potential of the internet for reporting purposes. Moreover, the study reported that firms engaging in CIR have reputations for excellent corporate reporting practices according to AIMR. In a similar time frame, Craven and Marston (1999) carried out a study to explore the proliferation of the internet amongst the UK Financial Times Stock Exchange (FTSE) 200 largest companies in 1998 for reporting purposes. The results indicated that 153 companies had accessible websites, while 109 of them disseminated some form of financial information. In addition, the study found that company size was positively associated with the extent of online reporting practices, while no relationship was found with regard to industry type. In two studies carried out in the late 1990s, Ettredge et al. (2001, 2002) examined CIR of US companies. The 2001 findings were in line with similar studies of this nature, but the 2002 study split the analysis to investigate the dissemination of both required and voluntary financial information on the web using a sample of 220 companies identified by the AIMR.

[5] AIMR is an association of analysts, comprised of the Institute of Chartered Financial Analysts and the Financial Analysts Foundation. AIMR's Corporate Communication Committee reviews and evaluates the corporate reporting practices of a selected group of publicly traded companies across 18 industries (Ashbaugh et al., 1999, p. 243).

The study also sought to identify determinants that might explain the variation of financial information provided on the web; in particular, the study explored the association between company size, performance, a company's access to the capital market, information asymmetry and the quality of traditional reporting practices. The findings revealed that the disclosure of mandatory items via companies' websites was significantly associated with size of the company and a proxy measure for information asymmetry, while the presence of voluntary items was associated with size, information asymmetry, demand for external capital and company's traditional disclosure practices. In Spain, Larrán and Giner (2002) examined the scope of CIR practices by exploring the reporting practices of a sample of 144 companies listed on the Madrid Stock Exchange. The study also investigated factors that might explain the variation in CIR practices amongst the sampled companies namely: company size; leverage, return on equity, listing overseas, and industry type. The results reported a significant association between the extent of online reporting and company size and listing overseas, while no relationship was found with respect to the remaining factors. Oyelere et al. (2003) undertook an exploratory study of the level of online reporting by all 229 companies listed on the New Zealand Stock Exchange at the end of 1998. The results of the multivariate analysis showed that firm size, liquidity, industrial sector and spread of ownership were significantly associated with online disclosure, while no relationship was found regarding profitability, internationalisation and leverage. Marston (2003) investigated CIR practices of top 99 listed Japanese companies in 1998 and examined the relationship between company size, profitability, industry type and listing status and the level of online reporting practices. The results indicated that company size was the only factor significantly associated with the existence of a website but the level of financial disclosure was not associated with size, while other factors did not seem to be significant.

The state of CIR practices in Germany was described in a study by Marston and Polei (2004). The study was carried out at two points in time (2000 and 2003) using an initial sample of the DAX 100. The study also examined the association between five factors (size, profitability, free float, systematic risk and foreign listing) and the extent of web reporting. The results of the multivariate analysis demonstrated that firm size was the only significant variable in both years, while, free float was significant but only for 2000 and listing overseas was positively related only for 2003 data. Abdelsalam et al. (2007) examined the comprehensiveness of online reporting practices of 110 companies listed on the London Stock Exchange (LSE). The study also sought to investigate the relationship between some corporate governance measures namely: director holding; director independence; CEO role duality and analyst following and the extent of CIR practices amongst the sampled companies. The findings reported a significant positive association between director independence and analyst following and CIR, while there was a negative relationship in respect of director ownership, major holding and CEO role duality. In terms of control variables, the results revealed that being in the manufacturing industry and size were the main positive determinants influencing the firm's decision to engage in CIR, whereas negative relationships were reported regarding profitability and high growth/intangibles. A later study by Kelton and Yang (2008) examined the association between some corporate governance characteristics and internet reporting practices using a sample of 284 US companies traded on the NASDAQ national market. All of the sampled companies were found to have a web presence, with 98% of the examined websites including an investor relations section providing some form of financial information. The results also revealed a positive association between a firm's engagement in internet reporting and weak shareholder rights; low percentage of block holder ownership; high percentage of independent directors; more diligent audit committee and audit committee financial expertise. In terms of control

variables, the results reported that the correlation between corporate governance and internet reporting varies with firm size. Boubaker et al. (2012) examined the determinants of online reporting practices of 529 French-listed firms in 2005. The results indicated that large firms, being audited by one of the Big4, ownership dispersion and operating in the IT industry are associated with extensive use of online reporting. A number of similar studies explored CIR practices in other developed countries. The findings were in line with similar studies of this nature and showed that CIR practices in developed countries are becoming the norm. Examples of these studies include: Sweden (Hedlin, 1999); Netherland (Lybaert, 2002); and Australia (Lodhia et al., 2004).

Furthermore, a number of studies have explored CIR practices elsewhere in the developing world. The findings are in line with similar studies of this nature and confirm that CIR practices in developing countries are still evolving. Examples of nations where these studies have taken place include: China (Xiao et al., 2004); South Africa (Barac, 2004); Jordan (Al-Htaybat and Napier, 2006); Oman (Mohamed et al., 2009); Turkey (Uyar, 2011); Argentina (Alali and Romero, 2012); Ghana (Agyei-Mensah, 2012); and the United Arab Emirates (Oyelere and Kuruppu, 2012). For example, Xiao et al. (2004) analysed factors affecting firms' decisions to engage in CIR practices and the level of this disclosure using a sample of the 300 largest Chinese listed companies. The findings also showed that legal person ownership, foreign listing, use of Big-5 (now Big-4[6]) international auditing firms, the proportion of independent directors and membership of the IT industry were the main positive factors affecting the firms' decisions to disclose financial information online, while a negative association was reported regarding government ownership. In Turkey, Uyar (2011) investigated the determinants of utilizing the internet by 44 companies listed on the Istanbul Stock Exchange (ISE) for corporate reporting. The results indicated that firms which are

[6] Until 2002, the Big 4 were the Big 5 accounting firms, in 2002, the firm Arthur Andersen was dropped from this list after the Enron scandal.

listed in the ISE Corporate Governance Index disclose significantly more information on corporate web sites. In addition, the results indicate that firm size and being listed in the Corporate Governance Index are significant explanatory variables for the total disclosure score on the corporate web sites, while industry and profitability are not. Similarly, in Argentina, Alali and Romero (2012) investigated the use and determinants of online reporting practices of 84 companies listed on the Buenos Aires Stock Exchange. They found that online reporting is a common practice of the sampled companies with 85.7% having a web presence. The results also revealed that size is positively associated with the extent of online reporting, while higher growth companies have lower levels of online reporting. In addition, the findings showed that profitability and leverage were found to be insignificant determinants of online reporting.

In Egypt studies include: Ezat and El Masry (2008); Desoky (2009); Aly et al. (2010), for example, Desoky (2009) examined the determinants of CIR of 88 listed Egyptian companies (between January and February 2008). The study aimed to evaluate such practice and empirically examine the relationship between some factors (size, profitability, industry type, legal form, leverage, liquidity risk and stock activity) and the level of internet reporting of the sample companies. The results of the statistical tests revealed that company size, profitability, and stock activity were the main variables to account for the engagement in online reporting, while no association was found regarding other variables. Similarly, Aly et al. (2010) investigated variables influencing firms' decisions to engage in online disclosure practices namely: size; profitability; leverage; liquidity; industry type; auditor size and foreign listing (between October 2005 and January 2006) using a sample of 62 non-financial firms listed on the Egyptian stock exchange. The results reveal that profitability, foreign listing and industry type were the only factors significantly associated with the extent of

internet reporting practices of the analysed companies, while other factors did not seem to be determinants of such practice.

3.2 Contribution

In general terms, the CIR literature indicates a growing adoption of the internet as a reporting medium especially in countries with a developed capital market. However - and in practice likely reflecting the turmoil in the region - few such studies of the Arab nations of the Middle East and North Africa have been conducted in the last five years, therefore meaning that the effects of the much higher rate of internet take-up in these nations (Ahmed, 2013) and the political crises themselves have not yet been reflected in the academic literature. The present study attempts to address this gap.

In particular, the analysis adds to the extant literature by focusing on CIR practices amongst non-financial companies listed on the EGX. Previous studies have failed to distinguish between financial and non-financial companies, with conclusions weakened in terms of their generalisability by the fact that accounting standards differ across these two groups in most nations. In addition, the disclosure index employed here represents one of the most comprehensive set of criteria used to measure CIR practices in either developed or developing nations and permits robust assessment of such practices amongst the sample firms.

The current study also adds to the literature by exploring the factors that influence companies' decisions to engage in on-line disclosure activity at two points in time. This is an important aim, taking into account the dynamic development of internet technology and the increasing demand for web-based investor relations information (Hindi and Rich, 2010). However, the key contribution of the research lies in its provision of the first detailed evidence regarding the impact of the various "Arab Spring" uprisings on early attempts to

develop CIR activity across the Middle East and North Africa. The internet service was badly disrupted after the revolutionary uprising in Egypt; governmental authorities ordered communications companies to cut off internet services following the start of the unrest; thus, web access in Egypt was affected and it took several months to return to normal (Lotan et al., 2011). Clearly, the practical effect of such upheaval and chaos might militate against growth in online financial reporting by listed firms and this is the context for the examination of 2010 and 2011 practices in Egypt that the current study provides.

4. Theoretical Background

4.1 Theories Explaining Voluntary[1] Disclosure

A number of theories have been used to explain why companies might engage in voluntary disclosure practices. These theories include: agency theory, signalling theory and cost-benefit analysis. In this regard, Marston and Polei (2004) suggested that "these theories also explain information disclosure via corporate websites" (p. 293). Agency theory is concerned with the conflict of interest arising from the separation between ownership and management (Craven and Marston, 1999). The conflict of interest leads to higher agency costs, including a decline in firm value and monitoring costs; to alleviate this problem, company management may voluntarily increase disclosure than is mandated to convince their shareholders that they are acting in accordance with the aim of enhancing shareholders' wealth (Watson et al., 2002; Marston and Polei, 2004). Signalling theory revolves around the idea that firms that are performing well have an incentive to distinguish themselves from those performing poorly (Craven and Marston, 1999) and it has been argued that "voluntary disclosure is one possible way to achieve this distinction" (Marston and Polei, 2004, p. 293). Moreover, the cost-benefit analysis is based on the idea that management will be engaging in voluntary disclosure if they perceive that the benefits of such practice outweigh the costs

(Gray et al., 1990; Marston and Polei, 2004). The aforementioned theories form the basis of the empirical analysis presented here. The seven factors that are believed to explain and affect companies' decisions to engage in CIR practices are outlined in the following subsections.

4.2 Company Size

The correlation between company size and the level of corporate disclosure has been investigated extensively, with almost all of the extant literature on corporate disclosure including this factor in their analyses (Bonsón and Escobar, 2006; Kribat et al, 2013). Theories explaining voluntary disclosure practices suggest that there might be a positive association between the extent of disclosure and size (Craven and Marston, 1999). In this context, larger companies are more visible in the capital market and in society in general, thus these companies are under greater pressure to provide more disclosure (Marston and Polei, 2004). In this regard, Watts and Zimmermann (1978) argued that larger firms are subject to higher political costs. Furthermore, Hossain et al. (1995) indicated that agency costs tend to increase as companies becoming larger in size. Kribat et al. (2013) argued that a demand for corporate disclosure could be expected with regard to larger firms. Oyelere et al. (2003) suggested that "as voluntary disclosure can reduce monitoring costs, a significant agency cost, one would expect to find greater disclosure among large firms relative to small firms" (p. 41). Pirchegger and Wagenhofer (1999) suggested that the costs of producing and disseminating corporate information via the internet tend to be unrelated to firm size; thereby the benefits of CIR are expected to increase with size. Evidence of a positive association between size and the extent of CIR in both developed and developing countries is contained in several studies, including: Ashbaugh et al., 1999; Craven and Marston, 1999; Ettredge et

al., 2001; Larrán and Giner, 2002; Marston, 2003; Abdelsalam et al., 2007; Kelton and Yang, 2008. Based on the preceding discussion, the study proposes the following hypothesis:

H1: A positive association exists between the extent of CIR amongst non-financial companies listed on the EGX and company size.

4.3 Profitability

Signalling theory hypothesises that companies with "good news" to disclose will have an incentive to signal this to the market by engaging in voluntary disclosures to distinguish themselves from other companies with poor performance (Larrán and Giner, 2002; Marston and Polei, 2004). A company's failure to provide such information will be interpreted as a negative signal. Furthermore, management of well performing companies is encouraged to provide more voluntary information to support their continuation and remuneration (Larrán and Giner, 2002; Oyelere et al., 2003). In contrast, less profitable firms might tend to "restrict access to accounting information to more determined users" (Craven and Marston, 1999, p. 323). The empirical evidence with regard to profitability is inconclusive; for example, Ashbaugh et al., 1999 found a positive relationship with disclosure levels, while Larrán and Giner, 2002; Marston, 2003; Oyelere et al., 2003; Marston and Polei, 2004; Kelton and Yang, 2008 found no relationship. Despite the mixed picture in the previous studies, the theoretical influence of profitability on CIR is clear and so, hypothesis 2 is formulated as:

H2: A positive relationship exists between the extent of CIR amongst non-financial companies listed on the EGX and profitability.

4.4 Leverage

Agency theory explains that highly leveraged companies are prone to higher agency costs (Jensen and Meckling, 1976). To alleviate this problem, these companies are more prone to voluntarily disclose more information to alleviate debtholders' worries about the ability of the company to pay back its obligations (Debreceny el al., 2002). In this context,

Debreceny et al. (2002) suggested that highly leveraged firms can use IFR "to mitigate the problems of high debt. IFR can allow debtholders to constantly and intricately monitor the affairs of the company" (p. 381). Prior CIR literature reports mixed results; for example, Aly et al., 2010 found a significant relationship, while Larrán and Giner, 2002; Oyelere et al., 2003 reported no association. Again, whilst the empirical evidence is equivocal, theory suggests that higher leverage will have a positive impact on CIR and hypothesis 3 is therefore formulated as:

H3: A positive relationship exists between the extent of CIR amongst non-financial companies listed on the EGX and leverage.

4.5 Liquidity

Highly liquid firms have an incentive to distinguish themselves from less solvent companies by means of voluntary disclosures (Oyelere et al. 2003). Moreover, liquid firms are encouraged to make this clear to stakeholders to alleviate any concern that those interested parties may perceive about the going concern status (Wallace and Naser, 1995). Oyelere and Kuruppu (2012) suggested that companies' decisions to have a web presence and engage in online reporting practices may by themselves indicate a sufficient level of liquidity and Oyelere et al. (2003) as well as Ezat and El-Masry (2008) reported a significant positive association. Given this context, the study proposes the following related hypothesis:

H4: A positive association exists between the extent of CIR amongst non-financial companies listed on the EGX and liquidity.

4.6 Auditor Type

Agency theory hypothesised that auditing helps to mitigate any conflicts of interest that exist between agents and shareholders (Xiao et al., 2004). Therefore, it is argued that companies with higher agency costs may try to alleviate this problem by employing one of the Big-4 international auditing firms (Giner, 1997). On the other hand, to maintain their

reputation, Big-4 audit firms have an incentive to protect their independence by means of extensive disclosure requirements and procedures, as they require their clients to provide greater transparency (Bonsón and Escobar, 2006). In this regard, Craswell and Taylor (1992) argued that there is an association between the auditor and the extent of disclosure the company is willing to provide. Xiao et al. (2004) suggested that "the Big-4 international audit firms are more likely to facilitate diffusion of innovative practices, including ICD" (pp. 200-201). Prior literature has not reached a definitive conclusion with respect to the association between CIR and auditor type. In particular, Xiao et al. (2004) documented higher levels for firms with a Big-4 auditor, while Kelton and Yang found no such evidence. Again, whilst extant analyses have provided mixed evidence, theoretical reasoning suggests that Big-4 presence promotes higher levels of disclosure, therefore hypothesis 5 takes the following form:

H5: CIR levels are higher amongst non-financial companies listed on the EGX that employ a "Big-4" auditor than those that do not.

4.7 Foreign Listing Status

In an attempt to lower their cost of capital, firms may try to secure a listing on foreign exchanges (Debreceny et al., 2002). Although listing abroad may bring some benefits including a potential reduction in the cost of capital, widening the investor base and improving the liquidity of listed shares (Debreceny et al., 2002; Larrán and Giner, 2002), companies are required not only to comply with the rules of their home country, but also those of the other exchanges where they are listed. Therefore, companies "have to make additional efforts in respect of investor relations, and be more proactive in its disclosure policy" (Larrán and Giner, 2002, p. 66). In this regard, Ashbaugh et al. (1999) argued that CIR allows companies to engage in more extensive disclosure practices in a timely and cost effective manner compared to paper-based financial statements. The literature again lacks

unequivocation; for example Larrán and Giner (2002), Xiao et al. (2004), and Abdelsalam and Street (2007) all report higher CIR levels amongst firms with an overseas listing, whereas Oyelere et al. (2003) found no evidence of an impact. Despite the mixed picture in the extant literature on CIR, the theoretical influence of listing abroad on CIR is apparent, accordingly, the study proposes the following hypothesis:

H6: CIR levels are higher amongst non-financial companies listed on the EGX that are also listed on a foreign exchange than those which are not.

4.8 Industry Type

It has been argued that companies belonging to the same industry try to adopt similar disclosure practices and if a company within a given sector does not comply with disclosure rules, this may send a bad signal to the market (Craven and Marston, 1999). With respect to CIR practices, Xiao et al. (2004) suggest that information technology companies are more likely than other companies to engage in CIR because of their expertise in the internet and these companies have incentives to signal their technology leadership by means of practicing CIR. For example, Microsoft is amongst the first companies in the world to adopt eXtensible Business Reporting Language (XBRL) (Xiao et al., 2004). However, the results of the extant literature revealed mixed results, for example, Marston (2003), Xiao et al. (2004), Abdelsalam et al. (2007), Desoky (2009) and Aly et al. (2010) reported a positive link, while Craven and Marston (1999), Larrán and Giner (2002) and Kelton and Yang (2008) found no evidence of this relationship. Hypothesis 7 is therefore formulated as:

H7: CIR amongst companies listed on the EGX is related to industrial sector.[7]

Table 2 provides a description of the dependent and independent variables.

Insert Table 2 about here

[7] Given the largely speculative nature of prior analyses in this area, specific inter-industry patterns were not hypothesised here.

5. Research Methodology

5.1 The Construction of the Disclosure Index

The first step in choosing the items to be included in the CIR index involved reviewing the disclosure literature, including those studies devoted to online reporting (e.g. Pirchegger and Wagenhofer, 1999; FASB, 2000; Debreceny et al., 2001; Marston and Polei, 2004; Xiao et al., 2004; Bollen et al., 2006; Abdelsalam et al., 2007; Aly et al., 2010). The second step took the form of a review of the country's disclosure regulations and requirements as well as visiting the sample companies' websites to review their current status and to get a detailed picture of CIR practices amongst companies listed on the EGX. The complete CIR index included 110 items and, as in several previous studies, was disaggregated across three main sections to allow for differences both in the level of provision and the determinants thereof; these were: content items (69); user support items (29) and presentation items (12).[2] The study used an un-weighted index, as is the case in most recent studies in the area.[3] Each company was therefore given a score of 1 if the item was present and a score of zero if not. The CIR index employed here is therefore considered to represent a comprehensive measure of CIR practices amongst non-financial companies listed on the EGX.

5.2 Sample Size and Data Collection

All of the 172 non-financial companies listed on the EGX in December 2010 were targeted for the present study. Because of delisting, one company of the initial sample had to be excluded in the 2011 sample. Financial companies were excluded as they are subject to different regulations and standards.[4] Multiple approaches were used to identify whether the sample companies have maintained a website or not, to reduce the possibility of missing any disclosures. Due to the dynamic development of internet technology,[5] the study sought to determine the extent of CIR practices amongst non-financial companies listed on the EGX at

two points in time – December 2010 and December 2011 – to highlight the changes that took place during this period. In December 2010, 137 of the sampled companies reported having a website, 17 of which proved to be inaccessible or under-construction. This meant that 120 (or 69.8%) of the sampled companies had usable websites; of these 120, 70 (40.7%) provided some kind of financial information via their websites. By December 2011, 141 of the sampled companies had a website, of which 22 proved to be inaccessible or under-construction. This data implies that 119 (69.6%) of the surveyed companies had an active web presence. Of these 119 websites, 73 (42.7%) contained some form of financial information.[6] The study then proceeded to apply the CIR index to the sample of companies providing financial information via their websites. The disclosure index for each company was calculated according to the following equation:

$$CIRS = \sum_{i=1}^{110} r_i$$

where CIRS = Corporate Internet Reporting Score,
r_i = 1 if the item is reported and 0 otherwise; and
$_i$ = 1, 2, 3, …110.

The information compiled from the companies' websites was then summarised and analysed. Table 3 outlines the number of sample companies categorised according to their extent of using the internet for disclosure purposes. For the purpose of the analysis, the 120 sampled companies with accessible websites (119 in 2011) were divided into the two distinct groups outlined in Table 3. This distinction was based on the extent of corporate information published on the companies' web pages.

Insert Table 3 about here

The first group comprises the 70 companies (73 in 2011) that provided some kind of financial information via their web pages. The second group encompasses companies that did

not disclose any financial information at all via their websites. This group comprises 50 companies (46 in 2011). The table shows that the number of firms which engaged in CIR practices rose slightly from 70 in 2010 to 73 in 2011. Encouragingly, the number of companies which had accessible websites but did not engage in CIR practices decreased from 50 in 2010 to 46 in 2011; however, the table also indicates that the number of companies with unusable websites rose from 17 to 22. This latter result may be linked to the fact that the internet service was disrupted after the uprising in Egypt; even in the early days of the uprising, governmental authorities ordered communications companies to cut off internet services. Thus, web access in Egypt was affected and it took some time before it returned to normal. The table also shows a decrease in the number of the sampled companies without any web presence, from 35 to 30. This result suggests that companies are realising the potential of the web in the business environment, with even severe political upheaval failing to stop growth in the spread of its popularity.[7] Overall, however, the results shown in Table 4 might be seen as a little disappointing, given the remarkable increase in the number of internet users over the past few years, with 52.2% (44.5 million users) of the population having access to the internet in July 2014, compared to only 0.58% in 1999 (Ministry of Communications and Information Technology, 2014).

Table 4 provides a breakdown of the sample across industrial sectors. Although the sub-samples are small, it is evident from the table that there is variation across the classes concerning the utilisation of the web. For example, more than 48% of companies from the construction and materials sector had websites and engaged in CIR practices in 2010 (although this decreased to 40.7% in 2011). At the other end of the spectrum, only 25% of companies from the travel and leisure sector provided financial information on their websites in 2010 (although this increased slightly to 31.3% in 2011). This evidence suggests that

industrial sector might be an influence on companies' decisions to develop a website and engage in CIR practices, underpinning the need for Hypothesis 7 as articulated above.

Insert Table 4 about here

Table 5 shows the CIR index employed in the current study and the scores attached to each item, while Table 6 provides summary statistics regarding the CIR scores for companies engaging in CIR. The table presents the total score and a breakdown by components in the two sample years, 2010 and 2011. The table reveals that there was a slight decrease in the mean total score from 34.03 in 2010 to 33.73 in 2011, although the difference was not statistically significant. The table also shows great variation among the sample companies concerning the utilisation of their websites. In 2010, the maximum total score was 78 items and the minimum only 6, while in 2011 the maximum total score increased to 81 items and the minimum total score 6; this evidence suggests that the gap is widening, and that practice may continue to vary significantly for some time to come. The table also shows a slight, but also insignificant, decrease in the content score mean, from 21.50 in 2010 to 21.05 in 2011. Again there was extensive variability among the companies, with the maximum score being 55 in 2010 (56 in 2011) and the minimum 3 (3 in 2011). For the user support items, the results again indicate a small decrease between 2010 and 2011, in this case from 10.07 to 9.92, with a max-min range of 19 items in 2010 and 18 items in 2011. With respect to the presentation items, the table shows a slight increase, but also insignificant, from 2.46 in 2010 to 2.74 in 2011, the highest proportionate change, and the only case where an increase resulted. A possible explanation for the variations amongst the sample companies in total and across the three classes, may lie in the fact that CIR practices are still voluntary in nature in Egypt with no formal guidelines governing such practices; firms therefore have discretion in terms of the amount of information made available via their websites. Whilst the average

figures suggest a small decrease between 2010 and 2011, the data indicates room for significant improvements in the years to come.

Insert Table 5 and 6 about here

6. Statistical Analysis

6.1 Univariate Analysis

Tables 7 and 8 provide the results of the Pearson correlations for the continuous variables and the Spearman's rho for the non-continuous variables in 2010 and 2011 respectively. Table 7 shows that size, leverage and liquidity are significant for the survey in 2010 and 2011. Profitability represented by return on assets is not associated with the extent of CIR in both years; a similar result was reported by Ashbaugh et al. (1999) and Marston and Polei (2004). With respect to the non-continuous variables, inspection of Table 8 indicates that all of the investigated variables are highly correlated with the extent of CIR in both years.

Insert Table 7 and 8 about here

6.2 Multivariate Analysis

The results of the univariate analysis suggested a relationship between six of the seven variables tested and overall disclosure on a non-directional basis. A multivariate linear regression analysis was therefore undertaken to examine the relationships in terms of causality and provide robust evidence regarding the seven hypotheses employed. The regression equation used is as follows:

$$DI\ (Total\ Score, Content, User\ Support, Presentation) = \beta_0 + \beta_1\ Size + \beta_2\ Profitability + \beta_3\ Leverage + \beta_4\ Liquidity + \beta_5\ Auditor + \beta_6\ Foreign\ Listing + \beta_7\ Industry + \varepsilon_i$$

The results of the regression analysis are presented in Table 9. To overcome the normality problem the regression was carried out using transformed data. Regression diagnostics were run to test for multicollinearity amongst the independent variables. As can be seen from Table 8 Panel A and B, the figures for the tolerance and variance inflation factor did not reveal any multicollinearity problems.

Insert Table 9 about here

With respect to the total score, the regression results reported in Table 9 reveal that size and foreign listing have a significant positive influence in both 2010 and 2011. These findings are consistent with the notion that firms in both developed and developing markets are now aware of the need for higher levels of disclosure when greater visibility is both desired (i.e. when profitability is strong) and required (i.e. when listed overseas).[8] This finding is consistent with the results of earlier CIR studies by Larrán and Giner (2002), Abdelsalam and Street (2007) and Desoky (2009) regarding size and Aly et al. (2010) for listing status. However, the evidence for the three sets of disaggregated results differs across the years to some degree. The results for both the content and user support scores as dependent variables show that size, foreign listing and industry type were significant in 2010, but this was not the case for industry type in 2011 as can be seen in Table 9 Panels A and B. This difference is consistent with the political turbulence in 2011 forcing a degree of homogeneity on the activities of otherwise disparate industries at times of crisis.[9] Surprisingly and contrary to expectations stem from the signalling theory perspective made earlier whereby companies enjoying a "good" performance have incentives to signal this to the market, profitability is significantly but negatively associated with the presentation score for the 2010 data.

As can be seen from the value of adjusted R^2 reported in Table 9, the results of the multivariate analysis indicate that the regression models using the content score as a dependent variable have greater explanatory power than the other models for the 2010 data, but in 2011 the total score is reported as having more explanatory power than the other models followed closely by the content score. The results also show that the regression model based on the presentation score has the least explanatory power in both years. Therefore, the results indicate that company characteristics are related to the amount of information disseminated via companies' websites and the information being presented in a more friendly fashion, but to a lesser extent to the way this information is presented. One explanation for this might be the idea that reporting companies perceive the content of the website and the website being more user-friendly as having more importance than the presentation.

In summary, some of the results obtained in the univariate analysis were supported by the regression analysis. For 2010 data, the results showed that size and foreign listing were significant explanatory variables for the total, content and user support score, while industry type appears to be a significant explanatory variable for the content, user support and presentation scores. Furthermore, profitability was reported as a significant variable only for the presentation score. For 2011 data, size and foreign listing were the significant explanatory variables for the total, content and user support scores, but not for the presentation score.

The implications of the findings for the seven hypotheses set out earlier are summarised in Table 10. Review of this table indicates the mixed picture provided by earlier studies is also evident in pre- and peri-uprising Egypt, with the events of 2011 having no widespread impact. The only notable difference across the two years related to the loss of support for industry type (hypothesis 7) in 2011, suggesting that the variation in CIR propensity underpinning inclusion of the variable in studies of this nature is weakened in the face of overwhelming uncertainty. In this situation, it is easy to comprehend sector-specific

differences in demand for on-line information becoming less important when pervasive political and economic fundamentals are at risk. The finding resonates with elements of the isomorphism notion set out originally by DiMaggio and Powell (1983). In particular, if the evidence regarding the industry variable does indeed reflect firms reacting to less heterogeneous demand for CIR across sectors, the idea of a mimetic element to corporate behaviour is consistent with the observed pattern. However, such a contention requires further investigation of firm and report user behaviour, ideally via detailed face-to-face analysis as and when the situation in Egypt settles down to make such study practical.

7. Summary and Discussion

This study has provided exploratory information regarding the nature and determinants of CIR practices amongst non-financial companies listed on the Egyptian Exchange. The study utilised the disclosure index method to evaluate the investigated websites. The employed index included three main criteria: content, user support and presentation. The results showed that of the 172 companies (171 in 2011) surveyed, 120 (119 in 2011) had accessible websites. Of the 120 websites, 70 (40.7%) provided some form of financial information online, while the number increased to 73 (42.7%) in 2011. These findings suggest that the number of companies listed on the EGX engaging in CIR practices is still low when compared to their counterparts in developed countries. Further investigation reveals that company practice varies considerably not only in terms of embracing the power of the internet, but also regarding the depth and amount of data published via websites. These variations in CIR practices may be linked to the lack of formal guidelines for these practices in Egypt, with companies having discretion in terms of what to disclose and what not to disclose via their websites. Whilst the descriptive statistics as a whole indicate that CIR practices amongst the non-financial companies listed on the EGX are still limited, with no

progress over the two years, the presentation items score went up for the sample firms. Although this change was not significant, it gives some grounds for optimism in terms of future CIR development in Egypt. More generally, the robustness of the overall disclosure data to the major disruption and uncertainty caused by the political uprising in early 2011 suggests that the nation's firms have developed momentum in on-line disclosures that is permanent and much more likely to grow than to decline in the future.

Univariate and multivariate analyses were carried out to investigate the relationship between firm characteristics and the extent of CIR amongst the sample companies. The results of the univariate analysis suggested that size, leverage, liquidity, auditor type, foreign listing and industry type are significant for the survey in both 2010 and 2011, while profitability is not associated with the extent of CIR in both years. The results of the multivariate analysis indicated that size and foreign listing are significant explanatory variables for the total, content and user support scores in both 2010 and 2011, while industry type appears to be a significant variable for the content, user support and presentation scores, but only for the 2010 data. The profitability is reported as having a significant but negative association with respect to presentation score. Furthermore, the findings demonstrated that the regression models based on content and user support criterion have more explanatory power than those related to presentation items.

In addition to adding to the academic literature in a number of substantive ways as set out in Section 3.2 and the call for qualitative follow-up made at the end of the previous section, the present study has a number of potentially important policy implications. The descriptive analysis of companies' websites demonstrated that there is great variation amongst the practices of non-financial companies listed on the EGX concerning the utilisation of the internet for disclosure purposes. This evidence reflects the voluntary nature of CIR practices and the absence of a regulatory framework for organising and monitoring

such practices, with companies having discretion in terms of the amount and type of information disclosed via their websites. Regulatory bodies could, therefore, usefully draw-up codes of conduct that standardise the contents of corporate websites and help in improving the comparability of corporate information disseminated online. In this regard, the Egyptian Financial Supervisory Authority (EFSA) has recently mandated that listed companies set up a web presence and engage actively in CIR practices (EFSA, 2012). It thus appears that Egyptian authorities are now taking an active interest in promoting CIR practices and the results of the present study should provide useful information for those charged with future developments by indicating the state of perceptions about extant CIR in Egypt and its potential for improving the corporate reporting environment in the future.

The study has a number of limitations. First, this study provides only a snapshot of such practices at two investigated periods and, taking into consideration the dynamic nature of the internet in general – and companies' websites in particular – this represents an obvious limitation of the study. Nonetheless, given the pace of change of communications technology and the fact that CIR practice in Egypt was very limited prior to 2010, the study has employed the most meaningful data available. The disclosure index method has its own inherent limitations, including the subjectivity involved with attaching varying scores to different items. Similarly, the analysis of the sampled companies' websites is a lengthy, time-consuming process, and may be subject to human error in assigning categories and calculating the extent of disclosure in each website. However, the effect of these limitations was minimised here by using an un-weighted disclosure index and a simple binary coding scheme, with decision rules that provide a clear description of each item in the index.

As outlined earlier, the EFSA has recently mandated companies listed on the EGX to set up a website and engage in CIR practices starting March 2013, thus a useful expansion could focus on examining the effects of this decision on the extent of such practices by

comparing the level of CIR amongst the sampled companies before and after the imposition of this regulation in 2013. More generally, with the passage of time the extent to which companies listed on the EGX embrace the constantly developing possibilities of CIR – and the need for any regulatory encouragement in that direction – will become evident. Furthermore, and acknowledging the potential economic consequences of CIR practices outlined earlier in the paper, a second expansion could investigate such consequences using an event study, especially after the mandation of CIR practices, with March 2013 as the event date. A third expansion might involve a cross-country comparative analysis of CIR practices in the Middle East and North Africa; whilst analyses of prior literature across the broad field of accounting has tended to group developing nations together, there are many differences in economic, culture and political contexts and international replication of the work could yield important insights. A fourth possible expansion involves study of the extent of CIR practices amongst financial companies listed on the EGX, as the present research focuses only on non-financial listed companies.

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Table 1: Key Indicators for the Egyptian Exchange

Year	Number of Listed Companies	Number of Traded Companies	Market Capitalisation (in L.E. billion)	Market Cap as % of GDP
2001	1110	643	112	31
2002	1151	641	122	32
2003	978	540	172	35
2004	795	503	234	43
2005	744	441	456	74
2006	595	407	534	72
2007	435	337	768	86
2008	373	322	474	46
2009	306	289	500	48
2010	212	211	488	40
2011	213	204	294	21
2012	213	204	376	24
2013	212	206	427	24
2014	214	206	500	25

Source: The Egyptian Exchange.
Note: The table shows the number of listed companies and market capitalisation, for the Egyptian Exchange over the time period 2001 to 2014.

Table 2: Description of the Dependent and Independent Variables

Variable	Description
Panel A: Dependent Variables:	
TOTALSC	Total score for all the 110 items
CONTENTSC	Total score for the 69 content items
USERSUPPORTSC	Total score for the 29 user support items
PRESENTATIONSC	Total score for the 12 presentation items
Panel B: Independent Variables:	
SIZE	Natural logarithm of firm's Total assets in 2010 and 2011
ROA	Return on assets for 2010 and 2011
LEVERAGE	The ratio of total liabilities to total owners' equity in 2010 and 2011
LIQUIDITY	The ratio of cash to total assets in 2010 and 2011
BIG4	1 for companies audited by a Big-4 auditing firm in 2010 and 2011, 0 otherwise
FOREIGN LISTING	1 for companies quoted on foreign exchanges in 2010 and 2011, 0 otherwise
INDUSTRY TYPE	1 for companies in the IT industry in 2010 and 2011, 0 otherwise

Note: This table provides a description of each of the independent and dependent variables included in the analysis.

Table 3: Classification of Sample Companies According to Website Status

Website Status	2010		2011	
	No	%	No	%
Financial information on the Website	70	40.7	73	42.7
Accessible website only (no financial information)	50	29.1	46	26.9
Total number of companies with accessible websites	**120**	**69.8**	**119**	**69.6**
Inaccessible or under-construction website	17	9.9	22	12.9
No website at all	35	20.3	30	17.5
Total	**172**	**100**	**171**	**100**

Note: This table summarises the sample companies according to the status of their web presence and whether they engaged in CIR practices or not.

Table 4: Classification of Companies According to Industrial Sector

Sector	Number of Companies Having Accessible Websites									
	Total		With Financial Information				Without Financial Information			
			2010		2011		2010		2011	
	2010	2011	No	%	No	%	No	%	No	%
Basic Resources	9	9	5	55.6	5	55.6	2	22.2	2	22.2
Chemicals	7	7	5	71.4	5	71.4	2	28.6	2	28.6
Construction and Materials	27	27	13	48.1	11	40.7	7	25.9	9	33.3
Food and Beverages	28	27	8	28.6	11	40.7	12	42.9	11	40.7
Healthcare	13	13	3	23.1	3	23.1	4	30.8	4	30.8
Industrial Goods	18	18	9	50	8	44.4	5	27.8	4	22.2
Oil and Gas	3	3	1	33.3	1	33.3	2	66.7	2	66.7
Personal and Household	11	11	6	54.5	6	54.5	1	9.1	1	9.1
Real Estate	27	27	9	33.3	10	37	6	22.2	3	11.1
Retail	5	5	2	40	3	60	1	20	0	0.0
Media	1	1	0	0.0	0	0.0	1	100	1	100
Technology	3	3	2	66.7	2	66.7	0	0.0	0	0.0
Telecommunications	3	3	3	100	3	100	0	0.0	0	0.0
Travel & Leisure	16	16	4	25	5	31.3	6	37.5	6	37.5
Utilities	1	1	0	0.0	0	0.0	1	100	1	100
Total	**172**	**171**	**70**	**40.7**	**73**	**42.7**	**50**	**29.1**	**46**	**26.9**

Note: This table provides industrial sector-based classification of the sample companies according to extent of exploiting the internet.

Table 5: The Disclosure Index for the Sampled Companies

Attributes	Number of Companies Disclosing the Item		Chi-Square test (p-value)
	2010	2011	
Panel A: Attributes Related to the Content Criterion			
1. Accounting and Financial Information Items:			
Corporate Profile	110	112	0.624
Chairman Statement	40	43	0.684
Financial Highlights	31	23	0.216
Summary of Key Financial Ratios	4	5	0.734
Summary of Financial Data over a period of at least 3 years	16	20	0.470
Balance Sheet of Current Year	47	38	0.224
Balance Sheet of Previous Years	46	46	1.000
Income Statement of Current Year	45	37	0.276
Income Statement of Previous Years	44	43	0.893
Statement of Cash Flow of Current Year	38	33	0.479
Statement of Cash Flow of Previous Years	38	39	0.890
Statement of Changes in Equity of Current Year	35	31	0.563
Statement of Changes in Equity of Previous Years	34	38	0.573
Notes to the Accounts of Current Year	35	31	0.563
Notes to the accounts of Previous Years	31	36	0.472
Audit Report of Current Year	31	28	0.653
Audit Report of Previous Years	31	33	0.770
Annual Report of Current Year	17	13	0.435
Annual Reports of Previous Years	17	17	1.000
Financial Information in Alternative GAAP (e.g. IFRS)	3	3	1.000
Financial Information in Alternative Language	25	21	0.512
Financial Information in Alternative Currency	1	1	1.000
Interim Reports	36	34	0.776
Segment Information	15	11	0.406
Financial Information of Subsidiaries	5	6	0.758
2. Corporate Governance Information Items:			
Corporate Governance Guidelines and Principles	23	20	0.614
Code of Business Conduct & Ethics	7	6	0.776
Corporate Structure	46	46	1.000
Internal Control Information	5	5	1.000
Financial Instrument and Risk Management Information	34	35	0.887
Board of Directors	59	60	0.897
Executive Management	29	32	0.656
Audit Committee	15	16	0.847
Nomination Committee	12	7	0.232
Remuneration Committee	12	12	1.000
Remuneration of the Members of Management and the Board	6	5	0.758
3. Corporate Social Responsibility Information Items:			
CSR Policies	22	23	0.869

CSR Reports	7	8	0.790
Environment Policy Statement	38	40	0.783
Employee Training& Development	36	42	0.408
Employee Negotiations and Communications	2	9	0.031*
Health and Safety Information	23	24	0.871
Donations/Sponsorships Programmes	30	28	0.763
Policies on Product Quality and Safety	65	76	0.149
Quality Certificates (e.g. ISO 9001, ISO 14001)	60	68	0.301
4. Investor Relations Items:			
Basic Information (Listing Details)	15	20	0.360
Latest Share Price (link to EGX providing live update)	19	22	0.607
Historical Share Price	17	19	0.718
Interactive Share Price Charts	14	17	0.564
Latest Dividend	4	8	0.236
Dividend of Past Years	11	14	0.526
Press Releases	54	41	0.086
Latest News	27	47	0.005*
Earning Releases	13	13	1.000
Newsletter Archive	14	13	0.838
Some Video Documentaries	10	10	1.000
Corporate Magazine	4	4	1.000
Analyst Coverage	13	13	1.000
Investor Frequent Asked Questions	8	9	0.801
Financial Glossary	6	4	0.518
Corporate Conferences	3	3	1.000
Financial Calendar of the Current Year	12	9	0.493
Financial Calendar of Previous Years	4	4	1.000
Investor Presentations	14	13	0.838
Name of Investor Relations Officer	14	20	0.267
E-mail to Investor Relations	23	25	0.747
Phone Number	17	15	0.704
Postal Address	9	13	0.371
Subscription to E-mail Alerts	18	21	0.600
Panel B: Attributes Related to the User Support Criterion			
Site Map	34	38	0.573
Internal Search Engine	37	39	0.781
Link to the EGX	15	16	0.847
Links to other Related Sites	74	84	0.174
Contact Details	120	115	0.024*
Help Desk	4	5	0.734
Legal Statement	15	16	0.847
Privacy Statement	14	15	0.843
Disclaimer	19	11	0.118
Next/Previous/Top buttons to navigate subsequently	28	29	0.879
Pull-down Menu	117	118	0.651
Search facility is available on every page on the site	18	15	0.574
Search Facility inside the annual report	47	45	0.791
Date When the Site Last Updated	7	4	0.354

Direct e-mail to investor relations	23	25	0.747
Online investor information order service	1	0	0.316
Mailing list/email news alerts	18	21	0.600
One click to get to investor relations section	35	40	0.486
One click to get to financial information	61	60	0.897
One click to get to press releases	66	70	0.602
Link to homepage	109	113	0.327
Acrobat Reader Download	7	7	1.000
Auditor Signature and Stamp on Audit Report	21	21	1.000
Clear Boundaries between audited and unaudited data	0	0	1.000
Job Application	21	18	0.600
E-mail the web page	7	12	0.232
Add to Favourites	3	5	0.472
Option to change language provided on every page of the site	39	30	0.199
Option to download financial information to Excel	0	0	1.000
Panel C: Attributes Related to the Presentation Criterion			
Financial Information in PDF Format	47	46	0.895
Financial Information in HTML Format	15	16	0.847
Financial Information in Easily Processable Formats	3	2	0.651
Financial Information in XBRL format	0	0	1.000
Financial Information Hyperlinked	0	0	1.000
Conference Call Transcripts	5	5	1.000
Video or Audio Files	26	35	0.182
Graphics or Diagrams	62	53	0.245
News Flashes (moving pictures)	33	79	0.000*
Webcast Events	1	4	0.175
Chat Room	0	0	1.000
Use of Frames	0	0	1.000

Note: This table lists different attributes included in the index related to the content, user support and presentation groups, the number of companies providing these attributes in 2010 and 2011 and the p-values from a chi-square test. A * indicates significance at the 1% level.

Table 6: Statistical Summary of CIR Scores for Companies with a Complete Set of Financial Information

TOTAL SAMPLE	CONTENTSC		USERSUPPORTSC		PRESENTSC		*TOTALSC*	
	2010	**2011**	**2010**	**2011**	**2010**	**2011**	***2010***	***2011***
Number	70	73	70	73	70	73	*70*	*73*
Mean	21.50	21.05	10.07	9.92	2.46	2.74	*34.03*	*33.73*
Median	17	16	9	9	2	3	*29*	*27*
STDV	15.36	15.45	4.30	4.33	1.20	1.19	*20.10*	*20.40*
Min	3	3	3	3	0	0	*6*	*6*
Max	55	56	22	21	6	6	*78*	*81*
Max Possible	69	69	29	29	12	12	*110*	*110*
Range	52	53	19	18	6	6	*72*	*76*

Note: This table provides summary statistical information regarding CIR scores for companies with full financial information on their websites. "CONTENTSC" = Content score; "USERSUPPORTSC" = User support score; "PRESENTSC" = Presentation score and "TOTALSC" = Total score. The p-values for the CONTENTSC, USERSUPPORTSC, PRESENTSC, and TOTALSC are 0.862, 0.836, 0.164 and 0.930.

Table 7: Pearson Correlation between Different Scores and the Continuous Independent Variables

Panel A: Results for the Survey in 2010

2010	TOTALSC	CONTENTSC	USERSUPPORT SC	PRESENTSC
TOTALASSETS	0.641**	0.638**	0.639**	0.307**
ROA	-0.091	-0.089	-0.055	-0.220*
LEVERAGE	0.361**	0.373**	0.320**	0.204
LIQUIDITY	-0.265*	-0.262*	-0.286*	-0.145

Panel B: Results for the Survey in 2011

2011	TOTALSC	CONTENTSC	USERSUPPORT SC	PRESENTSC
TOTALASSETS	0.673**	0.651**	0.689**	0.490**
ROA	-0.074	-0.49	-0.88	-0.117
LEVERAGE	0.381**	0.357**	0.411**	0.316**
LIQUIDITY	-0.383**	-0.334**	-0.430**	-0.394**

Note: ** = Correlation is significant at the 0.01 level (1-tailed). * = Correlation is significant at the 0.05 level (1-tailed).

Table 8: Spearman's rho Correlation between Different Scores and the Non-Continuous Independent Variables

Panel A: Results for the Survey in 2010				
2010	TOTALSC	CONTENTSC	USERSUPPORT SC	PRESENTSC
Big4	0.570**	0.581**	0.558*	0.296*
Foreign Listing	0.556**	0.570**	0.558**	0.228*
Industry Type	0.423**	0.413**	0.416**	0.358**

Panel B: Results for the Survey in 2011				
2011	TOTALSC	CONTENTSC	USERSUPPORT SC	PRESENTSC
Big4	0.602**	0.633**	0.574**	0.487**
Foreign Listing	0.573**	0.579**	0.546**	0.417**
Industry Type	0.416**	0.400**	0.418**	0.412**

Note: ** = Correlation is significant at the 0.01 level (1-tailed). * = Correlation is significant at the 0.05 level (1-tailed).

Table 9: Regression Results for 2010 and 2011

Panel A: Results for the Survey in 2010						
2010	TOTALSC	CONTENTSC	USERSUPPORTSC	PRESENTSC	Tolerance	VIF
Constant	-0.224	-0.316	-0.114	0.096		
TOTALASSETS	0.079**	0.091**	0.071**	0.022	0.635	1.574
ROA	-0.060	-0.071	-0.035	-0.067**	0.785	1.275
LEVERAGE	0.023	0.031	0.011	0.001	0.689	1.451
LIQUIDITY	0.018	0.022	-0.005	0.030	0.768	1.302
Big4	0.073	0.093	0.059	0.032	0.511	1.957
Foreign Listing	0.159**	0.212**	0.088**	0.010	0.588	1.700
Industry Type	0.167	0.177**	0.148**	0.123**	0.762	1.313
R^2 (Adjusted)	0.647	0.664	0.565	0.169		
F Value	16.471	17.670	11.950	2.713		
Panel B: Results for the Survey in 2011						
2011	TOTALSC	CONTENTSC	USERSUPPORTSC	PRESENTSC	Tolerance	VIF
Constant	-0.176	-0.316	-0.095	0.134		
TOTALASSETS	0.068**	0.080**	0.064**	0.012	0.530	1.886
ROA	-0.015	-0.009	-0.015	-0.010	0.884	1.132
LEVERAGE	0.034	0.043	0.030	0.011	0.761	1.314
LIQUIDITY	-0.069	-0.056	-0.069	-0.065	0.666	1.501
Big4	0.069	0.109	0.050	0.042	0.493	2.030
Foreign Listing	0.249**	0.321**	0.156**	0.079	0.541	1.850
Industry Type	0.067	0.064	0.082	0.064	0.704	1.420
R2 (Adjusted)	0.710	0.680	0.678	0.405		
F Value	21.275	18.621	18.485	6.635		

Note: This table reports regression coefficients , with significance at the 1% level denoted by **. "TotalSc" = total score; "ContentSC" = content score; "UserSupportSC" = user support score; "PresentSC" = presentation score.

Table 10: Results of Hypothesis Testing

Hypothesis:	Results Supported in 2010	Results Supported in 2011
H1 - size	TotalSC; ContentSC; UserSupportSC	TotalSC; ContentSC; UserSupportSC
H2 - profitability	-	-
H3 - leverage	-	-
H4 - liquidity	-	-
H5 – auditor type	-	-
H6 – foreign listing	TotalSC; ContentSC; UserSupportSC	TotalSC; ContentSC; UserSupportSC
H7 – industrial sector	ContentSC; UserSupportSC; PresentSC	-

Note: This table details the results that were supportive of the seven hypotheses investigated in the study. "TotalSc" = total score; "ContentSC" = content score; "UserSupportSC" = user support score; "PresentSC" = presentation score.

ENDNOTES

[1] All on-line reporting in Egypt remains voluntary and so in the empirical analysis presented here, the on-line disclosure figures are all voluntary by definition.

[2] Content items typically range from mainstream accounting elements such as the chairman's statement, balance sheets and auditor reports through to internal control systems, health and safety policy and financial calendars. User support items usually include the availability of site maps, internal search engines, links to the stock exchange, options to "add to favourites" etc. Presentation items generally relate to specific information technology-related criteria such as use of PDF, HTML, XBRL etc. formats, graphics, real-time rolling news and the provision of chat room facilities. The complete index is shown in Table 5.

[3] See, e.g., Kribat et al. (2013).

[4] For example, banks are controlled and supervised by the Central Bank of Egypt, while insurance companies' financial statements are prepared in accordance with EAS related to insurance and reinsurance and law No. 10 of 1981 (Ahmed, 2013).

[5] FASB (2000) argued that "Internet-months are like years in the sense that things change so quickly. It has been said that 18 Internet weeks = 1 normal year" (p. 17).

[6] An important decision from the Egyptian Financial Supervisory Authority (EFSA) on 21st of February 2012 mandated companies listed on the EGX to set up a website to publish their annual and interim financial statements in addition to notes to the accounts, the auditor's report and other information required by the EGX. The investor relations department will be responsible for these websites, which must be operational by the end of March 2013. Thus, this decision could lead to a considerable increase in the number of companies practicing CIR over the time frame covered by this study.

[7] As a result of the onset of the "Arab Spring" protests in early 2011, the Egyptian Exchange was closed down from the 27th of January until the 23rd March. On re-opening, the exchange index immediately lost nearly 9% of its value.

[8] See Kribat et al. (2013).

[9] Industry type also loses significance in 2011 for presentation score, again consistent with the notion of inter-industry disclosure practices converging to some degree during the crisis.