CORPORATE GOVERNANCE, FIRM CHARACTERISTICS AND INTERNET FINANCIAL REPORTING: EVIDENCE FROM EGYPTIAN LISTED COMPANIES

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Abstract

This study investigates the effect of corporate governance and firm characteristics on the Internet financial reporting (IFR) of the Egyptian listed companies. We develop a disclosure index to measure the three components of the IFR for the Egyptian listed corporations by using an un-weighted checklist. The results find a significant relationship between the three components of IFR (TOTAL, CONTENT and PRESENTATION) and firm size, ownership diffusion, type of business, profitability, audit type, institutional ownership and board size. The results indicate that large non-financial companies that are audited by the big four auditing companies with high diffusion in their ownership and lower presentation of institutions in the ownership structure are more likely to be related to TOTAL and CONTENT. In addition, large profitable companies with high diffusion in their ownership are more likely to be related to TOTAL and PRESENTATION. Finally, companies with a large board size are associated only with PRESENTATION.

Keywords: corporate governance, ownership structure, Internet financial reporting, voluntary disclosure, Egyptian companies, The Egyptian Exchange

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1. Introduction

The disclosure of information has played a critical role in the efficient allocation of scarce resources in the capital markets. Therefore, the lack of disclosed information to stakeholders may hinder their ability to make rational decisions.

Many studies have addressed the importance of information disclosure for stock market investors' decisions through capital market studies conducted in different countries and cross-country surveys of users (Barker, 1998; Bhushan and Lessard, 1992; Mangena and Tauringana, 2007).

Various methods are used to convey information about a company's affairs to stakeholders among which are hard copy corporate annual reports, press releases and the Internet which has been used widely in recent years.

The Internet is a unique disclosure information tool that disseminates information in many various techniques. Although the majority of Internet financial reporting (IFR) is still voluntary, many companies have begun to disclose information on their websites to attract a large number of the investors who seek more timeliness, and accurate and relevant information which is not provided by traditional disclosure methods (Ashbaugh et al., 1999; Debreceny et al., 2002; Ettredge et al., 2001).

Many studies argue the potential effect of using the Internet in disclosing information and the determinants of disseminating this information on the companies' websites. Some of these studies investigate the online financial disclosure in general (Ashbaugh et al., 1999; Bonson and Escobar, 2002; Debreceny et al., 2002; Ettredge et al., 2001; Pervan, 2006). However, other studies classify the online disclosure into more than one component. Debreceny et al., 2002, Marston and Polei, 2004 and Xiao et al., 2004 classify the IFR into content and presentation, while Abdelsalam and Street (2007) use content and usability to measure IFR.

Moreover, Bollen et al., (2006) investigate the quality of using the Internet for investor relationship activities. Although Spanos and Mylonakis (2006) check the content and presentation of IFR, they do not investigate the determinants of disclosing these components. Further, Pirchegger and Wagenhofer (1999) use four components to check the IFR, namely: content, timeliness, technology and user support. They investigate the relationship between IFR and size and ownership structure. The most recent study by Kelton and Yang (2008) classifies IFR into three components: content, presentation and corporate governance.

In this study, we examine the relationship between TOTAL, CONTENT and PRESENTATION of IFR and corporate governance characteristics. Our analysis is motivated by recent changes in the world environment in general and the Egyptian environment in particular.

Regarding the changes in the world environment, the Sarbanes-Oxley Act (2002) requires that companies improve their disclosure quality and their transparency of financial reporting by applying new corporate governance restrictions (Kelton and Yang, 2008). This in turn will have an effect on the companies' IFR. Therefore, it can be hypothesised that corporate governance influences IFR. Companies improve their disclosure quality by both the content (supports a broader range of stakeholders in providing more accurate and timely information) and presentation (provides a new dissemination tool which is not provided by traditional paper based disclosure) of the IFR.

In the Egyptian environment, many changes have happened in the last few years. These changes put pressure on Egyptian listed companies to improve their disclosure quality. Among these changes is the establishment of the Egyptian Institute of Directors (EIoD) in 2003 to spread awareness and to improve good corporate governance practices among Egyptian companies, financial institutions and other stakeholders who deal with these companies. This institute – in collaboration with the European Union and United Nations – has created the Egyptian Code of corporate governance of listed companies and issued its guidelines. According to this, we expect that corporate governance will have an effect on the Egyptian listed companies' IFR.

Egyptian listed companies have some different characteristics from listed companies in advanced markets. Egyptian listed companies are more likely to be state-owned with a mixed ownership structure (totally state-owned, partially state-owned and privately owned). This mixture of ownership structure is due to the privatisation process that the Egyptian government has embraced since 1991 and is still in its agenda until now. As a result of the privatisation process, the proportion of institutional investors has increased. It can be expected that the nature of this ownership structure – especially for the institutional investor – has an impact on IFR. In addition, Egyptian listed companies' board of directors' membership consists of odd number with a minimum of three members. Those members are shareholders or representative of the participating companies except for two members who represent experts. Executives and non-executive members are not governed by any rules. Due to this board of directors' structure, it can be assumed that board of directors' membership has an influence on IFR. Final distinct form listed companies in advanced countries is related to the nature of auditing Egyptian listed companies. Egyptian listed companies are audited by two types of auditing company: public agency which is represented by the Central Auditing Agency (CAA) and is authorised to audit the state-owned companies only by law, and private companies that audit the other types of Egyptian listed companies. Some private companies are agents for international auditing companies. This mixture of auditing companies may have an impact on IFR.

Based on these changes and characteristics, the study examines the IFR of the top 100 Egyptian listed companies at the end of 2006. In addition, it investigates the association between TOTAL, CONTENT and PRESENTATION of IFR and corporate governance and firm characteristics measures.

Our results indicate that firm size and ownership diffusion are positively associated with all the IFR's three components (total, content and presentation). Profitability is positively associated with total and presentation of IFR. In addition, audit size is positively related to total and content, while institutional ownership is negatively related to them. Activity type is significantly related to total and content. Finally, we find that board size is positively related to the presentation of IFR.

Few studies investigate the key determinants of IFR in developed countries. Similarly, many studies investigate the relationship between voluntary disclosure and corporate governance characteristics. However, the impact of corporate governance on IFR still needs further investigation especially on the empirical side.

With regard to the Egyptian context, we are not aware of any previous studies examining the relationship between IFR and corporate governance variables. Therefore, the main contribution of this study is to determine empirically, whether the corporate governance practices which have improved in the last few years in the Egyptian environment have an influence on a company's IFR. It aims to fill the gap in many areas of current literature. First, most prior studies examine the key determinants of IFR in developed countries. This study extends the previous studies by examining these determinants in an emerging market, namely Egypt. There is now increasing awareness that theories applied in the context of developed countries which explain voluntary disclosure may not be suitable in the context of emerging markets (Abdelsalam, 1999; Leventis, 2001). Consequently, there is a need to examine these theories in one of these emerging markets – Egypt – that is characterised by different political, economic, cultural, institutional, social and other factors, and explain the differences or similarities with the previous results in the developed countries context.

Second, many prior studies investigate on the one hand the relationship between company characteristics and IFR and on the other hand the relationship between voluntary disclosure and

corporate governance variables. However, in the literature there is a lack of examination of the relationship between IFR and corporate governance. This study extends the prior research by examining empirically the relationship between a company's IFR and corporate governance in Egypt. The Egyptian Exchange (EGX) is one of the emerging markets that has made great improvements in the last few years – as considered by many international bodies. These improvements attract more investors – especially foreign – to invest in this market to benefit from the economic reform programmes that reflect the enormous growth in the Egyptian economy generally and EGX specifically. This will require accurate and timely information for those investors, and this can be provided by the Internet, as well as greater control from the capital market authority (CMA) to protect their interests. Consequently, there is a need to test whether corporate governance variables have an impact on IFR which will help investors to obtain the financial information they require.

Third, the study addresses the impact of corporate governance variables specific to the listed Egyptian companies that are distinct from listed companies in the advanced markets. These variables include boards of directors identified by Capital Market Law and mixed ownership structure identified by Central Depository Law and the Capital Market Law. Most listed Egyptian companies are state-owned companies. As a result of a privatisation programme undertaken by the Egyptian government, some companies have a mixed ownership. Companies that are totally privatised become privately-owned companies either by institutions or individuals, whereas companies that are partially privatised are state- and privately-owned. The proportion of institutional investors has increased as a result of the continuing privatisation programme and this has a considerable effect on the Egyptian economy. Although liquidity in the Egyptian market is still dominated by retail investors, in 2007 institutional investors witnessed an increasing activity, accounting for 45% of the total value traded, up from 40% in 2006 (EGX, 2007). From another perspective, 2007 witnessed a rising penetration of new foreign institutions into the Egyptian market with a large amount of investments, whereby total foreigners (Arab and foreigners) ended the year as net buyers, recording a net inflow of LE 8 billion, compared to LE 5.2 billion in 2006 (ibid). While studies have examined the effect of ownership structure on IFR (Pirchegger and Wagenhofer, 1999; Oyelere et al. 2003; Marston and Polei, 2004; Bollen et al, 2006; Abdelsalam et al. 2007), few studies focus on the impact of institutional investors on IFR (Xioa et al., 2004). This study will extend the previous studies to test the impact of institutional investors in the listed Egyptian companies on IFR.

Another distinction from listed companies in the advanced markets is the nature of listed Egyptian companies' boards of directors. Company laws determine the level of board members' disclosure. The board of directors' membership consists of an odd number with a minimum of three members. Until now, no rules have governed the board structure regarding executive or non-executive managers; the board chairman is often also the managing director. All board members are shareholders or representatives of the participating companies. However, only two members apart from this are chosen as experts (Fawzy, 2003). The names of the board members and their remuneration are disclosed to the annual general assembly, but such information is not published in the annual report. A list of names and nationalities of companies' board members and managers is required by the CMA which must be informed immediately of any changes to this list (ibid). Any conflict of interest should be disclosed by a board member who should avoid voting on any board decision related to those conflicts.

The annual general assembly elects board members for a period of three renewable years and decides their remuneration. Similarly, the board chairman and his deputy are elected by the appointed board members who have the right to change them at any time. The board holds its meetings at the request of its chairperson or two-thirds of its members. Many studies examine the impact of the board of directors on voluntary disclosure (Haniffa and Hudaib, 2006; Cheng and Courtenay, 2006). However, we are not aware that there is any study examining the impact of board size on IFR. This study will fill the gap on this issue and examine the impact of listed Egyptian boards of directors on IFR.

In the following section, we briefly present the Egyptian environment and corporate governance system in Egypt. After that, we review relevant literature of IFR and formulate the hypotheses. Then, we follow this with sections on sample data analysis and results, and finally present the conclusions, limitations and recommendations for future research.

2. The Egyptian environment: A brief overview

Egypt is one of the most populous Arabian, North African and Middle East countries. Many steps have been taken by the Egyptian government to improve the national economy among which is the economic reform and privatisation programme applied in 1991 to increase the role of the private sector in the economic development. In 2006/07, GDP growth in Egypt averaged about 7%, and foreign direct investment (FDI) inflows increased twelve-fold between 2001 and 2006 (OCED, 2007) reaching their highest levels in 2007/08 (13.2 billion USD), ranking Egypt the top FDI recipient in Africa (OCED/AFDB, 2008). In addition, the Fitch Rating has raised Egypt's BB+ credit rating from stable to positive (EGX, 2007). Moreover, in July 2007, Egypt became the

40th country to adhere to the Organisation for Economic Co-operation and Development (OECD) Declaration on International Investment and Multinational Enterprises which indicates the recent progress on policy reform. As a result of the continuing efforts that are performed by the Egyptian government to reform the business environment, the World Bank ranks Egypt as one of the fast-reforming countries in 2007/08 (ibid).

The Egyptian government is aware that sustaining such a reform programme relies on the existence of a strong financial regulatory framework, the availability of credible corporate information, and the adoption of internationally accepted accounting and auditing standards (World Bank, 2002). Consequently, the Egyptian government launched several plans to improve financial reporting and disclosure requirements, as well as accounting and auditing standards and practices (World Bank, 2002).

CMA is the market regulatory agency that organises and secures the market for investors in EGYPT and is responsible for emphasising market transparency by monitoring compliance with disclosure rules of all listed companies. According to Capital Market Law (CML) 95 of 1992, each listed Egyptian company should provide copies of their annual and semi-annual financial statements to both CMA and the Egyptian Exchange (EGX) (Hassan et al. 2009). Recently, CMA forced listed companies to disclose information on a quarterly basis and to disclose any information about a transaction done by an insider and of any extraordinary event that might affect the company's status to improve disclosure and transparency[1]. The two professional accounting bodies are the Syndicate of Commercial Professions (SOCP) and the Egyptian Society of Accounting and Auditors (ESAA). Egyptian companies apply Egyptian Accounting Standards (EAS) which were issued by Ministerial Decree 503/1997 in preparing their financial statements. EAS have been replaced by a new version of EAS that was issued by Ministerial Decree 243/2006. The new EAS are compatible with International Accounting Standards (IAS)[2].

One of the most noticeable improvements is related to The Egyptian Exchange which represents one of the oldest stock markets in the Middle East with a history that dates back to the late 1800s (Mecagni and Sourial, 1999). The Egyptian Exchange (EGX) has two entities: the Alexandria Stock Exchange established in 1888 and the Cairo Stock Exchange established in 1903. Both Exchanges have the same chairman and their boards of directors are 60% elected from brokerage and market participants, whereas the remaining 40% are government appointed (Abdel-Shahid, 2004). Furthermore, the Alexandria stock market has been the fifth longest established in the world after those of Inverness (1536), Amsterdam (1608), London (1666), and Paris (1808) (Egyptian Capital Market Authority 1996 as cited in Omran, 1999). Currently, the EGX is the world's best performing emerging markets exchange, driven by Egypt's impressive economic growth in 2004 and 2005 (ICC, 2006).

During 2006/2007, the government continued its efforts to improve the legislative and structural environment of the stock exchange, to enhance the disclosure and transparency on one hand, and protect investors' rights on the other. In this context, the Minister of Investment issued Decree no 314 for 2006 to raise the requirements of minimum issued and paid-in capital of securities brokerage companies in order to strengthen their solvency and ensure their financial soundness (Central Bank of Egypt, 2006-2007, P.44). Moreover, EGX launched in 2007 for the first time its sector indices, ranking the different sectors of the Egyptian market and helping investors make better-informed investment decisions (EGX, 2007). As a result of all these steps undertaken by the EGX and also the economic reform steps applied by the government, the amount of privatisation programmes increased to LE 48.9 billion by the end of December 2007, and the market capitalisation grew remarkably from 5 billion LE in 1990 to 768 billion LE by the end of June 2007 with 105% of GDP. In addition, the trading value surged to LE 363 billion with an increase of 26% from 2006 (ibid). Moreover, the trading volume increased by 66% from 2006 (UNCTAD, 2008). Noteworthy is that foreign purchases increased dramatically in 2007, recording LE 100 billion, up from LE 91 billion in 2006. The United Kingdom represents the highest foreign purchases in 2007, followed by USA and Saudi Arabia (ibid). This in turn reflects the confidence in the EGX and its importance as an emerging market.

3. Corporate governance system in Egypt

Another side of reforms is related to corporate governance practices. Good practices of corporate governance disclosure increase the confidence of investors in the economy of the country, deepen capital markets and increase the ability of countries to mobilise savings and raise investment rates (Dahawy, 2007). In addition, widely used corporate governance disclosure enables companies to have large number of investors, as corporate governance protects the interest of minority shareholders. As Egypt seeks to attract more foreign investments to its capital market, it is urgent that Egyptian companies apply the principals of corporate governance. Some studies argue that corporate governance has become an important issue in Egypt in recent years due to the

[1] Listing and delisting rule (article 20). http://www.egyptse.com/index_a.asp?CurPage=rules_regulations_a.html

[2] Any accounting practices not covered in EAS, IAS should be applied. For more details: http://www.cma.gov.eg/cma/content/english/accounting_criteria_en/accounting_criteria_en.htm

integration of the Egyptian economy with the global economy, internationalisation of capital markets and the increasingly important role played by the private sector in the economy (Rawy, 2004; Abdel Shahid, 2001). In addition, PCSU (2000) demonstrates that there are four separate but highly related factors that could lead to better corporate governance in Egypt. These factors are: the importance of a strong, clear and well-enforced legal framework, the adequacy of greater information disclosure that leading to greater transparency, the independency of managers and the monitoring of external factors (PCSU, 2000).

The legal framework that impacts on the concepts of corporate governance in Egypt can be classified into two major groups: laws that govern the incorporation of companies in Egypt and laws that govern the listed companies in EGX (Dahawy, 2007). The first group of laws include: Companies' law no.59 for 1981 which regulates joint stock, limited liability and partnerships limited by shares companies, Public business sector law no. 203 for 1991 that deals with the public sector companies and Investment law no.8 for 1997 that organises investment in specific industrial locations. The second group of laws include: Capital market law no. 95 for 1992 which regulates the Egyptian financial market, and Central depository law no. 93 for 2000 which regulates all registration, clearance and settlement procedures associated with trading transactions.

Egypt has received more attention in terms of evaluating the compliance of Egyptian corporations with international corporate governance principles such as the principles issued by the Organisation for Economic Co-operation and Development (OECD). Therefore, the World Bank, jointly with the (OECD), completed a survey for the first time in the Middle East in 2001.This survey which assesses the application of corporate governance standards on the Egyptian Capital Market and the Egyptian economy finds that 62% of the principles were applied by the sampled Egyptian companies. The survey was last updated in March 2004 and finds that 82% of the studied companies were applying OECD principles, which reflects the improvement in applying corporate governance principles in Egypt.

Recognising the importance of the role played by corporate governance, the EGX has formed the Exchange's Investor Relations and Corporate Governance Committee, which is made up of representatives from ten EGX-listed companies. These companies are the best with regard to disclosure procedures and act as the blue chip companies to their peers. The Committee plays a communications and advisory role, and also sponsors events and publications (ICC, 2006).

The Egyptian Institute of Directors (EIoD) has been established as the first institute focusing on corporate governance in the Arab region. It aims to spread awareness and improve corporate governance practices in Egypt, the Middle East, and North Africa. Two major codes are published by EIoD with the support of the World Bank and the IFC. The first, in October 2005, was the Egyptian code of corporate governance for the private sector; the second, in July 2006, was the Egyptian code of corporate governance for state-owned enterprises. These codes present a comprehensive set of corporate governance principles which define rules and procedures that achieve the optimum protection and balance between the interests of directors, shareholders, and stakeholders.

Furthermore, the CMA in 2006 sought to enhance the performance of corporate governance in Egyptian companies by improving the level of quality in the auditing profession. The CMA constitutes an auditors registry which include the auditors who will only be permitted to audit the listed companies in the EGX. In addition, in 2007, the CMA issued a new code of ethics for auditors in Egypt. The code of ethics discusses and explains the rules and regulations for important issues, such as: independence of auditors, objectivity, competence, secrecy, and professional conduct (Dahawy and Conover 2007).

Moreover, the new listing rules stipulated by EGX add another restriction on Egyptian corporations, i.e. to apply the principals of corporate governance. EGX specify that all the listed companies should notify in detail all the issues that relate to corporate governance disclosure[3].

Generally, the governance system can be categorised into two main groups: market governance system and blockholder governance system. The market governance system (e.g. USA and UK) is characterised by dispersed equity holding and separation between ownership and control which raise the agency problem that results from a conflict of interest between strong management and weak dispersed shareholders. On the other hand, in the blockholder governance system (e.g. Europe and Japan) there is no separation between management and control and the majority of stocks are held by one, two or a small group of large investors. The agency problem results from the conflict between strong

[3] For more details: EGX, listing rules 203 Cairo and Alexandria stock exchange site.
Listing rules include the requirement of the corporate governance requirements (Articles 12-19), the requirement of preparation and presentation financial statements (Articles 22-30) and the standard for delisting role (Articles 34-35) which force the listed Egyptian companies to commit to corporate governance requirements.
Article (4) forces companies to disclose about: companies' board of directors, business contracts between the company and its directors, management , shareholders and related parties, companies' organisational structure, percentage details of shareholders' composition, all transactions between the company and any of its shareholders, the existence of an audit committee and the internal procedures and regulations undertaken by the company to prevent a director or another insider from purchasing or selling securities of the company based on insider information.

majority shareholders and weak minority shareholders (Bratton and McCahery, 2002)

In the Egyptian context, the blockholder governance system is dominant. Most of the controlling shareholders are individuals and dominant institutions (Sourial, 2004). Consequently, controlling shareholders have strong incentives to closely monitor the company and its management which may have a significant impact on the governance of the company as well as the disclosed information.

Currently, some studies discuss the main characteristics of the Egyptian listed companies. Fawzy (2003) mentions that most listed Egyptian companies are closely held, have a state ownership in privatised companies and have weak board independence. Bremer and Ellias (2007) demonstrate that listed Egyptian companies have some features that may hinder the development of corporate governance in Egypt. They point out that closely held companies are the dominant type in the Egyptian private sector, state owned companies have a key role in the Egyptian economy and there is a lack of recognition of the concepts and benefits of corporate governance practices as well as a lack of board independence.

4. Literature review and hypotheses' formulation

4.1 Literature review

Many studies investigate the potential effect of using the Internet for disclosing information on corporate websites. Some of these studies are descriptive, examining the extent of the website and the type of the information disclosed either in one country or across countries. Appendix 1 summarises these studies.

The percentages of companies that have websites in these studies are between 43 and 100; of these companies 33% to 95% disclose financial information. Some of these studies find presentation items. However, all these items are concerned only with the type of format (PDF, HTML and others).

The other type of IFR studies is empirical, which investigates the relationship between the IFR and its determinants. Most of these studies use a checklist to measure the dependent variable which varies from one study to another. Some studies examine only the presence of a website and whether or not the companies disclose financial information on their websites (Ashbaugh et al., 1999; Craven and Marston, 1999; Marston, 2003; Marston and Leow, 1998). On the other hand, some studies measure the dependent variable as a dummy variable rather than calculating a disclosure index from a checklist (Brennan and Hourigan, 2000; Ismail, 2002; Oyelere et al., 2003). According to the studies that use a checklist, some of them weight their items (Debreceny et al., 2002; Larran and Giner, 2002; Marston and Polei, 2004; Pirchegger and Wagenhofer, 1999). Furthermore, two studies Xiao et al., (2004) and Bollen et al., (2006) use a mixture of weighted and un-weighted approaches, while the majority of the studies use the un-weighted approach (Abdelsalam et al., 2007; Allam and Lymer, 2003; Bonson and Escobar, 2002; Ettredge et al., 2002; Kelton and Yang, 2008; Pervan, 2006; Sriram and Laksmana, 2006; Trabelsi and Labelle, 2006).The sample of these studies ranges from 660 companies (Debreceny et al., 2002) to 50 companies (Marston and Polei, 2004).

Many studies provide a theoretical framework for their analysis by using theories of voluntary disclosure to generate their hypotheses (Ettredge et al., 2002; Larran and Giner, 2002; Marston, 2003; Marston and Leow, 1998; Marston and Polei, 2004; Xiao et al., 2004), while some studies have not used a framework (Ashbaugh et al., 1999; Brennan and Hourigan, 2000; Pirchegger and Wagenhofer, 1999; Sriram and Laksmana, 2006). Moreover, some studies classify the IFR into content and presentation (Debreceny et al., 2002; Kelton and Yang, 2008; Marston and Polei, 2004; Xiao et al., 2004), while other studies use another classification: content, timeliness, technology and usability (Abdelsalam et al., 2007; Allam and Lymer, 2003; Pirchegger and Wagenhofer, 1999).

Finally, most of the studies investigate the disclosure of financial information on the companies' websites (Craven and Marston, 1999; Ettredge et al., 2001, 2002; Marston, 2003; Marston and Leow, 1998), while there are some studies investigating financial information as well as social information and corporate governance information (Abdelsalam et al., 2007; Kelton and Yang, 2008; Marston and Polei, 2004; Oyelere et al., 2003; Xiao et al., 2004). A summary of these studies is presented in table 1.

It can be seen that most of the studies investigate the relationship between company characteristics and IFR. Few studies focus on the impact of corporate governance on IFR. (Xiao et al., 2004) carried out a survey of the adoption of internet-based financial reporting of the 300 largest Chinese companies in 2001. They develop a disclosure index of 82 items (58 related to the content of either China Securities Regulatory Commission –CSRC – required items or NON-CSRC required items and 24 to presentation format). The study classifies the internet corporate disclosure into five components: total score, content, format, CSRC and NON-CSRC. Therefore, five models are used to examine the relationship between the extent of Internet corporate disclosure and ten explanatory variables. Regarding governance factors, the study reveals that there is a positive effect due to legal person ownership, a negative effect of state shared ownership and no effect of ownership by individual shareholders and composition of the board of directors on Internet corporate disclosure.

Table 1. Overview of the empirical studies

Author	Sample	% corporate web site	% disclosed financial data	No. of checklist Items	Dependent Variable	Independent Variables
Marston and Leow, 1998, UK	FTSE 100	63	45	2 UW	• Presence of website • Disclosure of financial information	Size (+) Type of sector (N.S.)
Ashbaugh et al., 1999, USA	290	87	70	3 UW	• Comprehensive set of financial statements • Link to annual report • Link to EDGAR	Size (+) Profitability(+) Rating (+) Shares held by investors. (N.S.)
Craven and Marston, 1999, UK	Top 206	74	53	2 UW	• Presence of website • Disclosure of financial information	Size (+) Type of sector (N.S.)
Pirchegger and Wagenhofer, 1999, Austrian German	32 (97/98) 30	72 (Aus 97) 88(Aus 98) 100 (Germ)	91 (Aus 97) 96(Aus 98) 97 (Germ)	38 W	• Content (7) • Timeliness (5) • Technology (14) • User support (12)	Size (+) Ownership structure (+) (For Austrian comp. Only)
Brennan and Hourigan, 2000, Ireland	94 listed Comp. 15 Public Comp.	37(listed) 100(public)	69(listed) 53(public)	8 N/A	• Presence of website • Disclosure of financial information	Size (+) Leverage (N.S.) Type of sector (+ service) Demand for information (+)
Ettredge et al., 2002, USA	220	88	Not mentioned	17 UW	• Financial information items • Voluntary disclosure items • Index (the total of both variables)	Size (+) (for all) Information asymmetry(-) (for all) Firm performance (N.S) (for all) Capital market access (+) (for voluntary) Disclosure quality (+) (for voluntary)
Bonson and Escobar, 2002, European Union countries	Biggest 300	100	100	23 UW	• Disclosure of financial information (content)	Size (+) Industry type (+) (industry) Countries' culture (+)
Debreceny et al., 2002, 22 Different countries	660	62	51	2 W	• Content • Presentation	Size (+) (for both) Foreign listing (N.S. for content) , (- for presentation) USA listing (+) (for both) Level of technology (N.S. for content) , (+ for presentation) Growth (- for content), (N.S. for presentation) Systematic risk (N.S.) (for both) Leverage (N.S.) (for both) Environmental factors (N.S. for content) , (+ for presentation)
Ismail, 2002, Qatar Bahrain Saudi Arabia	 24 36 68	39	47(Bahrain) 41(Saudi Arabia) 21 (Qatar)	N/A	• Disclosure of financial information	Size (+) Profitability(+) Leverage (+) Industry type (+) Countries' culture (+) Based on the interaction between the variables.
Larren & Giner, 2002, Spain	144 Listed Comp.	74	51	15 W	• Disclosure of financial information	Size (+) Leverage (N.S.) Profitability (N.S.) Foreign listing (N.S.) Type of sector (N.S.) Firm growth (N.S.)
Allam and Lymer, 2003, (USA,UK, Canada, Australia, and Hong Kong)	250	All countries 100 Hong Kong 98	100	36 UW	• General attributes (12) • Financial information attributes (24)	Size (+) (only Australia) Countries' culture (+)

Oyelere et al., 2003, New Zealand	229 listed Comp.	54	73	7 N/A	• Companies providing financial reports on the Internet (IFRC) • Companies not providing financial reports on the Internet (N-IFRC)	Size (+) Profitability (N.S.) Liquidity (+) Internationalisation (N.S.) Ownership Structure (+) Type of sector (+) (Industry) Leverage (N.S.)
Marston, 2003, Japan	Top 99	92	69	13 UW	• Presence of website • Disclosure of financial information	Size (+) Type of sector (+) Profitability (N.S.) Foreign listing (N.S.)
Xiao et al., 2004, China	Top 300 Listed Comp.	68	Not mentioned	82 W and UW	• Content (58) • Presentation (24) • Total (82)	Size (+) Profitability (N.S.) Leverage(+) Capital market access (N.S.) Fixed assets (N.S.) Independent directors (N.S.) Audit quality (N.S.) Foreign ownership (N.S.) Type of sector (+) (IT) state share ownership (-) legal person ownership (+)
Marston and Polei, 2004, Germany	Top& Bottom 50	100	99	53(2000) 81(2003) W	• Total IFR • Content • Presentation	Size (+) (2000,2003) Ownership structure (+) (2000) Profitability (N.S.) Foreign listing (+) (2003) Systematic risk (N.S.)
Sriram and Laksmana, 2006, USA	212	Not mentioned	Not mentioned	26 UW	• Financial and Non-financial Data (DS1) • Management's analysis of financial and non-financial data (DS2) • Forward-looking information (DS3) • Information about employees, directors, and management (DS4) • Information on company background, objectives, strategies, and industry • structures (DS5) • Total DSCORE	Size (+) (DSCORE,DS1,DS2,DS5) High technology (+) (DSCORE,DS4,DS5) Firm performance (+) (DS3) Investor institute (-) (DSCORE,DS1) Issuance of shares (+) (DS2)
Pervan, 2006 , Croatia Slovenia	55 30	Not mentioned	Not mentioned	30 UW	• Financial information • Other useful information • Transparency of management and supervisory boards • User support	Size (+ for Croatia), (N.S. for Slovenia) Profitability (+ for Croatia), (N.S. for Slovenia) Ownership structure (+ for Croatia), (N.S. for Slovenia) Foreign ownership (+ for Croatia), (N.S. for Slovenia) Market activity (+) (for both) Industry type (-) (for Croatia, tourism and marine transport) (For Slovenia, transport)
Trabelsi and Labelle, 2006, Canada	118 listed Comp.	96	91	7 UW	• Discloses additional financial information on the web site. • The extent of financial disclosure on the Internet	Investors' demand (+) Ownership structure (N.S.) Complexity of TFR (+) Firm performance (+) Shares Issue (N.S.) Cross listed firms (N.S.) Competition (N.S.) Risk of litigation (+) Audit quality (N.S.) Type of sector (N.S.)
Bollen et al., 2006 Australia, Belgium, France, Netherlands,	270 listed Comp.	99	90	29 W and UW	• The quality of the investor relation website (this measured by) Annual and interim reports on the Internet (9) • Press releases and	Size (+) Internationalisation (+) Ownership structure (+) Leverage (N.S.) Company performance (N.S.) Level of technology(-)

South Africa and the UK					further information services on the Internet (6) • Presentation (7) • Direct contact (4) • Video/audio recordings and online participation in meetings (3)	Growth (-) Disclosure environment (+)
Abdelsalam et al., 2007, UK	Top 110 listed Comp.	100	Not mentioned	143 UW	• Content (74) • Usability (69) • Comprehensive index (143) • Content (74) classified into two groups: General content (19) Credibility (55)	Size (+) (only credibility) Ownership structure (N.S. (for all) Director holding (-) (for comprehensive, General Con and Usability) Independent director (+) (for comprehensive and general Content) Role duality (-) (only for credibility) Analyst following (+) (for all) Industry type (+) (comprehensive and general content) Level of technology (-) (general content and usability) Profitability (N.S.) (for all)
Kelton & Yang, 2008, USA	284	Not mentioned	Not mentioned	36 UW	• Content (20) • Corporate governance (4) • Presentation (12) • Total index (36)	Shareholder right (+) (for Cont, C.G. and total) Managerial ownership (N.S.) (for all) Block ownership (-) (for pres, cont and total) Independent directors (+) (for all) Role duality (N.S.) (for all) Audit committee financial expertise (+) (for Cont, C.G. and total) Audit committee meeting frequently (+) (for all) Size (+) (for all) Profitability (N.S.) (for all) Firm growth (-) (for C.G. only) Shares issue (-) (for C.G. only) Information asymmetry (+) (for Cont, C.G. and total) Audit type (+) (for Cont, C.G. and total) Industry type

Note: summary of the empirical studies from 1998 to 2008, W: weighted checklist, UW: un-weighted checklist, N/A: the study did not use a checklist, +: significant positive relationship, -: significant negative relationship, N.S.: no significant relationship.

Abdelsalam et al. (2007) examine the relationship between the comprehensive CIR disclosure by 110 London-listed companies in mid-2005 and corporate governance measures. The study utilises an un-weighted disclosure index derived from 143 checklist items that contain general content, credibility and usability items. After controlling for size, profitability, industry and high growth/intangibles, four ordinary least square regressions using rank transformation and normal score are estimated to test the study's hypotheses. Generally, only the number of analysts following the company is positively associated with the four measures of CIR disclosure. More specifically, many results related to governance factors are found according to the classification of CIR disclosure. Director independence is positively related to CIR comprehensive and general content. Moreover, director holding associates negatively with CIR comprehensive, general content and usability. Similarly, role duality decreases the credibility of CIR.

Additionally, the importance of examining the effect of corporate governance on IFR is also evident in Kelton and Yang's, (2008) study in which they survey 284 companies listed on NASDAQ national market in 2004. To measure the IFR, an un-weighted checklist of 36 items grouped into content (24 items) and presentation (12 items) is developed. Corporate governance is measured by shareholder rights, ownership structure, board composition and audit committee variables. Based on seven control variables (size, profitability, growth opportunities, need for new external equity capital, information asymmetry, auditor type and industry), a separate Poisson regression model was conducted to test the postulated

hypotheses for each of the measures of IFR (total, content, presentation and corporate governance). Overall, large companies with a higher percentage of independent directors and more auditing committee meetings are more engaging in IFR. The findings reveal that the association between IFR and corporate governance varies according to a company's size. The study concludes that corporate governance mechanisms influence the transparency of company's disclosure.

However, few studies have examined IFR in Egypt. These studies are mainly descriptive and only two studies are empirical. Metwaly (2003) examines the top 140 companies in 2001. He finds that only 32.8% of the sampled companies have websites and 25.9% of those companies disclose financial information on them.

Mohamed (2002) compares the most active companies in three countries; Egypt (50 companies), Saudi Arabia (43) and Kuwait (12) in 2002. The study concludes that 48% of the Egyptian companies have websites but of these only 18% disclose financial information.

El-Dyasty (2004) also compares the top 100 listed companies in Egypt and the US in 2002. The study states that 55% of the sampled companies have websites but only 4% of those companies disclose financial information.

Tawfiq (2001) investigates the relationship between IFR and its determinants for 58 Egyptian banks at the end of 2000. He finds that 33% of the sampled banks have websites but only 26% disclose financial information. The study uses logistic regression instead of checklists to measure the dependent variables. The size and ownership structure are the only variables that determine the need for IFR in the sampled banks.

Ragab (2005) examines the extent of IFR and the explanatory factors that determine the application of IFR for the Egyptian listed companies (866) at the end of 2004. Only 30.4% of the companies have websites and 16.3% disclose financial information. The study utilises a weighted checklist to measure IFR; this checklist contains 35 items classified into: mandatory information, voluntary information and technology items. Ten firm characteristics variables are tested by the multiple regression analysis to investigate their influence on IFR. The study concludes that private sector companies and the importance of online disclosure are the only variables that are significantly associated with both the mandatory and voluntary information disclosure, while size is significantly related to mandatory information disclosure, and both information asymmetry and stock activity are significantly related to voluntary information disclosure.

We can conclude from the above studies that there is a lack of IFR studies in the Egyptian environment. In addition, there is a need for studies that aim to investigate the impact of corporate governance variables on IFR. This study tries to fill the gap in this area.

4.2 Hypotheses development

The main objectives of this study are: 1) examine the current situation of IFR in the Egyptian environment, and 2) investigate the relationship between IFR and firm characteristics, ownership structures and corporate governance. Each variable will be discussed below.

4.2.1 Ownership diffusion

Ownership diffusion refers to the dispersion and separation of ownership between managers and equity owners as a group (Haniffa and Cooke, 2002). According to agency theory, companies whose ownership structure tends to be diffused (widely held companies) intensively seek to reduce the conflicts between the shareholders (generally small) and management, which arise as a result of diversity in interests, by disclosing more information which may assist the shareholder in monitoring the behaviour of management. Therefore, the Internet will be a valuable source of disseminating information to the various numbers of investors who diffuse in widely range. This is confirmed by (Marston and Polei, 2004) who mention that widely held companies will tend to disclose more information on their websites to supply shareholders with necessary information.

Many studies test the relationship between ownership diffusion and IFR. Pervan (2006) and Trabelsi and Labelle (2006) find that there is an insignificant relationship between ownership diffusion and IFR. While, on the other hand, Debreceny and Rahman, 2005, Marston and Polei, (2004) and Oyelere et al., (2003) prove a significant relationship.

The ownership structure of the listed Egyptian companies consists of five groups; publicly/government owned, privately owned, employee owned, managerial owned and free float. Publicly/government owned structure includes holding companies, public bank and insurance, public mutual funds and other public institutions. Privately owned structure includes private banks and insurance, private mutual funds and other private institutions. Employee owned structure includes employee shareholders' association. Managerial owned structure includes management and founders. Free float structure includes private or individual investors.

Based on the prior studies, we expect to find a significant relationship between ownership structure and IFR. To test this relationship, we assume that:

H1: There is a positive relationship between ownership diffusion and the IFR.

4.2.2 Institutional ownership

Different shareholders have different interests which may influence decisions relating to the companies and

also require different monitoring capabilities. Most of the Egyptian companies' ownership structure contains a representative from institutions. According to the agency theory, the existence of institutions alleviates the conflict between shareholders and management as they tend to encourage companies to disclose more information to reduce information asymmetry. Diamond and Verrecchia (1991) argue that information asymmetry will be reduced by increasing the level of public disclosure and this situation is expected by the investment funds.

Regarding the relationship between this variable and disclosure, the results are contradictory. Schadewitz and Blevins (1998) find that institutional ownership is negatively associated with the interim disclosure of Finnish companies. El-Gazzar (1998) concludes that large institutional ownership may encourage firms to increase their voluntary disclosure.

Institutions ownership could be sensitive to a company's disclosure for many reasons (Bushee and Noe, 1999). First, if disclosure reduces the price impact of traders (Healy et al., 1999), the information asymmetry which arises from agency cost will be minimised between the companies and their institutions; second, if disclosure influences the potential for profitable trading opportunities; and finally, if corporate governance activities are influenced by public disclosure.

In Egypt, the percentage of institutional has ownership increased over the last few years. One of the reasons for this increase is that large privatisation deals were mainly conducted by institutions (Abdel Shahid, 2003). Several major Egyptian private investor groups have acquired substantial equity in a number of privatised companies (PCSU, 2002). The ownership structure of listed Egyptian companies is characterised by mixed ownership which is comprised of government, institutional, employees and individual investors. Due to the acceleration of the privatisation process in the last few years, it can be expected that institutional investors will increase their proportion in listed Egyptian companies.

Therefore, we extend previous studies that examine the relationship between institutional investors and voluntary disclosure, to test the impact of institutional investors on IFR for listed Egyptian companies. Haniffa and Cooke (2002) find a negative relationship between voluntary disclosure and institutional investors. However, this relationship is not significant.

The following hypothesis tests the relationship between institutional ownership and the IFR:

H2: There is a relationship between institutional ownership and the IFR.

4.2.3 Board Size

"At the heart of every governance system is a board (or boards) of corporate directors, charged with directing and overseeing corporate affairs" Marek Hessel, (2006). An effective board of directors is considered to be an effective internal corporate governance device when external devices such as legal environment, enforcement, and market discipline are not developed enough to ensure better governance of corporations.

The number of directors on the company's board may play a critical role in the monitoring of the board and in taking strategic decisions. According to the agency theory, there is a separation between the owners' equities (shareholders) and management which requires more monitoring procedures to regulate this relationship. Proponents of agency theory argue that the market for corporate control disciplines managers, but when there is poor performance that requires restructuring action, internal governance systems intervene before external market forces activate (Singh et al., 2004). Johnson et al., (1993) posit that boards generally prefer to promote firm efficiency, and hence help shareholder wealth preservation, before letting the market impose discipline on management. Increasing the number of the board size may increase the number of independent members and consequently the level of voluntary disclosure and reduce the dominance of the CEO (Mak and Roush, 2000; Singh et al., 2004; Yermack, 1996). Haniffa and Hudaib (2006) conclude that board size has a significantly negative relationship with market performance.

On the other hand, some studies illustrate that large boards could cause more conflict between the members of the board which may delay critical decisions. In addition, large boards may weaken the communication and the processing of information (Huther, 1997; Jensen, 1993; John and Senbet, 1998). Cheng and Courtenay (2006) find that the board size of Singapore's listed companies is not associated with voluntary disclosure.

In Egypt, board structure and responsibilities are regulated mainly by the Company Law 159/1981. Further enhancement of board practices within the framework of corporate governance is elaborated in the new Listing and Delisting Rules (Sourial, 2004). The board of directors' membership structure is dominated by the one-tier structure, and consists of an odd number with a minimum of three members. The Egyptian code of corporate governance emphasises heavily the role of the board and its responsibilities to supervise the achievement of the company's goal which leads to the company's success.

Based on the above arguments, the relationship between the board size and IFR can be tested by the following hypothesis:

H3: There is a positive relationship between board size and the IFR.

4.2.4 Board Independence

Board independence is defined as "the proportion of outside directors to the total number of directors" and is also known as board composition (Haniffa and Cooke, 2002). Board composition can be interpreted

in terms of agency theory which reveals a conflict of interest between two groups: those who own the money (shareholders) and those who manage this money (management). The board of directors is expected to be the link between the two groups who try to alleviate this conflict. Consequently, the proponents embrace the agency theory which premises that non-executive directors should be on the board in large proportions in order to monitor and control the action of executive directors and safeguard the interests of shareholders (Fama and Jensen, 1983). Forker (1992) confirms that the monitoring of management by non-executive directors makes management more responsive to the shareholders' interests (e.g. maximises the profits) and also more responsive to investors (e.g. provides more disclosed information), and therefore the management will be more in compliance with the disclosure requirements. Further, Gul and Leung (2004) argue that a higher proportion of non-executive directors will reduce the dominance of the chief executive officer (CEO) on the board.

In contrast, opponents of having a non-executive majority on the board argue that non-executive directors do not have sufficient information about the activities of the company and this may restrict critical decisions (Goodstein et al., 1994), increase the level of monitoring (Baysinger and Butler, 1985) and finally lead to lack of real independence (Demb and Neubauer, 1992).

The results of this variable are mixed. Xiao et al.,(2004) prove that a large proportion of independent directors increases both the IFR format of Chinese companies and the disclosure of information not required by the China Securities Regulatory Commission. Based on their findings from 110 London-listed companies, Abdelsalam et al. (2007) report that director independence is positively associated with comprehensive corporate internet reporting, general content and credibility. Similarly, Kelton and Yang (2008) find that companies with a higher percentage of independent directors are more engaged in IFR.

In contrast to the above results, Eng and Mak (2003) examine the relationship between outside directors and the level of disclosure of Singapore companies. They find that the large proportion of outside directors decreases the level of disclosure. In addition, Gul and Leung (2004) provide evidence that independent directors are negatively associated with the level of voluntary disclosure. Haniffa and Cooke (2002) find no relationship between the proportion of independent directors and the extent of voluntary disclosure of Malaysian corporations.

In Egypt, there are no rules that govern the board structure being made up of executive or non-executive managers (Fawzy, 2003). There should be no more than three executive managers on the board of directors which mean that the majority of the board members are non-executive. In most companies, there is no actual separation between the board of directors and the executive management. It is a one-tier structure of management (ibid).

Recently, the Egyptian corporate governance code stated that the board should include a majority of non-executive directors with highly technical and analytical skills who should fulfil their obligations to the company (Gamal El-Din, 2008).

The following hypothesis tests the relationship between the proportion of independent directors and IFR:

H4: There is a positive relationship between the proportion of independent directors and IFR.

4.2.5 Role duality

Role duality occurs between the CEO (chief executive officer) and the chairman when one person holds both positions at the same time. Proponents of agency theory advocate the separation of the two roles to support the essential checks and balances over management's performance (Haniffa and Cooke, 2002). Blackburn (1994) provides additional support for the separation of the two roles. Further, concentrating the power of the chairman and CEO in one person may create a dominant individual which could weaken the board's independence and affect the governance role of the board (Kelton and Yang, 2008).

On the other hand, proponents of stewardship theory deal with managers as trustworthy people who act in the best interests of the firm and shareholders. Therefore, there is no problem if the two roles are combined as many companies will run effectively with combined roles and have strong boards capable of providing adequate monitoring (Haniffa and Cooke, 2002; Heracleous, 2001). In addition, when the CEO is also the chairman, the effectiveness of performing the governing function increases as a result of the ability of the CEO to control board meetings, select agenda items and select board members (Haniffa and Cooke, 2002).

Gul and Leung (2004) report that duality is negatively associated with the level of voluntary disclosure in the annual reports of Hong Kong companies. Haniffa and Cooke (2002) prove that duality is not associated with the extent of Malaysian companies' voluntary disclosure. Similarly, Abdelsalam et al. (2007) find no relationship between role duality and corporate Internet reporting. In addition, Kelton and Yang, (2008) conclude that role duality is not associated with IFR.

In Egypt, the board chairman is often also the managing director. The board member responsible for administration is sometimes called the managing director or the executive director, and the board decides his/her remuneration (Fawzy, 2003). The Egyptian corporate governance code states that the board appoints a chairman who is preferably not the chief executive officer at the same time. If not possible, reasons should be clearly stated in the

annual report and in this case, the deputy chairman should be a non-executive. According to World Bank (2004, a) most of the board chairmen in Egyptian companies are also the chief executive officers.

The following hypothesis tests the relationship between role duality and IFR:

H5: There is a negative relationship between role duality and IFR.

4.2.6 Competitive pressures

Competitive pressures are related to the threats which companies may encounter from the existence of new competitors into the market. Many studies demonstrate that the degree of competition faced by a company may encourage it to disclose more information (Clinch and Verrecchia, 1997; Darrough and Stoughton, 1990; Verrecchia, 1983).

Competitive pressures can be viewed through the signalling theory, as companies are not willing to disclose more information in order to avoid being seen in a bad position when compared with their competitors. Hayes and Lundfiolm (1996) investigate the relationship between the extent of segmental disclosure and past return on equity as a proxy to competitor entrance to the market and find that there is a negative relationship. Moreover, Ghazali and Weetman (2006) examine the relationship between competitive costs (at both company and industry levels) and voluntary disclosure. They find that there is no association between competitive costs and the level of voluntary disclosure. Trabelsi and Labelle (2006) also conclude that there is an insignificant relationship between online disclosure and competitive pressures. The following hypothesis tests the relationship between competitive pressures and IFR:

H6: There is a negative relationship between competitive pressures and IFR.

4.2.7 Type of auditor

The type of auditor refers to the company that audits the financial reports of companies. Nowadays, audit firms are classified into two groups; Big4 audit companies and small (i.e. not Big4). According to signalling theory, the selection of a Big4 company is a signal to the market that the audit process is performed effectively and the disclosed information is reliable. The Big4 audit companies will influence companies to disclose additional information because they have greater skills and experience (Wallace, et al., 1994) and they also want to maintain their reputation in the market (Ahmed and Nicholls, 1994; Haniffa and Cooke, 2002).

Previous studies show contradictory results for this variable. For instance, Haniffa and Cooke (2002) find no significant relationship between big audit firms and the extent of voluntary disclosure of information. Similarly, Malone et al. (1993) conclude that the type of audit firm is insignificant with regard to financial disclosure. On the other hand, Ahmed and Courtis (1999) demonstrate that a big audit firm is positively associated with voluntary disclosure. Xiao et al. (2004) conclude that Chinese companies audited by big audit firms have more Internet corporate disclosure. Kelton and Yang (2008) find that Big4 audit companies are significantly associated with IFR.

The audit companies responsible for auditing listed Egyptian companies consist of two groups: public agency and private companies. Public agency is represented in the Central Auditing Agency (CAA) – an independent public organisation established by Law 144/1988 and amended by Law 157/1998 – and is responsible for the auditing of state-owned companies by law 203/1991. On the other hand, any companies registered under Company Law 159/1981 should present annual audited financial statements. Private agencies include any agency licensed by Accounting Practice Law 133/1951 that is responsible for auditing companies registered under Law 159/1981. Some of these agencies are agents for international auditing companies such as; Hazem Hassan – agents for KPMG, Mansour and Co. – agents for PricewaterhouseCooper (PwC), Saleh, Barsom, Abdel Aziz & Co. – agents for Deloitte Touche, and Emad Raghab – agents for Ernst & Young (EY). Based on the previous studies, we test the following hypothesis:

H7: There is a positive relationship between the type of auditor and IFR

4.3 Sample and variable measurements

4.3.1 Sample

The study examines the websites of the top 100 Egyptian listed companies in the Egyptian Exchange at the end of 2006. We sort all listed companies at the end of 2006 (595 companies) by market capitalisation and choose the highest 100 market capitalisation companies (see Appendix 2). These 100 companies are investigated to determine which companies have websites. Only 78 companies have websites (i.e. 78%), and of these companies only 50 companies (i.e. 64%) disclose financial information on their websites. As we examine only IFR, we use the 50 companies that disclose financial information on their website to investigate the determinants of IFR.

4.3.2 Measurement of IFR

IFR is measured by calculating a disclosure index derived from a checklist that contains 51 items. We classify these items into two main groups: content and presentation. Many studies indicate that the content and presentation of internet disclosure can increase the disclosure transparency (Hodge et al., 2004; Kelton and Yang, 2008). According to Ettredge et al. (2002), IFR can provide a complementary disclosure to stakeholders through disseminating alternative types of disclosure not required by the regulatory bodies. Consequently, we use 27 content items to measure the type of financial information disclosed on

the website and 24 presentation items to measure how information is presented on the website. These items are based on the literature (Debreceny et al., 2002; Kelton and Yang, 2008; Marston and Polei, 2004; Xiao et al., 2004).

Based on Ashbaugh et al. (1999), firms are practising IFR if they disclose on their website (1) a comprehensive set of financial statements (including footnotes and the auditors' report), (2) a link to their annual report elsewhere on the Internet or (3) link to EDGAR. In addition, Ettredge et al. (2001) add some items to determine whether the companies disclose financial information on their website such as; stock price, press release and highlights of financial information. We define Egyptian listed companies as practising IFR if they disclose on their website (1) any part of their annual report (either separately or within the annual report), (2) any information about their stock price (either on the website or linked to the Egyptian Exchange, (3) any information about their dividends or press releases, and (4) any summary or highlights of financial information.

Accordingly, each company's website is examined to determine whether the company discloses financial information. Only 50 companies disclose this information. After that, we re-examine these 50 companies to calculate the total, content and presentation IFR index. Each company scores 1 if the item in the checklist is disclosed and scores 0 otherwise[4].

4.3.3 The reliability of IFR scale

The disclosure index is a research tool which measures a theoretical concept that cannot be measured directly. Therefore, it should assess whether this index is reliable for the extent of IFR or not. One method to achieve that is by applying Cronbach's coefficient alpha. Cronbach's coefficient alpha assesses the internal consistency of IFR items by determining the degree to which correlation among IFR disclosure items is attenuated due to random error (Kelton and Yang, 2008; Gul and Leung, 2004) . There is, however, no acceptability standard for this reliability measure. Gul and Leung (2004) find that Cronbach's coefficient alpha for their disclosure index is .51, while Botosan (1997) finds it to be .64 for her disclosure index. However, Kelton and Yang (2008) find Cronbach's coefficient alpha for the three categories of the IFR scale (format, content, corporate governance and total) to be .6, .77, .73 and .82 respectively. As a rule of thumb, an alpha of .8 for widely used scales is acceptable to indicate that the correlations are attenuated very little by random measurement error (Carmines and Zeller, 1991). The study finds that Cronbach's coefficient alpha for the three IFR components (TOTAL, CONTENT and PRESENTATION) are .934, .937, and .732 respectively.

4.3.4 Explanatory variables

All the data are obtained from the Egypt Information Dissemination Company (EGID), the Disclosure Book issued by CASE in July 2007 and Kompass Egypt Financial Year Book 2007/2008. Table 2 summarises the explanatory variables used in this study.

[4] The study employs an un-weighted disclosure items checklist to avoid a subjective view.

Table 2. Explanatory variables and their proxies

Variables	Proxies	Sources
1) Firm Characteristics Variables		
Size	Natural logarithm of total assets	Abdelsalam et al., 2007
Type of business activity	One if the company is financial, and zero otherwise	Eng & Mak, 2003
Profitability	Return on equity	Kelton and Yang, 2008
Leverage	Total liabilities to total equity	Xiao et al., 2004
Competitive pressures	Average return on equity over the last five years	Trabelsi and Labelle, 2006
Type of auditor	One if the company is audited by any of the Big4 audit companies, and zero otherwise	Kelton and Yang, 2008
2) Ownership structures variables		
Ownership diffusion	Free float	Marston and Polei, 2004
Institutional ownership	Percentage of shares held by institution	Haniffa and Cooke, 2002
3) Corporate governance variables		
Board size	The number of board of directors members	Gani and Jermias, 2006
Board independence	The ratio of non-executive members to total members on the board of directors	Kelton and Yang, 2008
Role duality	One if the chairman is the same person as the CEO, and zero otherwise	Kelton and Yang, 2008

Note: the measurement of explanatory variables

4.3.5 Control Variables

Previous studies identify many variables that have been tested empirically for IFR choices. We control for four variables, namely company size, type of business activity, profitability and leverage. Some variables such as company size are generally significant in prior studies (Ashbaugh et al., 1999; Craven and Marston, 1999; Brennan and Hourigan, 2000; Debreceny et al., 2002; Ettredge et al., 2002; Oyelere et al., 2003; Marston and Polei, 2004; Xiao et al., 2004; Borbolla et al., 2005; Bollen et al., 2006; Abdelsalam et al. 2007; Kelton and Yang 2008). We measure company size (Size) by the natural logarithm of total assets on December 31, 2006.

Other variables have mixed results. Some studies show that there is a significant relationship between online disclosure and the type of business activity (Ashbaugh et al., 1999; Bonson and Escobar, 2002; Borbolla et al., 2005; Brennan and Hourigan, 2000; Craven and Marston, 1999; Ismail, 2002; Oyelere et al., 2003), while others show an insignificant relationship (Debreceny and Rahman, 2005; Larran and Giner, 2002; Trabelsi and Labelle, 2006). We measure type of business activity (Type) by dummy variables.

In addition, according to the signalling theory, only companies that achieve high profits disclose more information on their website to raise shareholders' confidence and reduce the risk of under-valuation of their shares by the market. Some studies state that profitability is significantly associated with IFR (Ashbaugh et al., 1999; Debreceny and Rahman, 2005; Ismail, 2002), while others show an insignificant association (Larran and Giner, 2002; Marston and Polei, 2004; Oyelere et al., 2003; Xiao et al., 2004). We measure profitability (Prof.) by return of equity on December 31, 2006.

Finally, empirical studies which investigate the relationship between leverage and online disclosure are inconclusive. Some studies show a significant relationship (Ismail, 2002; Xiao et al., 2004), while others show an insignificant relationship (Bollen et al., 2006; Brennan and Hourigan, 2000; Debreceny et al., 2002; Larran and Giner, 2002; Oyelere et al., 2003). We measure leverage (Lev) by total liability to total equity on December 31, 2006.

To test the relationship between IFR and its determinants, we perform ordinary least squares (OLS) regression. Three OLS regression models are run; the first is for ***TOTAL*** IFR, the second is for ***CONTENT*** IFR and the last is for ***PRESENTATION*** IFR. The model constructed for the three OLS regression models is:

$$\mathbf{IFRI}_{i} = \beta_0+\beta_1\mathbf{Size}+ \beta_2\ \mathbf{Type} + \beta_3\ \mathbf{Prof}+ \beta_4\ \mathbf{Lev}+ \beta_5\ \mathbf{Comp} + \beta_6\ \mathbf{Audit} + \beta_7\ \mathbf{Own}+ \beta_8\ \mathbf{Ins\text{-}Own}+ \beta_9\ \mathbf{B\ Size}+ \beta_{10}\ \mathbf{B\ Ind}+ \beta_{11}\ \mathbf{Duality} + \varepsilon$$

Where:

- **IFRI:** IFR index $_i$ = number of indices.
- β_0 = the intercept,
- **Size:** donates company size,
- **Type:** is a dummy variable for the type of business,
- **Prof:** donates profitability,
- **Lev:** donates leverage and,
- **Comp:** donates competitive pressure,

- **Audit:** is a dummy variable for the type of audit,
- **Own:** denotes the ownership diffusion,
- **Ins-own:** donates institutional ownership,
- **B Size:** donates the board size,
- **B Ind**: donates the board independence, and
- **Duality**: donates role duality.

5. Data Analysis and results

5.1 Descriptive results

By examining the websites of the 50 Egyptian listed companies that disclose financial information on their website, we find that the quality of financial disclosure on the websites of the Egyptian listed companies is reasonably acceptable. Only 24% of the sampled companies disclose a full annual report on their website. Compared with previous studies, Xiao et al., (2004) find that half of their Chinese sampled companies disclose full annual reports on their websites. However, Kelton and Yang (2008) find that 263 US companies (92.6%) disclose full annual reports. Most of the previous Egyptian studies do not examine this item except El-Dyasty (2004) who finds that only 11 companies (20.7%) disclose full annual reports and Metwaly (2003) who finds only 5 Egyptian companies disclose full annual reports. Most of the disclosed annual reports are presented in PDF format (34%) and only 2% are in HTML. This is consistent with the findings of Marston and Polei (2004) who reveal that 44 German companies (88%) disclose annual reports in PDF format while only 11 companies (22%) disclose them in HTML.

FASB (2000) mentions that there are two types of format for companies to present their financial information: HTML and PDF. HTML is the common standard language to disclose information on the company's website, while PDF is a file format that needs special software (i.e. Adobe Acrobat Reader) to read and print the required information which is most like a traditional hard copy document. Generally, HTML and PDF are the most popular formats for the purpose of disclosing information on a company's website (FASB, 2000; Allam and Lymer, 2003). Acrobat files are relatively large, and may take a long time to download which makes some listed Egyptian companies break down their annual report into many financial statements and present them in PDF format to diminish the sizes of the files and thus reduce the time it takes to download (IASC, 1999; Allam and Lymer, 2002), or in HTML to allow hypertext links to facilitate navigation within the homepage and between sites (Petravick, 1999). This explains why listed Egyptian companies prefer to disclose some financial statements on their websites (e.g. balance sheet 56% PDF and 38% HTML and income statement 56% PDF and 36% HTML) rather than disclosing full annual reports (34% PDF and 2% HTML).

The three most disclosed content items are the balance sheet (94%), income statement (92%) and previous financial statements (78%). Few companies disclose past dividends (12%). On the other hand, the three common presentation items have clear boundaries between annual reports and other information (80%), printing formats (68%) and graphics images (58%). Few companies use hyperlinks inside the annual report (2%) and webcasting events (2%). Table (3) summarises the findings of the items disclosed on the Egyptian listed companies.

Table 3. The disclosure of IFR components

Items	N.	%
(1) Content		
1 Current annual report	12	24
2 Last year's annual report	15	30
3 Balance sheet (full or excerpt)	47	94
4 Income statement (full or excerpt)	46	92
5 Cash flow or funds flow statement (full or excerpt)	33	66
6 Statement of changes in stockholders' equity (full or excerpt)	31	62
7 Notes to the accounts	32	64
8 Management report/analysis	17	34
9 Auditor report (with or without signature)	29	58
10 Interim report	21	42
11 Share price history	14	28
12 Company's Capital Data	33	66
13 Share price performance in relation to stock market index	12	24
14 Summary of key financial ratios (current or history)	26	52
15 Summary of financial data (current or history)	30	60
16 Segmental reporting by line of business	23	46
17 Financial highlights/summary	26	52
18 Industry statistics or data	13	26
19 Past dividends	6	12
20 Earnings or sales forecast	14	28
21 Press release (current or history)	28	56
22 Market share of key products	19	38
23 Name of investor relations officer	11	22
24 E-mail of investor relations	19	38
25 Phone number of investor relations	12	24
26 Postal address of investor relations	5	10
27 Any previous financial statement	39	78
(2) Presentation		
1 Annual report in PDF format	17	34
2 Annual report in HTML format	1	2
3 Balance sheet in PDF format	28	56
4 Balance sheet in HTML format	19	38
5 Income statement in PDF format	28	56
6 Income statement in HTML format	36	36
7 Cash flow or funds flow statement in PDF format	25	50
8 Cash flow or funds flow statement in HTML format	8	16
9 Statement of changes in stockholders' equity in PDF format	24	48
10 Statement of changes in stockholders' equity in HTML format	6	12
11 Hyperlinks inside the annual report	1	2
12 Annual report in English version	18	36
13 Any financial statement in English version	24	48
14 Clear boundaries between the annual report and other information	40	80
15 Change to printing-friendly format possible	34	68
16 Privacy statement	9	18
17 Legal statement	11	22
18 Site Map	15	30
19 Feedback	17	34
20 Graphic images	29	58
21 Flashes	26	52
22 Sound files	7	14
23 Video files	4	8
24 Web casting events	1	2

Note: A score of 1 (if items are disclosed) and 0 (if not)

Descriptive statistics for the dependent and independent variables are provided in table (4).

Table 4. Descriptive analysis of both dependent and independent variables

Variables	Mean	Min.	Max.	Std. Dev.
Panel A: Dependent V.				
Total	20.46	1	41	10.82
Content	12.28	1	26	7.51
Presentation	8.18	0	16	3.82
Panel B: Independent V.				
Size	6.44	4.48	7.69	.72
Prof	.24	-.47	.94	.23
Lev	4.55	-1.45	26.51	6
Comp	.16	-.16	.58	.17
Own	.31	.005	.88	.23
Ins-Own	.33	0	1	.34
B Size	9.12	3	15	3.04
B Ind	.76	.20	.93	.16
Panel C: Dummy Independent V.	Frequency		%	
Type : Financial	30		60	
Non financial	20		40	
Audit : Big4	29		58	
Not Big4	21		42	
Duality : Role duality	30		60	
No role duality	20		40	

Note: Size = company size, Type = type of business, Prof = profitability, Lev = leverage, Comp= competitive pressures, Audit = audit type, Own = ownership diffusion, Ins-Own= institutional ownership, B Size = board size, B Ind = board independent and Duality = role duality

From table 4, it can be concluded that of a possible TOTAL score of 51, the highest score is 41 and the lowest is 1. The mean is 20.64, indicating that the extent of IFR disclosure is slightly low according to our IFR measurement items in the checklist. The mean content items (12.28) tend to be disclosed more than the mean presentation items (8.18) which indicate that the Egyptian listed companies are concerned more with the type of information disclosed than the format of this information. The differences between the highest total score (41) and the lowest (1) indicate that there is a high variation in the type and format of information disclosed on the sampled companies' websites.

On average, the Egyptian companies' board of directors is made up of 9 members, 76% of whom are independent directors, and 60% of their chairmen are also the CEOs of these companies. Moreover, most of the sampled companies are financial, audited by the Big4, and tend to have ownership concentration. However, only 33% of their shares are held by institutions. The multi-collinearity problem was checked by performing a correlation matrix and Variance Inflation Factor (VIF) and Tolerance values. Table 5 and 6 summarise these results.

Table 5. Correlation matrix of independent variables

	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
(A)	.236	.009	.551	.019	.241	.102	.090	.123	-.009	-.131
(B)		-.385	.379	-.402	.281	.249	.196	.416	.241	-.250
(C)			-.077	.421	.064	-.264	-.316	-.207	-.032	-.011
(D)				-.074	-.004	-.135	.114	.029	.010	-.127
(E)					-.228	-.091	-.255	-.217	-.134	.083
(F)						.312	-.237	.290	-.189	-.447
(G)							.207	.321	.019	-.214
(H)								.335	.221	.049
(I)									.469	-.158
(J)										.157

Note: A: Size, B: Type, C: Prof, D: Lev, E: Comp, F: Audit, G: Own, H: Ins-Own, I: B Size, J: B Ind and K: Duality.

Table 6. VIF and Tolerance values for the independent variables

Variables	**VIF**	**Tolerance**
Size	1.675	.597
Type	2.212	.452
Prof	1.627	.615
Lev	2.436	.411
Comp	1.616	.619
Audit	2.463	.406
Own	1.435	.697
Ins-Own	1.575	.635
B Size	1.837	.545
B Ind	1.463	.684
Duality	1.344	.744

Note: Size = company size, Type = type of business, Prof = profitability, Lev = leverage, Comp= competitive pressures, Audit = audit type, Own = ownership diffusion, Ins-Own= institutional ownership, B Size = board size, B Ind = board independent and Duality = role duality

From table 5, we can conclude that there is no serious multi-collinearity between the independent variables. The rule of thumb for checking problems of multi-collinearity is when the correlation coefficient is > 0.800, (Gajarati, 2003, p.359). In addition, Table 6 indicates that all VIF values are below 10 and Tolerance values are bigger than 0.1 which indicates that there is no multi-collinearity between the Independent variables (Field, 2009).

5.2 Multivariate analysis results

For the multivariate analysis, we run three regressions models, one for each of the three dependent variables (TOTAL, CONTENT and PRESENTATION)[5]. All three models are significant at $p < .0001$. The results for the three models are summarised in table 6.

[5] The normality test was performed using Skewness/Kurtosis test which is summarised in Appendix 3. The leverage and board independence are not normally distributed. Therefore, following Abdelsalam et al., (2007); Abdelsalam and Street, (2007); Lang and Lundholm (1993); Wallace and Naser, (1995), the non-normality variables were transformed into ranks before running the regression model.

Table 6. OLS results of the association between corporate governance, firm characteristics and IFR

Dependent V.	Exp. Sign	Coef.	T Statistic	Coef.	T Statistic	Coef.	T Statistic
		Total		**Content**		**Presentation**	
CONSTANT		-.530***	-2.666	-.684***	-2.838	-.357**	-1.987
Size	+	.110***	**3.207**	.143***	**3.452**	.072**	**2.331**
Type	+/-	-.095*	**-1.665**	-.196***	**-2.815**	.017	.334
Prof	+	.187*	**1.744**	.175	1.347	.202**	**2.067**
Lev	-	-.001	-.247	-.002	-.342	.000	-.066
Comp	-	-.159	-1.099	-.222	-1.272	-.087	-.664
Audit	+	.115*	**1.916**	.180**	**2.478**	.042	.766
Own	+	.443***	**4.427**	.616***	**5.080**	.248***	**2.743**
Ins-Own	+/-	-.095**	**-2.009**	-.124**	**-2.151**	-.063	-1.477
B Size	+	.010	1.212	.008	.820	.012*	**1.613**
B Ind	+	.056	-.384	.055	.312	.057	-.431
Duality	-	-.016	-.350	-.014	-.249	-.018	-.448
P value		0.000		0.000		0.000	
F-Ratio		7.731		9.635		4.284	
Adj. R^2		60.2 %		66%		42.4 %	

Note: *, ** and *** indicate significant at 10%, 5% and 1%, respectively.

Our findings support hypothesis H1 for all the three models. Contrary to Abdelsalam et al., (2007) and Trabelsi and Labelle (2006), who find no relationship between ownership diffusion and online disclosure, this study finds that the more diffusion in the ownership structure, the more engagement for the Egyptian companies in IFR. This explains the advantages of using the Internet as an additional tool to reach widely-spread owners, which reduces the owners' information costs and in turn supports the shareholders in monitoring the management behaviour (Oyelere et al., 2003). This result is confirmed by Marston and Polei (2004), who examine the relationship between ownership diffusion and IFR for two samples in 2000 and 2003. The study demonstrates that ownership diffusion is positively related to IFR (TOTAL, CONTENT and PRESENTATION) only for the sample of 2000. In addition, Oyelere et al. (2003) mention that the spread of ownership is positively associated with IFR. Pirchegger and Waganhofer (1999) investigate the relationship between the online disclosure and free float (as a proxy for ownership diffusion) for two samples: Austrian and German companies. The study demonstrates that free float is only significant for the online disclosure of the Austrian companies.

For hypothesis H2, we expect a significant relationship between institutional ownership and IFR. Our results support this inference as we find that institutional ownership in the Egyptian companies has a negative effect on IFR. One reason for this is the desire of these institutions to disclose less information on the companies' websites to be in a more advantageous position than their competitors. These institutions have already the required information about their companies as they share in the ownership structure of these companies. Our findings are consistent with Schadewitz and Blevins (1998) who find a negative association between institutional ownership and disclosure. In addition, Sriram and Laksmana (2006) demonstrate that companies with more institutional investors disclose fewer items on their websites. Moreover, Haniffa and Cooke (2002) find a negative relationship between institutional ownership and the level of voluntary disclosure, but this relationship is insignificant.

Our findings support hypothesis H3 that board size has a significant association with IFR. We find that increased members on the board of directors increase the PRESENTATION of the disclosed information on the companies' websites. Many ideas about how to disclose financial information on the website may be discussed when there are a large number of board members. Dallas (2003) argues that a larger board size brings more resources to firms and therefore might improve their performance, which is reflected in the improvement of disclosure level. Our result is consistent with Abdel-Fattah, (2007) who claims that the larger the size of the board, the more likely the voluntary disclosure. Moreover, Gani and Jermias (2006) find that board size is positively related to the performance of the firm which increases the disclosed information. However, no evidence is provided to support the relationship between board size and TOTAL and CONTENT. This is supported by Cheng and Courtenay (2006) who find that board size has an insignificant association with the level of voluntary disclosure.

For hypothesis H7, we find that Egyptian companies that are audited by the Big4 audit companies disclose more financial information on their website. In addition, we find that audit type is positively related to ***CONTENT*** of the disclosed information. This is due to the confidence that the

Big4 audit companies provide to the users of the financial statements, as well as the pressure that these companies bring to bear on Egyptian companies to disclose more information. This finding is consistent with (Kelton and Yang, 2008) who find that audit type is positively associated with the US IFR measures (TOTAL and CONTENT). Similarly, Xiao et al. (2004) find that audit firms increase the level of IFR for voluntary disclosure items. The results of Craswell and Taylor (1992) and Inchausti (1997) also support a positive relationship between audit type and the level of disclosure.

For our control variables, we find that size is associated positively with TOTAL, CONTENT and PRESENTATION. The reason for this is that large Egyptian companies have the motivation and resources for disclosing more information on their websites. Moreover, large companies are characterised with large outside equity that requires disclosing more information on their websites to hold their existing shareholders and also attract new ones. This result is consistent with most of the previous studies. Kelton and Yang (2008), Marston and Polei (2004) and Xiao et al. (2004) find a positive relationship between size and online disclosure.

In addition, the study finds that non financial companies are more likely to disclose different types of financial information than financial ones. Also, it finds that non-financial companies are more engaged in the TOTAL IFR than financial ones. This is not a surprising result as the content of the disclosed information on Egyptian companies' websites varies on a large scale for the non-financial companies that provide additional financial information for their investors (such as: share price history, dividends, some financial highlights, etc.), while most financial companies provide only financial statements with no supplemental information. This result is consistent with Debreceny and Rahman (2005), who investigate the relationship between industry class (financial and non-financial) and the frequency of continuous online disclosure in eight developed markets in Asia and Europe. They find that in France, the non-financial sector continuously discloses their information online more than that of financial sectors. Moreover, Bonson and Escobar (2002) conclude that companies in resources and industrial sectors seem to disclose more information than companies in financial and technological sectors. Although Eng and Mak (2003) find that non-financial companies disclose more information on their website than financial companies, the relationship was insignificant. Our results show no relationship between business type and PRESENTATION. This is confirmed by Craven and Marston (1999) and Larran and Giner (2002) who find no effect of industry type in IFR.

Moreover, we find an evidence of a positive relationship between profitability and both ***TOTAL*** and ***PRESENTATION***. This is because of the awareness of the profitable Egyptian companies to present themselves to different stakeholders by disclosing more information on their website. Profitable companies tend to show the "good image" of their companies to attract more stakeholders to invest in these companies. This result is consistent with Ashbaugh et al. (1999) who find that profitable US companies are more engaged in IFR. In addition, Debreceny and Rahman (2005) conclude that there is a positive relationship between profitability and higher frequencies of continuous online disclosure. Hannifa and Cooke (2002) also find a positive relationship between profitability and the level of voluntary disclosure. However, we find no significant relationship between profitability and ***CONTENT***. This result is consistent with Marston and Polei (2004) who find no association between profitability and ***CONTENT***.

The study also finds no significant relationship between IFR (***TOTAL***, ***CONTENT,*** **and** ***PRESENTATION***) and board independent (H4), role duality (H5), competitive pressure (H6), and leverage.

6. Conclusion, limitation and future research

This study extends the previous studies by examining the effect of corporate governance and ownership structure on the IFR of the top 100 Egyptian listed companies. To the best of the authors' knowledge, there is no previous study in the Egyptian environment which investigates the relationship between corporate governance and online disclosure. This study seeks to fill the gap in this area. The descriptive results indicate that Egyptian listed companies should improve their disclosure quality by disseminating full annual reports on their websites.

Our OLS regression models indicate that firm size and ownership diffusion are positively associated with the three dependent variables (***TOTAL***, ***CONTENT*** and ***PRESENTATION***). Consistent with previous studies, we find that profitability is positively associated with ***TOTAL*** and ***PRESENTATION***, audit type is positively related to ***TOTAL*** and ***CONTENT***. However, institutional ownership is negatively associated with ***TOTAL*** and ***CONTENT.*** Type of business activity is significantly related to ***TOTAL*** and ***CONTENT***. Finally, we find that board size positively influences ***PRESENTATION***.

As a result of globalisation, dramatic changes have been happening in the stock market of developing countries. Foreign investors are allowed to invest in the domestic stock market (Bekaert and Harvey, 2000). Many reasons have hindered investors from investing in emerging markets, among them a lack of corporate governance and transparency (Banz and Clough, 2002; Gibson, 2003; World Bank, 2004). In a similar vein, Hodge et al. (2004) mention that investor decisions are affected by the variation in the transparency of IFR. Moreover, the Sarbanes-Oxley Act (2002) requires companies to increase their level

of financial information transparency and enhance their disclosure quality by commitment to corporate governance rules. Consequently, corporate governance rules may affect the usage of IFR which becomes an important request from investors in order to obtain timely financial information, and can improve disclosure transparency by both the content and presentation format of internet disclosure (Kelton and Yang, 2008).

Therefore, it is important for the emerging markets (e.g. Egypt) to be more aware of the importance of corporate governance and timely disclosure provided by IFR to protect investor's interests and satisfy their information needs. The Internet enables Egyptian companies to increase their communication with investors by providing unique presentation tools that are not available in a traditional paper-based disclosure, which increases the frequency of disclosed information (Ashbaugh et al. 1999; FASB, 2000). In addition, as a result of the voluntarily nature of online disclosure, there will be a flexibility in the content of disclosed information on the Egyptian companies' websites. This makes IFR an important research area in the Egyptian context.

Examining the relationship between IFR and corporate governance is a fundamental research problem the findings of which may provide empirical evidence to many parties. From a company perspective, the importance of disclosing financial information via the Internet for investors may encourage Egyptian companies to determine the key factors which impact on IFR – especially corporate governance. Providing timely and accurate information via companies' websites will attract more investors to invest in these companies which in turn will increase the market value of their stocks and thus lower their cost of capital.

From the policy-makers' perspective, the importance of disclosing timely and accurate information to realise transparency demands great attention in the Egyptian context. One way to achieve this will be by enhancing corporate governance practice and organising its application. Ajinkya et al. (2005) state that "promoting stronger governance could also promote more transparent disclosure". If corporate governance characteristics influence IFR, regulatory changes may be required to improve transparency.

From the academic perspective, the findings may explain IFR and its key determinants in one of the developing countries, namely Egypt. Moreover, the findings will clarify the current practice of IFR in the Egyptian environment as well as the application of corporate governance rules. This in turn will make these findings more useful for future researches in the area of emerging markets – especially Middle East countries that have similarities to the Egyptian environment.

In evaluating the results, some limitations should be considered. The sample of the study is slightly small as the study uses only the top 100 active companies in the Egyptian Exchange. Future research may extend this sample. However, the top 100 active companies constitute approximately 75% of the total market capitalisation of the EGX, and 70% and 66% of the trading value and volume respectively (EGX, 2007). Therefore, the results obtained from this study can be generalised on the rest of the Egyptian companies. Moreover, EGX is correlated with some developed and developing countries. It correlates positively with the Malaysia Stock Exchange (70%), Tokyo Stock Exchange (28%), DAX (47%), FTSE (49%), S&P (47%), Saudi Arabia Stock Exchange (15%) and the Abu Dhabi Stock Exchange (14%) (CMA, July, 2007). This indicates that these results may have an echo effect in either the developed or developing countries. Meric et al. (2007) studied relationships between the co-movements of four major Middle East stock markets and the US and UK stock markets. They indicate that the correlation coefficient reveals that US and UK investors can obtain the best diversification benefits by investing in the Egyptian stock market. In addition, many studies demonstrate that Arab and Middle East countries have a similar characteristic either in their accounting or in their corporate governance systems (Sourial, 2004; Mangena and Tauringana, 2007; Omran et al., 2008) which reflects the possibility of generalising the results of this study with the other Arab and Middle East countries.

The study examines only three variables of corporate governance, namely; board independence, board size and role duality. Future research may examine the effect of the addition of variables such as family and foreign members on the board of directors. Finally, the study mainly concentrates on the disclosure of financial information on the Egyptian companies' websites. Future research may examine the disclosure of other types of information such as social and corporate governance information.

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Appendix 1. Overview of the descriptive IFR studies

Study	Sample	% type of presentation	%corporate web site	% financial data on site
Louwers et al., 1996, USA	150 Fortune 500	N/A	65	37
Petravick and Gillet, 1996, USA	150 Fortune 500	N/A	69	55
Lymer and Tallberg, 1997, UK Finland	 Top 50 com. Top 72 com.	N/A	92 (for UK companies) 90 for (Finnish companies)	52 (for UK companies 82 for (Finnish companies)
Petravick and Gillet, 1998, USA	Top 125 com.	N/A	96	79
Hussey and Sowinska, 1999, UK	FTSE 100	N/A	91	63
Petravick, 1999, USA	150 Fortune 500	N/A	95	93
Gowthorpe and Amat, 1999, Spain	379 listed com.	N/A	19	56
Hedlin, 1999, Sweden	60 listed com.	Hyperlink 10 Multilane. 80 Graphics 27	98	83
FASB, 2000, USA	Fortune 100 U.S.	HTML 77 PDF 61 Word 12	99	93
Holm, 2000, Denmark	231 listed com.	HTML PDF Other format	78	56
Poon et al., 2003, Hong Kong	Top100 listed com.		94	87
Pervan, 2005, Croatia	38 listed com.	HTML 18 PDF 37 XLS 5	100	53

Note: summary of the previous descriptive studies between 1996 and 2005

Appendix 2. The top 100 listed Egyptian companies

Company	Web site	Market Cap(000)
Orascom Telecom Holding (OT))	www.orascomtelecom.com	83017000
Orascom Construction Industries (OCI)	www.orascomci.com	55266061
Telecom Egypt	www.telecomegypt.com	24274558
Vodafone Egypt Telecommunications	www.vodafone.com.eg	22723200
Egyptian Company for Mobile services (MobiNil)	www.mobinil.com.eg	18139000
Egyptian Financial Group-Hermes Holding Company	www.efg-hermes.com	15630919
EL Ezz Aldekhela Steel - Alexandria	N/A	13166980
Sidi Kerir Petrochemicals	www.sidpec.com	11955300
Suez Cement	N/A	11898871
Commercial International Bank (Egypt)	www.cibeg.com	11284650
Egyptian Iron Steel	www.iron-steel.com.eg	10534922
El Ezz Steel Rebars	www.ezzindustries.com	9629734
National Societe Generale Bank (NSGB)	www.nsgb.com.eg	9117673
Orascom Hotels And Development	www.orascomhd.com	8362139
Egyptian Kuwaiti Holding	www.ekholding.com	7858154
Eastern Tobacco	www.easternegypt.com	7750000
GB AUTO	www.ghabbourauto.com	7380090
Egypt Aluminium	www.egyptalum.com.eg	6752500
Alexandria Mineral Oils Company	www.amocalex.com	6735603
Abou Kir Fertilizers	www.abuqir.com	6479158
El-Swedy Cables	www.elsewedycables.com	5199600
Credit Agricole Egypt	www.eab-online.com	4653085
Fertilized Egypt Co.	N/A	4226937
Six of October Development Investment (SODIC)	www.sodic.com.eg	3871223
Asek Company for Mining - Ascom	N/A	3649777
Egyptian for Tourism Resorts	www.sahlhasheesh.com	3305138
Torah Cement	www.mideastnet.com/mining/tourah.htm	3246245
Oriental Weavers	www.orientalsgroup.com	3218000
Olympic Group Financial Investments	www.olympicgroup.com	3192427
National Cement	www.ncc-eg.com	3010344
Pharco Pharmaceuticals	N/A	2745000
Delta Sugar	www.deltasugar.com	2730224
Amoun	www.amoun.com	2523000
El Watany Bank of Egypt	www.alwatany.net	2513250
National Navigation	www.nnc.egnet.net	2443582
Naeem Holding	www.naeemholding.com	2320032
Egyptian Gulf Bank	www.egbbank.com.eg	2202230
Misr Beni Suef Cement	www.mbsc-co.com/index2.html	2200600
South Valley Cement	N/A	2193196
Canal Shipping Agencies	www.canalshipping.net	2154000
Sinai Cement	N/A	2111900
Lecico Egypt	www.lecicoegypt.com	2086400

Arab Cotton Ginning	N/A	2005434
Egyptian Media Production City	www.empc.com.eg	1950480
Heliopolis Housing	www.heliopoliscompany.com	1949669
Egyptian International Pharmaceuticals (EIPICO)	www.eipico.com.eg	1893976
Delta Industries (IDEAL)	www.tortp.gov.eg/fac/ideal/index.html	1816168
Misr Cement (Qena)	www.qenacement.com	1800000
Medinet Nasr Housing	www.mnhd.net	1760160
Ameriyah Cement	N/A	1704000
Alexandria Spinning Weaving (SPINALEX)	www.spinalex.com/spinalex/home.htm	1691343
Export Development Bank	www.edbebank.com	1440000
Orascom Hotel Holdings (OHH)	www.elgouna.com	1296937
El Nasr Clothes Textile (KABO)	www.kabo.com.eg	1222393
Assiut Cement	www.cemex.com.eg	1137141
Natural Gas Mining Project (Egypt Gas)	www.egyptgas.com.eg	1080000
Alexandria Containers and Goods	www.alexcont.com	1074774
Egyptian Saudi Finance Bank	www.esf-bank.com	1055000
Exxon Mobil (Egypt)	www.exxonmobil.com/corporate	953581
Egyptian Financial Industrial	www.sfie.com.eg	942069
Paint Chemicals Industries (Pachin)	www.pachin.com/insidetest.htm	934000
Medical Union Pharmaceuticals	N/A	762156
Housing Development Bank	www.hdb.egy.com	760433
Egyptian Starch Glucose	N/A	727625
Cairo Poultry	N/A	721224
Alexandria Cement	N/A	720000
Amreyah Pharmaceuticals Industries	N/A	702000
Sharm Dreams Co. for Tourism Investment	N/A	686800
PIRAEUS Bank Egypt	www.nbo.com	685059
Raya Holding For Technology And Communication	www.rayacorp.com	666722
Omar Effindi	N/A	655010
Suez Canal Bank	www.scbank.com.eg	653000
Misr Conditioning (Miraco)	www.miraco.com.eg	644850
Alexandria Real Estate	www.al-rabwa.com	576164
Blom Bank Egypt	www.blombankegypt.com/en/index.aspx	575000
Arab Polvara Spinning Weaving Co.	N/A	569614
Beni Suef Cement	www.mideastnet.com/mining/benisuif.htm	544560
El Nasr Transformers (El Maco)	www.elmaco-egypt.com.eg	535927
National Development Bank	www.nbdegypt.com	500127
Quena Paper Industry	www.qpicpaper.com	500005
Namaa for Development And Real Estate Investment Co.	www.namaa-tower.com	479074
El Ezz Porcelain (Gemma)	www.gemma.com.eg	398884
Egyptian Chemical Industries (KIMA)	www.kimaegypt.com	382960
Arab Banking Corporation -Egypt (Less right)	www.arabbanking.com	381809
Egyptian Contracting (Mokhtar Ibrahim)	www.moukhtar.com	368520
United Housing Development	N/A	368452

Misr Chemical Industries	www.mci-egypt.com/	368320
El Shams Housing Urbanization	www.elshams.com	354560
El Ahli Investment And Development	www.adi-alahly.com	348000
Pyramisa Hotels	www.pyramisaegypt.com	314051
Remco for Touristic Construction	www.remcostella.com/experience.html	310735
Zahraa Maadi Investment Development	www.zahraa-elmaadi.com	305500
Mansour Maghraby Investment Development	www.mm-id.com	290000
Nile Cotton Ginning	N/A	280860
Egyptian Electrical Cables	www.ece.com.eg	252153
National Housing for Professional syndicate	N/A	239040
Rowad Misr Tourism Investment	N/A	226940
National company for Maize Products	N/A	201080
El Kahera Housing	N/A	165900
United Arab Shipping	www.arload.com.eg	163236

Appendix 3. Normality Test

	Skewness			Kurtosis		
	Statistic	Std. Error	Z-Value	Statistic	Std. Error	Z-Value
Ci	0.548202	0.336601	1.628642	-0.93103	0.661908	-1.406577
Pi	-0.03643	0.336601	-0.108228	-0.5087	0.661908	-0.768542
Total i	0.356425	0.336601	1.058897	-0.93901	0.661908	-1.418641
Size	-0.61312	0.336601	-1.821492	0.556217	0.661908	0.840324
Type	0.420985	0.336601	1.250694	-1.90049	0.661908	-2.871225
Prof	0.273611	0.336601	0.812865	2.870932	0.661908	4.337355
Lev	2.025522	0.336601	6.017582	4.497649	0.661908	6.794973
Audit	-0.33429	0.336601	-0.993135	-1.9687	0.661908	-2.974273
Comp	0.641576	0.336601	1.906044	0.197985	0.661908	0.299113
Own	0.646152	0.336601	1.91964	-0.12861	0.661908	-0.194296
B Size	0.264273	0.336601	0.785124	-0.74349	0.661908	-1.123248
Duality	-0.42098	0.336601	-1.250694	-1.90049	0.661908	-2.871225
B Ind	-1.72128	0.336601	-5.113706	3.383595	0.661908	5.111878
Ins-Own	0.77955442	0.33660071	2.315962	-0.76965951	0.66190837	-1.162789

Note Z-value Skewness = Statistics/Std.error, Z-value Kurtosis = Statistics/Std.error